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Social Sector Service Delivery

Good Practices Resource Book

2015

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2015

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The Resource Book on Good Practices in the Social Sector Delivery, 2015 has been prepared under the guidance and support of NITI Aayog (erstwhile Planning Commission), Government of India and United Nations Development Programme.

The Resource Book has been prepared under the overall guidance of Smt. Sindhushree Khullar, CEO, NITI Aayog and leadership of Mr. Dheeraj Gupta, Joint Secretary, NITI Aayog & National Project Director (NPD), GOI-UNDP project 'Human Development: towards Bridging Inequalities' (HDBI). Mr. Tuhin K Pandey, the earlier Joint Secretary, Government of India & NPD - HDBI project, also provided valuable suggestions in developing the action plan and conceptual development of the framework for the compendium. While Dr. Sharad Pant, Director, State Plans, NITI Aayog facilitated the process, senior officials of NITI Aayog (erstwhile Planning Commission) provided valuable suggestions from inception to compilation to finalisation of the case studies for the compendium.

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The Resource Book on Good Practices in Social Sector Service Delivery, 2015 is a product of our endeavour to codify, deconstruct and disseminate information on successful government interventions in the social sector, with the aim of facilitating knowledge sharing, adaptation and replication to localized contexts.

This resource book follows two previous good practice complications that have been produced in past collaborations between the *erstwhile* Planning Commission and the United Nations Development Programme. This compendium has been prepared under the GOI-UNDP project 'Human Development: towards Bridging Inequalities' and document good practices implemented in the States and UTs.

The thirty-seven good practices documents in the form of case studies have undergone elaborate process of validation and verification. Spread across eleven thematic categories, each case study highlights relevant features including rationale, resources utilized, impact, replicability and sustainability. By sharing the valuable insights held by those conceptualizing and operating such interventions, the book seeks to foster greater dialogue between planners, researchers and development practitioners across the States. The views of beneficiaries lend a grounded perspective and are suggestive of the prospects these interventions hold in new regions.

This resource book is presented to the Ministries and the State Governments with the confidence that it will stimulate more robust channels of communication between States on expedient practices, drive adaptation and replication, and strengthen social sector delivery for the benefit of all.

Dheeraj Gupta

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The success of a nation is ultimately measured by the wellbeing of its people. From a promising start in the 1950s, to challenging times in the 1970s to the phenomenal growth in the last two decades, India has come a long way since independence in 1947. Being a welfare state, the foremost priority of successive governments has been to combat poverty and promote equality. Among other things, this means active participation of the government in sectors such as health, education and employment.

New initiatives of the Government such as 'Skill India' and 'Make in India' ambitiously aim to harness the benefits of economic growth on a global scale. To ensure inclusion, it is important that the government programmes to provide basic amenities to all are complemented by expanded and diverse employment opportunities through sustained rapid growth.

The "Resource Book on Good Practices in Social Sector Service Delivery 2015" brings together many such initiatives in areas such as social security, infrastructure, child protection and local governance. These initiatives are particularly noteworthy for their innovative implementation and impact.

We at NITI Aayog hope that the States and Union Territories will find these innovative programmes useful as they continue to combat poverty and bring prosperity to their people.

Arvind Panagariya

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The national planning process in India is based on the assessment of the country's material, capital and human resources and to formulate a plan for inclusive and balanced growth. This is captured in the country's Five Year Plans and further translated into various programmes and schemes with the aim of achieving inclusive growth and provide for social and economic opportunities for the people.

Consequently, the social sector in India is replete with a variety of development initiatives introduced and managed by National and State Governments. Some of these initiatives have showcased innovative approaches, effective strategies, sustainability, and an exemplary ability to reach the marginalized. In the interest of providing greater impetus to the country's development process, it becomes essential to share the knowledge gained from these successful practices using a national platform, so that such initiatives may be replicated and taken to scale.

The "Resource Book on Good Practices in Social Sector Service Delivery 2015" features some such case studies that include innovative interventions in development practice across Indian States that are successfully addressing persistent challenges for improving the life conditions of the beneficiaries and achieving economic growth. This compendium prepared under the GOI-UNDP project 'Human Development: towards Bridging Inequalities' (HDBI), further reflects NITI Aayog's emphasis on knowledge sharing across various stakeholders, especially the State Governments, and also processes to expedite stronger communication regarding replicable development practices in India.

It is hoped that the resource book will encourage further uptake of promising interventions in social sector service delivery and prompt greater government action in support of enabling better lives and opportunities for all.

Sindhushree Khullar

स्वच्छ भारत
एक कदम स्वच्छता की ओर

United Nations Development Programme

We laud the NITI Aayog and the Government of India for leading the preparations of this Resource Book that documents and analyzes 37 carefully selected good practices put in place by state governments across different sectors in India. The Resource Book acknowledges the efforts of state governments and other stakeholders in ensuring better public service delivery.

It identifies and assesses factors that have contributed to the success of such initiatives with the intension of promoting cross-learning among development partners in the states. It features good practices that are relevant to and have the potential for adaptation to new contexts. The Resource Book identifies the following key elements for an initiative to succeed - community participation, decentralisation and convergence, multipronged implementation strategies, effective monitoring and evaluation, sound knowledge management and public private partnerships.

The UNDP commends NITI Aayog's and Government of India's commitment to facilitating substantive and action-oriented knowledge-sharing between states, and affirms its support in aid of revitalising public action for development.

Jaco Cilliers
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LIST OF ABBREVIATIONS

AABY	Aam Aadmi Bima Yojana
ACWADAM	Advanced Centre for Water Resources Development and Management
AECs	Adult Education Centres
AMC	Ahmedabad Municipal Corporation
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwives
APCCF	Additional Principal Chief Conservator of Forests
APCCWS	Arunachal Pradesh Civil Consumer Welfare Society
API	Annual Parisitic Incidence
APL	Above Poverty Line
APM	Assistant Project Manager
AQI	Air Quality Index
ARDD	Animal Resource Development Department
ARSH	Adolescent Reproductive and Sexual Health
ASHAs	Accredited Social Health Activists
ATM	Automated Teller Machine
AWADHI	Air Quality and Weather- Assessment and Data on Hi-Tech-Digital India
AWCs	Anganwadi Centres
AWW	Anganwadi Workers
BARC	Bhabha Atomic Research Centre
BBMP	Bruhat Bengaluru Mahanagara Palike
BC	Backward Class
BCC	Behaviour Change Communication
BDO	Block District Officer
BDUs	Basin Development Units
BM	Bima Mithra
BMTC	Bangalore Metropolitan Transport Corporation
BPL	Below Poverty Line
BPO	Business Process Outsourcing
BRC	Block Resource Centre
BRDC	Bio-Resources Development Centre
BRTS	Bus Rapid Transit System
BTADs	Bodoland Territorial Area Districts
CATCH	Comprehensive Annual and Total Health Check-up for Healthy Sikkim
CBOs	Community Based Organisations
CEO	Chief Executive Officer
CDO	Chief Development Officer
CDMO	Chief District Medical Officer
CEO	Chief Executive Officer
CF	Conservator of Forests
CHC	Community Health Centre
CHD	Coronary Heart Disease
CLDP	Comprehensive Livelihood Development Plan
CM	Chief Minister
CMRC	Community Managed Resource Centre
CMSU	Community Management Support Unit
CDPO	Child Development Programme Officer
CRC	Composite Regional Centre
CRC	Cluster Resource Centre
CRPF	Central Reserve Police Force
CRRI	Central Road Research Institute
CSCs	Common Service Centres
CSR	Corporate Social Responsibility
CT	Community Training
CTEV	Congenital Talipes Equino Varus
DAY	Dilli Annashree Yojna
DBT	Direct Benefit Transfer
DCF	Deputy Conservator of Forests
DCO	District Coordinating Officer
DDRC	District Disability Rehabilitation Centre
DDS	Digital Display Board System
DDST	Denver Development Screening Test
DDWS	Department of Drinking Water and Sanitation
DECC	District Employment and Counselling Centre
DEST	Department of Environment, Science and Technology
DFCS	Department of Food and Civil Supplies
DFID	Department for International Development
DFSCA	Department of Food Supplies and Consumer Affairs
DF & CSO	Department of Food and Civil Supplies Office
DLC	District Level Committee
DM	District Magistrate

DMO	District Malaria Officer
DoFCS & CP	Department of Food, Civil Supplies and Consumer Protection
DoPD	Department of Planning and Development
DPM	District Programme Manager
DPMC	District Programme Management Cell
DRWSS	Department of Rural Water Supply and Sanitation
DSC	Disability Service Centre
DWSM	Drinking Water and Sanitation Mission
EBDP	Entitlement-Based District Planning
EDCT	Early Diagnosis And Complete Treatment
EFCs	Enterprise Facilitation Centres
eFMS	Electronic Fund Management System
ENT	Ear, Nose & Throat
ePDS	Electronic Public Distribution System
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
ETP	Effluent Treatment Plant
FC	Fully Covered
FCI	Food Corporation of India
FIR	First Information Report
FMS	Fund Management System
FPS	Fair Price Shops
FPTS	Forest Produce Tracking System
FRA	Forest Rights Act
FRC	Forest Rights Committee
FRU	First Referral Unit
FSOs	Food Security Offices
FTDs	Fever Treatment Depots
GCERT	Gujarat Council of Education Research and Training
GEF	Global Environment Facility
GIS	Geographic Information Systems
GIZ	Gesellschaft für Internationale Zusammenarbeit
GNCTD	Government Of National Capital Territory Of Delhi
GNMs	General Nurses and Midwives
GoB	Government of Bihar
GoI	Government of India
GoJ	Government of Jharkhand
GKS	Gaon Kalyan Samitis
GoMP	Government of Madhya Pradesh
GoS	Government of Sikkim
GPs	Gram Panchayats
GPS	Global Positioning System
GPRS	General Packet Radio Service
GPWSCs	Gram Panchayat Water Supply and Sanitation Committees
GRCs	Gender Resource Centres
GWSSB	Gujarat Water Supply And Sewerage Board
HH & SD	Handloom, Handicrafts and Sericulture Department
HCM	Hot Cooked Meal
HP	Himachal Pradesh
HRD	Human Resource Development
HWs	Health Workers
IAF	Indian Air Force
IAY	Indira Awaas Yojana
IBDLP	Integrated Basin Development and Livelihood Promotion Programme
IBSY	Indira Bal Swasthya Yojana
IBT	Introduction to Basic Technology
ICDS	Integrated Child Development Services
ICTs	Information and Communication Technologies
IDA	International Development Association
IEC	Information, Education and Communication
IFAD	International Fund on Agricultural Development
IIM	Indian Institute of Management
IISc	Indian Institute of Science
IITM	Indian Institute of Tropical Meteorology
IJBP	Indira Jeevitha Bima Pathakam
IL & FS	Infrastructure Leasing and Financial Services
IMD	Indian Meteorological Department
IMR	Infant Mortality Rate
INR	Indian National Rupee
IPC	Inter Personal Communication
IPD	Indoor Patient Department
IPGMER	Institute of Post-Graduate Medical Education and Research
IPM	Institute of Palliative Medicine
IRS	Indoor Residual Spray
ISA	Implementation Support Agency
ISRO	Indian Space Research Organisation
IT	Information Technology
ITMNs	Insecticide-Treated Mosquito Nets
ITS	Intelligent Transport System
IVDP	Integrated Village Development Plan
IVRS	Interactive Voice Response System
IWMP	Integrated Watershed Management Programme
JDA	Jaipur Development Authority

JMRPL	Jal Mahal Resorts Pvt Ltd
JPHN	Junior Public Health Nurse
J&K	Jammu & Kashmir
KIDROP	Karnataka Internet Assisted Diagnosis of ROP
KFC	Kentucky Fried Chicken
KFD	Karnataka Forest Department
KSD	Knowledge Services Division
KSRTC	Karnataka State Road Transport Corporation
LAMPS	Large-sized Multi-purpose Co-operative Society
LAN	Local Area Network
LLINs	Long-Lasting Insecticidal Nets
LIC	Life Insurance Corporation
LSGIs	Local Self Governments Institutions
LWE	Left Wing Extremism
MAPSAS	Mahadevapura Parisara Samrakshane Mattu Abhivrudhi Samiti
MARKFED	Madhya Pradesh State Cooperative Marketing Federation Limited
MAVIM	Mahila Arthik Vikas Mahamandal
MBDA	Meghalaya Basin Development Authority
MBDC	Meghalaya Basin Development Council
MCTD	Mysore City Transport Division
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MIE	Meghalaya Institute for Entrepreneurship
MIS	Management Information System
MLAs	Members of the Legislative Assembly
MMFC	Mobile Multi-Facility Centre
MMCU	Mazhapolima Monitoring and Coordination Unit
MMR	Maternal Mortality Rate
MMS	Migration Monitoring Software
MLP	Micro-Livelihood Development Plan
MoES	Ministry of Earth Sciences
MoRD	Ministry of Rural Development
MoUD	Ministry of Urban Development
MP	Madhya Pradesh
MPSCSC	Madhya Pradesh State Civil Supply Corporation
MPWLC	Madhya Pradesh Warehouse & Logistics Corporation
MR	Mentally Retard
MS	Mandal Samakhya
MS	Morning Snacks
MSNDC	Meghalaya State Natural Disaster Monitoring Centre
MSP	Minimum Support Price
MTPA	Meghalaya Trade Promotion Agency
MVH	Most Vulnerable Households
NASSCOM	National Association of Software and Services Companies
NBA	Nirmal Bharat Abhiyan
NC	Not Covered
NCERT	National Council for Educational Research and Training
NCMCs	Nutrition Counselling cum Management Centres
NEUPA	National Educational University of Planning and Administration
NGOs	Non-Governmental Organisations
NIC	National Informatics Centre
NIMHANS	National Institute of Mental Health and Neurosciences
NIMH	National Institute of Mentally Handicapped
NMSC	National Merit Scholarship Corporation
NICUs	Neonatal Intensive Care Units
NIOD	National Institute of Orthopaedic Disability
NIOS	National Institute of Open Schooling
NIRD	National Institute of Rural Development
NIPI	Norway India Partnership Initiative
NIVD	National Institute of Visual Disability
NNPC	Neighbourhood Network in Palliative Care
NPCI	National Payments Corporation of India
NRCs	Nutrition Rehabilitation Centres
NREGA	National Rural Employment Guarantee Act
NRHM	National Rural Health Mission
NRLM	National Rural Livelihood Mission
NRM	Natural Resource Management
NRMCs	National Resource Management Consultants
NSSO	National Sample Survey Organisation
NVBDCP	National Vector Borne Disease Control Programme
OCSCCA	Odisha Civil Services Classifications, Control and Appeal Rules
ODF	Open Defecation Free
O&M	Operations and Maintenance
OP	Out Patient
OPD	Outpatient Department
OSHP	Odisha State Health Plan
OTFD	Other Forest Dwellers

PC	Partially Covered
PCUs	Palliative Care Units
PDS	Public Distribution System
PHCs	Primary Health Centres
PIA	Project Implementing Agency
PILs	Public Interest Litigations
PMIS	Partner Management Information System
PoS	Point of Sale
PPAFO	Portable Powered Ankle Foot Orthosis
PPP	Public Private Partnerships
PRA	Participatory Rural Appraisal
PRIs	Panchayati Raj Institutions
PTGs	Particularly Vulnerable Tribal Groups
PWD	Public Works Department
QR	Quick Response
RAPID	Reaching and Programming for Identification of Disabilities
RBC	Residential Bridge Courses
RBSK	Rashtriya Bal Swasthya Karyakram
RFO	Range Forest Officer
RMDD	Rural Management and Development Department
ROP	Retinopathy of Prematurity
RSK	Rajya Shiksha Kendra
RTE	Right to Education
SAFAR	System of Air quality Forecasting And Research
SAM	Severe Acute Malnutrition
SBI	State Bank of India
SC	Scheduled Caste
SCA	Service Centre Agencies
SDLC	Sub-Divisional Level Committee
SDM	Sub District Magistrate
SEE J&K	Skill, Empowerment and Employment in J&K Scheme
SERP	Society for Elimination of Rural Poverty
SHGs	Self Help Groups
SIP	Silver Ionisation Plant
SIRD	State Institute for Rural Development
SLC	State Level Committee
SMC	School Management Committee
SMS	Short Message Service
SNCU	Sick Newborn Care Unit
SNP	Supplementary Nutrition Programme
SR	State Representative
SRI	System of Rice Intensification
SSA	Sarva Shiksha Abhiyan
ST	Scheduled Tribe
STP	Sewage Treatment Plant
SUTP	Sustainable Urban Transport Project
SWAP	Sector Wide Approach
SWOT	Strengths, Weaknesses, Opportunities, and Threats
SWSM	State Water and Sanitation Mission
Tent STPs	Tent Special Training Programmes
THR	Take-Home Ration
TMI	The Mountain Institute
TMST	Technical and Management Support Team
TNPHC	Tamil Nadu Police Housing Corporation
ToTs	Training of Trainers
TP	Transit Pass
TPDS	Targeted Public Distribution System
TSC	Total Sanitation Campaign
TWD	Tribal Welfare Development
U 5	Under Five
UIDAI	Unique Identification Authority of India
ULBs	Urban Local Bodies
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNISDR	United Nations Office for Disaster Risk Reduction
UNOPS	United Nations Office for Project Services
UPB	Unique Payment Bridge
UPC	Unplasticised Polyvinyl Chloride
VAT	Value Added Tax
VAP	Village Action Plan
VBD	Vector Borne Disease
VBDCP	Vector Borne Disease Control Programme
VCRO	Voice for Child Rights Odisha
VHNDs	Village Health and Nutrition Days
VLC	Village Level Committee
VLEs	Village Level Entrepreneurs
VO	Voluntary Organisation
VMU	Vehicle Mounted Unit
VWSC	Village Water and Sanitation Committee
WASH	Water, Sanitation and Hygiene
WASMO	Water and Sanitation Management Organisation
WCD	Women and Child Development
WHO	World Health Organisation
WSSCC	Water Supply & Sanitation Collaborative Council
WWF	World Wildlife Fund for Nature
ZLSS	Zilla Lok Shikshan Sansthans
ZS	Zilla Samakhya

Part I
Understanding the Resource Book

1.1 Background

The social sector in India has numerous successful development initiatives led by various actors and agencies. These initiatives showcase innovative approaches, effective strategies, long-lasting impact and sustainability in reaching out to the most marginalised sections of the population. However, these success stories and good practices need to be disseminated widely across various stakeholders, so as to generate greater momentum across the country for learning, adaptation and replication of their basic features. There is thus an urgent need for identification, systematic codification, documentation and dissemination of such good practices and innovative approaches in social sector delivery. Detailed analytical documentation, providing the nuances of these initiatives is required to facilitate adaptation and replication in new areas.

The then Planning Commission[1], Government of India, and the United Nations Development Programme (UNDP) have published two compendiums of case studies on good practices in social sector service delivery in 2002 and 2009. These compendiums were prepared with the objective of disseminating successful approaches in the social sector and to encourage their replication to provide greater impetus to development processes in other parts of the country. Considering the utility of these compendiums as reliable reference material, this exercise was extended to document newer case studies and disseminate them in the form of a new, updated Resource Book. The current Resource Book is intended to assist understanding of the implementation of good practices in different Indian states and to facilitate their replication in different parts of the country. OneWorld Foundation India (OWFI), a New Delhi-based NGO, was entrusted with the task of preparing this Resource Book.

This Resource Book focusses on the documentation and analysis of good practices that are being implemented in the form of government schemes and policies across various social sectors. Thirty-seven case studies from 22 states and 2 union territories across the country have been documented after a detailed process of data collection, verification and validation. The validation has helped bring out a number of aspects applicable to any policy initiative, irrespective of the thematic focus area. Thus, these good practices have also been analysed in two ways – one, in relation to the wider public policy context, by highlighting lessons learnt from their implementation which could be applied across themes, and two, in relation to the specific thematic area, drawing out critical factors for consideration by other planners or practitioners focusing on the same theme. In attempting to support the creation of a community of practice and peer-to-peer interaction, this resource book documents implementation strategies and the roles of stakeholders along with the resources required, illuminates the manner in which successful interventions have addressed contextual specificities, and examines the sustainability and replicability of each documented initiative to provide a ready reference point for consideration.

1.2 Organisation of the resource book

This resource book is organised in three parts. The first part provides a background and an overview to the case studies. It also describes the underlying conceptual framework and methodology adopted to select, document and analyse the identified good practices. The second part presents the narratives of case studies of good practices and the third part is the concluding section presenting lessons learnt from a perusal of these good practices by thematic area.

1.3 Conceptual framework

Planners attempt to ensure that development plans and policy initiatives are conceived in light of a problem context using innovative, context-based solutions. These initiatives set for themselves certain goals and determine the gamut of services that they intend to provide to their target beneficiaries. The efficiency of such development initiatives is determined by their capacity to address the core problem and ensure sustainability. This resource book contains a collection of practices that have been successful in achieving their identified goals and have excelled in delivering necessary social services to their intended beneficiaries. It presents a broad range of effective initiatives with the belief that these can be replicated in other parts of the country to greater benefit. The intention is to facilitate learning from these initiatives through proper process documentation and analysis of impact, replicability and sustainability.

1.4 Definition of good practice

Given the plethora of innovative approaches to address human development challenges in various contexts and settings, assessing which of these innovations qualify as 'good practices' has been a challenge. For this purpose, a 'good practice' was defined as 'a practice with various special characteristics such as innovativeness, ability to lead to an actual change, having an impact on policy environment, replicability and sustainability (ability to self-support)'.[2]

[1] *Known as NITI Aayog (or National Institution for Transforming India) from 1st January 2015.*

[2] *Government of India, Planning Commission and United Nations Development Programme – India. Social Sector Service Delivery: Good Practices Resource Book. 2009.*

1.5 Methodology adopted for identification, assessment and documentation of best practices

The OWFI Knowledge and Research team initiated the process of identification with an inception report to the then Planning Commission and UNDP. Following this, a set of evaluation criteria was jointly developed to rigorously define a 'good practice' so as to enable selection. More information on the evaluation criteria is provided in the following sub-section. The project started with background research on best practices in social sector delivery in India. In February 2013, the then Planning Commission, UNDP and OWFI met to discuss the methodology to be adopted and to finalise the roadmap with timelines. The discussions included sourcing of good practices, development of templates, key contact points for communication and holding preliminary discussion on the final deliverables.

A template for submitting the good practices, enumerating the criteria for identifying the case studies, was developed under the guidance of the Joint Secretary, State Plans, erstwhile Planning Commission & National Project Director of the GOI-UNDP project "Human Development towards Bridging Inequalities" (HDBI). A call for submissions of good practices was issued by the then Planning Commission to the Planning Departments of all the State governments and UT administrations; and was hosted on the HDBI project webpage allowing for ready reference. Meanwhile, a list of themes was drawn up by OWFI based on human development indicators, Millennium Development Goals, previous resource books on good practices in social sector service delivery, and the 13th chapter of the Economic Survey 2012-2013 that focussed on Human Development.

Finally, it was jointly decided that the major themes and sectors under which good practices would be categorised would include - Child Protection, Education, Environment, Financial Inclusion, Food Security and Public Distribution, Health, Infrastructure and Development, Local Governance, Social Security, Water and Sanitation and Women's Empowerment.

1.5.1 Evaluation criteria for the case studies

Six evaluation criteria were used for shortlisting good practices, conforming to the key issues of relevance, outcomes, innovation and sustainability of the initiatives.

One, the nature, scope and scale of the problem that a particular initiative aimed to address were used to determine the applicability and relevance of the said initiative to a different context. The nature of the problem was studied in terms of its social, economic, political or region-specific context. Its scope was analysed keeping in mind whether it was a long-term or short-term problem and its scale to be highlighted by studying its outreach potential. The number of project beneficiaries was a critical indicator for ascertaining the outreach of the project and, therefore, its potential to create an impact.

Two, the extent of innovation made in the initiative was seen as another critical criterion. A comparison of good practices addressing similar problems across states was undertaken in order to determine the uniqueness of each good practice and shortlist initiatives that displayed a higher 'innovation potential'.

Three, each 'good practice' was rated on its use of infrastructure (physical infrastructure), human resources and technology (including information technology) requirements. Initiatives reflecting the most efficient/optimal utilisation of existing infrastructural facilities were preferred as this significantly increases the feasibility of replicating an initiative.

Four, the impact of the initiative was another critical indicator while shortlisting good practices. This was considered essential to understand whether the initiative had been able to achieve the results it had aimed for at the planning stage.

Five, sustainability was a key criterion. Any good practice that could not be sustained had limited value from the perspective of documentation in the current resource book and therefore much importance was associated with adequately verifying sustainability by examining the initiative against criteria such as: social support (continued participation of beneficiaries and local communities, robustness of grassroots organisations, creation of local assets for community); technical soundness; government commitment; financial viability; stakeholder commitment; environmental impact and protection; resilience to exogenous factors, etc.

Six, the potential of the good practice to be replicated was a significant criterion. This was analysed by assessing the necessary conditions for its effective replication. Initiatives that could be easily replicated and up-scaled in different contexts and settings were preferred to highly localised initiatives with low replication potential. Each initiative was studied in relation to its intra-departmental, inter-departmental and inter-state up-scaling potential. Initiatives that provided concrete evidence of replication during their implementation timeframe were also preferred for documentation.

1.5.2 Process of final selection of case studies

In response to the letter from the then Planning Commission to the States requesting submission of good

practices,37 good practices were received from 14 states and 2 UTs, across 11 sectors/themes. The 37 case studies submitted by the States were vetted according to the six evaluation criteria and only 13 case studies that met the criteria could be shortlisted for inclusion in the good practices resource book.

Considering that the resource book aimed to include 35-40 case studies, OWFI Knowledge and Research team carried out secondary research and shortlisted additional initiatives across the country, using the six criteria for evaluation. In the process, OWFI shortlisted 44 case studies for consideration by the then Planning Commission and UNDP. All together, the case studies were classified under five geographical regions and three major heads- i) case studies submitted by state governments and shortlisted, ii) case studies submitted by state governments and not accepted, and iii) potential case studies shortlisted by OWFI through secondary research.

The case studies were presented by OWFI and were deliberated upon in successive meetings at the then Planning Commission under the Chairmanship of the Joint Secretary, State Plans & National Project Director, HDBI project; and attended by Advisers, erstwhile Planning Commission, UNDP and the HDBI project team. The discussion resulted in shortlisting of 44 case studies (13 case studies out of 37 received from the States/UTs and 31 potential case studies (from 44) identified by OWFI), The shortlisted case studies across the various themes are presented in *Table 1* along with an indication of their geographical spread.

1.5.3 Research Methodology

In order to validate and verify the case studies as 'good practices', and to fill information gaps, OWFI contacted the concerned State department and the key stakeholders of each good practice. This was followed up with field trips, which involved the use of various quantitative and qualitative data collection tools. In-depth interviews were conducted with beneficiaries and project/programme authorities executing the initiatives, in order to fill up the gaps identified through secondary research. These interviews were based on structured and semi-structured questionnaires, and qualitative data was further enhanced through the use of focus group discussions. Quantitative data regarding the initiative was obtained directly from the implementing officials, from their records.

The process of validation was undertaken between October 2013 and March 2014. During this time, the team members visited 25 states across India where shortlisted (potential) good practices had been identified. Using the information obtained from a combination of primary and secondary research, the 44 shortlisted case studies were evaluated meticulously by OWFI, and after discussion with the then Planning Commission and UNDP, only the 37 good practices which were validated were selected for documentation.

1.6 Structure of case studies

The case studies are presented in a simplified format for easy reference and understanding. The sections describing the various features of the good practice are as follows:

I. Summary: This section provides a crisp overview of the innovative aspects of the case study and its impact, highlighting the key factors that make it a 'good practice'.

II. Rationale: This section describes the situation or the problem at hand and the difficulties in social service delivery that contributed to the genesis of the good practice.

III. Objectives: This section highlights the prime objectives of each case study.

IV. Key Stakeholders: This section consists of information on the roles and responsibilities of stakeholders at different levels of the scheme/programme. A graphic illustration provides a clear idea on the level of influence of each stakeholder and their role in the initiative.

V. Implementation Strategy: This section describes in detail the process flow and the strategy used in implementing the initiative. This segment attempts to provide adequate and suitable information for prospective replication that could be tailored according to the local need.

VI. Resource Utilisation: This section provides an overview on resources – human, infrastructural, technological etc., – that are pre-requisites to implementing the initiative.

VII. Impact: This section highlights the successes and achievements of the initiative. Aspects such as level of community mobilisation and participation, developing simplified processes and structures by merging new and old techniques are taken note of here. The impact was measured in both quantitative and qualitative terms. For assessing quantitative impact, the data obtained from official records of the initiative held by implementing officers was relied upon besides other relevant data the team collected during field visits. The qualitative perspective came from experiences shared by the beneficiaries during field visits.

VI. Key Challenges: This section contains information on the challenges faced by the initiative across all stages of its progress, and the manner in which these were addressed.

VIII. Replicability and Sustainability: This section examines the technical soundness and financial viability of the initiative. Stress has been laid on understanding the possibility of replication by highlighting prerequisites for implementing this initiative and the potential it has for up-scaling. Many initiatives that have received various awards are already in the process of replication in other states and this information has also been highlighted.

IX. Fact Sheet: This section contains key information on the main implementing agency, geographical coverage, target groups and years of implementation.

1.7 Overview and Key Lessons Learned

This resource book contains 37 good practices spread across 11 themes from different states and UTs of the country. Innovation, impact, replicability and sustainability form the crux of the good practices presented in the resource book. Some of the good practices cut across themes and address multiple development issues relevant to a particular location, but for easy reckoning, the good practices are grouped according to their primary focus or theme. *Table 2* showcases the thematic distribution of the case studies.

The good practices documented in this resource book are initiatives that have been uniquely successful in meeting their objectives. The purpose behind documenting these initiatives lies in the inherent confidence that each of them provides a point of reference and sets a standard, based on which efforts can be made to improve the planning, implementation and service delivery of the existing and future initiatives.

While the factors that contributed to the success of these initiatives are multifarious and overlapping, some critical and common lessons learned are highlighted here. The lessons are functional in nature as they are applicable to multiple sectors of development, and deal with issues regarding the project/programme cycle such as problem identification, design, implementation, monitoring and evaluation. Drawn from the rich experience of running these successful initiatives, these lessons, emphasise key aspects that must be taken into account for a successful development intervention.

Community participation is critical to ensuring relevance and effectiveness

Community involvement plays a critical role at different stages of an initiative, to ensure that it is relevant to the people's needs,that it is implemented with consideration to contextual sensitivities, and that it is sustained over time. This is true for a majority of the initiatives documented in this resource book, with the few exceptions being those good practices involving e-Governance or process re-engineering which hinge largely on internal reforms rather than substantial community involvement. Strategic and deliberate engagement of the community also generates higher levels of trust, promotes greater awareness of rights and entitlements, and improves ownership. Community involvement also helps set up better systems of grievance redressal by enhancing access to implementing authorities.

Community participation in Planning
Involvement of the community in planning significantly strengthens initiatives by integrating the concerns of the ultimate beneficiaries into strategies and activities. Decentralising the planning process to identify problem sites and review implementation strategies helps avoid errors that would have otherwise proven costly if learned through trial and error. The implementation of the Dhara Vikas[3] and Palliative Care[4] initiatives showed how community involvement enabled an accurate and nuanced understanding of the problems people were experiencing.

On the other hand, the implementation of Indira Bal Swasthya Yojana[5] suffered initially as it did not involve the community in planning. This resulted in the field registers having to be comprehensively changed after it was discovered that male doctors could not ask female students questions on subjects such as menstruation owing to gender and cultural limitations.

Community participation in Implementation
Engaging the community in the implementation of projects/programmes is a useful way to generate higher levels of acceptance, trust, and accountability, eventually resulting in sustainability of the initiative. The decentralisation of Integrated Child Development Services (ICDS)[6] procurement to local Self-Help Groups (SHGs), for instance, resulted in lower costs for the State government while generating livelihood opportunities. Likewise, employment of the local people of Jammu and Kashmir in the Himayat[7] initiative was crucial for the community to accept the skill training and job placement programme in a state stricken by violence.

[3] *Refer to 'Dhara Vikas: Creating water security through spring-shed development in Sikkim'.*
[4] *Refer to 'Arogyakeralam Palliative Care Project: Ensuring care and support for the chronically ill and infirm in Kerala'*
[5] *Refer to 'Indira Bal Swasthya Yojana: Applying preventive health care measure to promote health of children in Haryana'*
[6] *Refer to 'Decentralisation of ICDS Supplementary Nutrition Programme: Ensuring timely and quality nutrition in Odisha'*

The introduction of Panchayat Banks[8] in Jharkhand has been exemplary because it has created new spaces for rural citizens to become entrepreneurs in the process of making banking services as well as the benefits of government schemes more easily accessible to rural communities. The Ghar Doghaanche Abhiyan[9] in Maharashtra, which involved registration of property under joint ownership of husband and wife, also relied heavily on the SHG network for acceptance in the community.

Decentralisation, Devolution and Convergence are means to harness the maximum potential of an initiative

Decentralisation of planning and implementation processes can ensure better identification of problem sites, help avoid high costs of potentially uninformed actions, and improve efficiency, especially when decentralisation is accompanied by devolution of authority and responsibility. Decentralisation and devolution also increase the commitment and stakes of different actors in the initiative and enable better monitoring.

Decentralisation and devolution of planning functions from the state to district and lower levels can significantly improve efficiency by enabling prioritization of needs based on local issues and allocation of available funds towards such local priorities. The decentralisation of the Integrated Child Development Services (ICDS)[10] in Odisha has numerous positive benefits including more efficient procurement, preparation and provision of good quality food, reduction of storage problems, and generation of livelihoods for local SHGs. The elimination of middlemen has made the entire system more transparent and improved the satisfaction of recipients.

Convergence between government departments and coordinated implementation of schemes promotes efficient use of limited resources. The implementation of the Forest Rights Act[11] in Tripura provides a notable example of inter-departmental coordination and convergence of schemes, as after the distribution of land deeds, beneficiaries were identified under the existing schemes of various departments such as agriculture, animal resources, fishieries, forests, handloom and handicrafts, rural development etc., and resources were distributed to encourage entrepreneurship and support livelihoods. The Sustainable Plastic Waste Management[12] initiative in Himachal Pradesh provides a parallel example in this regard involving the government departments of education, tourism, health, transport, excise and taxation, the State Pollution Control Board, the State Council for Science, panchayats, NGOs, *mahila* and *yuvakmandals*, eco-cubs, school children and rag pickers. Similarly, Dhara Vikas[13] in Sikkim makes remarkable use of existing resources by converging activities of various departments to ensure the revival and maintenance of springs.

Multipronged implementation strategies contribute to faster and more sustainable results

Implementation strategies that address a gamut of inter-related concerns are often more effective and sustainable, as they have more far reaching consequences.

The Environment Management Initiative[14] in the Andaman and Nicobar Islands has undertaken numerous strategies to manage solid waste, treat effluents, harvest rainwater and recycle waste paper, thereby creating a well-rounded system for minimising waste generation and appropriately disposing off non-recyclable waste. The resultant clean environment at the Institute campus is accompanied by useful by-products through horticulture activities and creation of recycled paper products, making this initiative sustainable and engaging campus residents fruitfully.

The *Daliya Jalao*[15]initiative was effective because it adopted various complementary implementation strategies to draw people away from using dry toilets and to end the practice of manual scavenging, and also took measures to sustain positive change. These included use of various government schemes and finances for construction of pour flush toilets in place of dry toilets, behaviour change communication to address the demand and supply of manual scavenging, and skill development to rehabilitate manual scavengers by opening up possibilities of alternate employment to them. These multiple strategies combined with a participatory approach had a mutually reinforcing effect, which collectively succeeded in ending the long-standing malpractice of manual scavenging.

[7] *Refer to 'Himayat: Placement linked skill development in Jammu and Kashmir'*
[8] *Refer to 'Panchayat Banks: Providing banking facilities at the village level in Jharkhand'*
[9] *Refer to 'Ghar Doghaanche Abhiyan: Joint ownership of housing by husband and wife in Maharashtra'*
[10] *Refer to 'Decentralisation of ICDS Supplementary Nutrition Programme: Ensuring timely and quality nutrition in Odisha'*
[11] *Refer to 'Forest Rights Act, 2006: Distributing land deeds to tribal people in Tripura'*
[12] *Refer to 'Sustainable Plastic Waste Management Plan: Defending the fragile ecosystem of Himachal Pradesh'*
[13] *Refer to 'Dhara Vikas: Creating water security through spring-shed development in Sikkim'*
[14] *Refer to 'Environment Management Initiative: A unique low-cost model in Andaman and Nicobar Islands'*
[15] *Refer to 'Daliya Jalao: Liberating and rehabilitating manual scavengers in Badaun district of Uttar Pradesh'*

Monitoring, evaluation and social audits are key to ensuring that initiatives stay on course

Regular and stringent monitoring and evaluation often lead to high standards of accountability, by providing implementing agencies with a more realistic status assessment and illuminating the role of functionaries. The Community Managed Water Supply Programme[16] in Gujarat involved local villagers in the planning, implementation, operation, maintenance, monitoring and supervision of the village water supply system through the local water committees. Once the water supply system became operational in a village, a comprehensive IEC programme and capacity building for monitoring and supervision was undertaken with the community, ensuring not only operational, but also social sustainability of the initiative.

Social audits, strong systems to redress grievances and easy accessibility to implementing authorities through wide dissemination of their contact details were observed to be some methods employed to ensure that beneficiaries had a say in assessing the performance of the initiative. This is seen in the implementation of the Aam Aadmi Bima Yojana[17] in Andhra Pradesh, where the social audit indicated loop holes and points of delay in the system, based on which corrective actions were taken.

Path-breaking alternative approaches for navigating unconventional problems or deeply entrenched social issues must explore ways in which to incorporate contextual specificities in their design and implementation, in order to garner people's acceptance

While bold decisions on innovative designs are required in the face of unconventional problems, these must be guided by contextual specificities to add to the effectiveness of initiatives. One such instance of an innovative approach was the Porta Cabins[18] initiative, which aimed to provide education to children in the conflict-ridden, left wing extremism-affected areas of Dantewada district in Chhattisgarh. Realising that school buildings could be taken over as hideouts by Left Wing Extremists, these schools were built with temporary and pre-fabricated material, which served the purpose of residential schooling, but were unfit to serve as hideouts. Additionally, upon understanding that students were uncomfortable in closed surroundings, attempts were made to incorporate cultural elements from their daily lives in the residential school.

An example of addressing longstanding problems through a radical approach, the Ghar Doghaanche Abhiyan in Maharashtra addresses the issue of women's subordinate status and unequal bargaining power in the household by tackling the extremely challenging problem of women's lack of access to and ownership of assets. This initiative takes the courageous approach of encouraging husbands and wives to register their property under joint ownership, which is in contravention of historically followed practices. The implementers of this initiative demonstrated realistic and far sighted planning by opting to begin implementation in a district where they had already made significant gains in developing and working with a strong network of SHGs, and upon implementation at one site, they shared successful stories of change at other sites to garner attention and acceptance.

Himayat[19] in Jammu and Kashmir adopted an inventive solution to addressing the unemployment scenario in the state, while at the same time tackling the vulnerability of youth to militant groups, by providing skills training and jobs to youth population among the rural poor. Based on the understanding that these youth had little exposure to work life and other cultures, those who were placed in jobs outside the state were provided with monetary support and counselling for the initial months, in order to assist adjustment to their new environment.

e-Governance and Knowledge Management, facilitated by use of Information and Communications Technology (ICT), help increase the efficiency, scope and scale of initiatives

e-Governance

e-Governance is revolutionising the practice of governance as it provides new opportunities for systemic transformation, thereby enabling higher efficiency. A case in point is the Forest Produce Tracking System[20] in Karnataka. Not only was the previous manual system cumbersome and redundant, it was easily manipulated for corrupt practices. Systemic redesign using ICT not only removed redtape and delays, it enabled better tracking, reduced scope for manipulation, and created a more efficient system of grievance redressal.

[16] *Community Managed Water Supply Programme: Bringing drinking water to the doorsteps of people in rural Gujarat'*
[17] *Refer to 'Aam Aadmi Bima Yojana: Life insurance for rural landless labourers in Andhra Pradesh*
[18] *Refer to 'Pota Cabins: Residential schools for children in LWE-affected areas of Chhattisgarh'*
[19] *Refer to 'Himayat: Placement linked skill development in Jammu and Kashmir'*
[20] *Refer to 'Forest Produce Tracking System: Facilitating resource management from source to sink in Karnataka'*

Another example is Arun ePDS[21] where digitisation and process re-engineering transformed the nature of public distribution in Arunachal Pradesh. The introduction of technological innovation was particularly relevant in this case given the long distances over which food material had to be transported, because the Food Corporation of India did not have godowns in Arunachal Pradesh and all food material was transported from godowns in Assam to Fair Price Shops in Arunachal Pradesh. By enabling close tracking of food material and issuance of ration cards/coupons, Arun ePDS put in place fool-proof systems that resulted in reducing pilferage of ration and eliminating bogus ration cards. The intensity of leakage can be assessed by the fact that in the Itanagar Capital Complex alone, more than 2,000 ghost ration cards were eliminated. Further, as ICT made the system transparent, the blockages could be traced immediately and corrective action could be taken.

Similarly, the e-Uparjan[22] initiative of Madhya Pradesh uses technology to digitise procurement operations and develop a near real-time reporting mechanism that acts as the foundation for a strong and well informed decision-support system, so as to enhance forecasting, monitoring and tracking capabilities. This initiative shows considerable impact in streamlining operations for speedy, transparent and direct transfer of minimum support price (MSP) to farmers.

An observation from the field is that the ICT operations involved in e-Governance take time to master and can sometimes be difficult especially for grassroots functionaries. Therefore, a simple and practical way forward is to devolve e-Governance functions to lower level officials in stages, starting with the simple and proceeding to the complex. Other limitations to the use of ICT as enablers have also been observed, as in the case of the Migration Card and Migration Monitoring Software[23] initiative where inadequate internet connectivity limits the use of online facilities. The case of the Saakshar Bharat[24] initiative has also shown that the lack of computer literacy among the intended citizen-users and other functionaries needs to be factored in while planning ICT interventions.

Knowledge Management

A well-functioning, dynamic knowledge management system also aids the success of any initiative, because a clear plan and infrastructure for data acquisition, storage, processing and analysis can effectively guide monitoring/evaluation and mid-course corrections. This is especially true for projects covering large geographical areas over a long period of time. The Pratibha Parv[25] initiative in Madhya Pradesh provides one such example, where the results of a school-wise comprehensive assessment of teaching and learning are uploaded online to a state education portal for transparent information sharing, and then analysed for planning future actions to address weaknesses.

Some other initiatives documented in this resource book which effectively used knowledge management strategies to stay on course are: the Migration Card Initiative[26] which introduced the Migration Monitoring Software to make tracking of migrant children easier; the Dhara Vikas[27] initiative which created a village spring atlas and web portal to make information readily accessible; and Samarpan[28], which aimed at the early identification and treatment of children with physical or mental disabilities, and maintained a vast online database of the case histories of each child to enable tracking and follow-up.

Leveraging public-private partnerships brings a wider gamut of specialist skills to the table

Identifying appropriate partners in the private sector can suitably enrich government initiatives through engaging specialist services related to infrastructure, technology, etc. Given the involvement of multiple stakeholders from civil society and the private sector in social sector programmes, careful selection of partners and the allocation of roles and responsibilities as well as ownership by local governments (district administration) become critical for success. At the same time, partnerships help with developing a long term plan for financial sustainability along with an exit plan based on public funds or a suitable revenue model to ensure that beneficiaries are not suddenly deprived of services. One such example is the restoration of the Mansagar lake[29] in Jaipur which was undertaken through a public-private partnership model. In this case, the lake (and the palace at its centre) was leased to a private partner for development and maintenance, and incentive for the same was provided by linking lake restoration to revenues from the tourist traffic it generated.

[21] *Refer to 'Arun ePDS: ICTs and process re-engineering for an efficient public distribution system (PDS) in Arunachal Pradesh'*
[22] *Refer to 'e-Uparjan: Re-inventing the procurement system through digitisation in Madhya Pradesh'*
[23] *Refer to 'Migration Card and Migration Monitoring Software: Tracking and educating migrant children in Gujarat'*
[24] *Refer to 'Saakshar Bharat: Sustaining and enhancing efforts in adult education in Andhra Pradesh'*
[25] *Refer to 'Pratibha Parv: Strengthening quality of education in Government schools of Madhya Pradesh'*
[26] *Refer to 'Migration Card and Migration Monitoring Software: Tracking and educating migrant children in Gujarat'*
[27] *Refer to 'Dhara Vikas: Creating water security through spring-shed development in Sikkim'*
[28] *Refer to 'Samarpan: Early identification and intervention to check disability in Madhya Pradesh'*
[29] *Refer to 'Lake Restoration: Two successful models of lake restoration in Rajasthan (Mansagar) and Karnataka (Kaikondrahalli)*

A strategy towards strengthening public-private partnerships is to increase public awareness and invite the participation of local citizens, as has been done in the restoration of the Kaikondrahalli lake[30] in Bengaluru. The municipal administration converted this contaminated lake into an urban recreational space by following a multi-stakeholder, socially inclusive model involving private NGOs and the local community, with the latter holding the key responsibility of monitoring and maintenance. Involvement of the local community helped ensure that restoration of the lake was undertaken in a manner that served the local people's interests, and also ensured continued interest in the use and maintenance of the space after completion.

1.8 Concluding section

The concluding section in this resource book takes a detailed look at the good practices within each of the 11 sectors covered, to illuminate keypoints that would be critically beneficial for other ongoing or future sector-specific initiatives to consider. Policy makers, implementers and community members are encouraged to refer tothe 'good practices' case studies from the perspectives of the lessons learnt when conceptualising innovations to suit a particular problem context. In this manner, this resource book emerges successfully as a reference point for future innovations.

Table 1: Region and State-wise List of Case Studies

State	No.	Case Study Title
Eastern Region		
Bihar	1	Entitlement-Based District Planning: Innovating planning process for accuracy and efficiency in Bihar
Chhattisgarh	2	Pota Cabins: Residential schools for children in LWE-affected areas of Chhattisgarh
Jharkhand	3	Open Defecation Free Villages: Creating and sustaining Nirmal Grams through community participation in Jharkhand
	4	Panchayat Banks: Providing banking facilities at the village level in Jharkhand
Odisha	5	Decentralisation of ICDS Supplementary Nutrition Programme: Ensuring timely and quality nutrition in Odisha
	6	Mo Masari: Using insecticidal nets to protect pregnant women and children from malaria in Odisha
	7	Sampark: Reaching out through school student helpline in Odisha
Northern Region		
NCT of Delhi	8	Dilli Annashree Yojna: Food security for the vulnerable in New Delhi
	9	SAFAR: System of Air quality Forecasting And Research in metropolitan cities like Delhi
Haryana	10	Indira Bal Swasthya Yojana: Applying preventive health care measures to promote children's health in Haryana
Himachal Pradesh	11	Sustainable Plastic Waste Management Plan: Defending the fragile ecosystem of Himachal Pradesh
Jammu and Kashmir	12	Himayat: Placement linked skill development in Jammu and Kashmir
Madhya Pradesh	13	Pratibha Parv: Strengthening quality of education in Government schools of Madhya Pradesh
	14	Samarpan: Early identification and intervention to check disability in Madhya Pradesh
	15	e-Uparjan: Re-inventing the procurement system through digitisation in Madhya Pradesh
Punjab	16	24 x 7 Metered Water: Improving water supply in rural areas of Punjab
Uttar Pradesh	17	Daliya Jalao: Liberating and rehabilitating manual scavengers in Badaun district of Uttar Pradesh

[30] *Refer to 'Lake Restoration: Two successful models of lake restoration in Rajasthan (Mansagar) and Karnataka (Kaikondrahalli)*

State	No.	Case Study Title
North-Eastern Region		
Arunachal Pradesh	18	Arun ePDS: ICTs and process re-engineering for an efficient Public Distribution System in Arunachal Pradesh
Sikkim	19	CATCH: Ensuring quality health care for all in Sikkim
	20	Dhara Vikas: Creating water security through spring-shed development in Sikkim
Tripura	21	Forest Rights Act, 2006: Distributing land deeds to tribal people in Tripura
Assam	22	NRHM Initiatives: Improving access to health care through strategic incentives in Assam
Meghalaya	23	Integrated Basin Development and Livelihood Promotion Programme: Fostering a spirit of entrepreneurship in Meghalaya
Southern Region		
Andaman and Nicobar Islands	24	Environment Management Initiative: A unique low-cost model in Andaman and Nicobar Islands
Andhra Pradesh*	25	Aam Aadmi Bima Yojna: Life insurance for rural landless labourers in Andhra Pradesh
	26	Saakshar Bharat: Sustaining and enhancing efforts in adult education in Andhra Pradesh
Karnataka	27	Forest Produce Tracking System: Facilitating resource management from source to sink in Karnataka
	28	KIDROP: Preventing vision loss in premature infants of underserved areas in Karnataka
	29	Intelligent Transport System: Improving urban public transport in Mysore
Kerala	30	Mazhapolima: Ensuring water security through participatory well recharge in Kerala
	31	Arogyakeralam Palliative Care Project: Ensuring care and support for the chronically ill & infirm in Kerala
Tamil Nadu	32	Avadi Sewage Treatment Plant: Sustainable off-grid sewage treatment in Chennai
Western Region		
Gujarat	33	Community Managed Water Supply Programme: Bringing drinking water to the doorsteps of people in rural Gujarat
	34	Migration Card and Migration Monitoring Software: Tracking and educating migrant children in Gujarat
Maharashtra	35	Organic Rice Production by SRI: Empowering women in Maharashtra
	36	Ghar Doghaanche Abhiyan: Joint ownership of housing by husband and wife in Maharashtra
Multi-State		
Karnataka and Rajasthan	37	Lake Restoration: Two successful models of lake restoration in Rajasthan (Mansagar) and Karnataka (Kaikondrahalli)

* *The field work for these case studies was conducted in Andhra Pradesh before the state of Telengana was carved out of it in June 2014.*

Table 2: Distribution of Case Studies as per Substantive Sector/Theme

Case Study No.	CASE STUDIES
I	**CHILD PROTECTION**
1	Sampark: Reaching out through school student helpline in Odisha
II	**EDUCATION**
2	Migration Card and Migration Monitoring Software: Tracking and educating migrant children in Gujarat
3	Pota cabins: Residential schools for children in LWE-affected areas of Chhattisgarh
4	PratibhaParv: Strengthening quality of education in Government schools of Madhya Pradesh
5	Saakshar Bharat: Sustaining and enhancing efforts in adult education in Andhra Pradesh
III	**ENVIRONMENT**
6	Avadi Sewage Treatment Plant: Sustainable off-grid sewage treatment in Chennai
7	Dhara Vikas: Creating water security through spring-shed development in Sikkim
8	Environment Management Initiative: A uniquelow-cost model in Andaman and Nicobar Islands
9	Forest Produce Tracking System: Facilitating resource management from source to sink in Karnataka
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Part II

The Case Studies

CHILD PROTECTION

2.1 Sampark: Reaching out through school student helpline in Odisha

Odisha's school student helpline service, Sampark, has helped in timely and efficient redressal of complaints lodged by students related to education and schools under the Right of Children to Free and Compulsory Education Act, 2009 (RTE). Besides addressing issues like corporal punishment, the helpline has helped improve discipline in the education system by reducing teacher absenteeism and increasing sensitisation towards children's issues and their rights. In doing so, it has increased mobilisation among field officers, established an effective feedback mechanism while simultaneously opening a channel of communication between the students and education authorities, thereby helping provide solutions to students in distress. The helpline centre receives 200-300 calls daily where people clarify their doubts as well as register complaints. The helpline not only registers complaints but also provides counselling to distressed callers.

Rationale

Prior to the deployment of the Sampark Helpline, avenues of redressal were limited with respect to increased cases of dropouts, cases of negligence and violation of rules or the non-availability of entitlements as per the mandate of the RTE Act. Similarly, issues related to the needs of special and disadvantaged children, complaints of corporal punishment and incidents of sexual abuse of students needed redressal. It was primarily due to the fact that no direct contact mechanism existed between the officials and citizens to address their complaints, that issues seldom reached higher authorities, and suitable action was rarely taken.

Against this background, a 12-hour student helpline, Sampark, was started by the Department of School and Mass Education in Odisha. The helpline service was initiated to provide relief to the students in distress through timely action. It allows any individual or students (between the classes of I and IX) to call up the toll free number 1800 345 6722 to seek information or voice concerns, views and ideas on school education. The project is innovative as it covers almost all issues ranging from sexual abuse to education and the management system. Importantly, the identity of the caller is kept confidential. This case study aims to highlight the working design and impact of the Sampark helpline in Odisha.

Objectives

The student helpline is an attempt by the Department towards timely and efficient redressal of complaints lodged by students related to education and schools under the RTE Act. The specific objectives of the helpline are to listen to the concerns of students, ensure a safe and child-friendly environment that is free from punishment and exploitation and to understand the perspective of students on the school education and management system. The helpline has, therefore, provided a mechanism for the protection of students' rights. Besides, the helpline has also been sensitising parents, students and teachers about their rights and duties under the RTE Act. This has also resulted in highlighting issues of concern in schooling and education that require urgent attention of the state.

Key Stakeholders

The key stakeholders involved in the programme are School and Mass Education Department at Odisha, school-going children and drop outs (6-16 years), parents, guardians, community members and teachers.

Figure 1: Key stakeholders

Implementing Agency

- The school student's helpline is operated by the Grievance Redressal Cell of School and Mass Education Department, at Odisha Primary Education Programme Authority, Bhubaneswar.

Funding Agency

- The programme is funded by the School and Mass Education Department, Government of Odisha under the Sarva Shiksha Abhiyan (SSA).

Beneficiaries

- The programme covers all the students going to school of age 6-16 years; (classes I – X) and who are in or out of school, parents, guardians, community members and teachers.

Implementation Strategy

The student helpline is based on the principle of freedom of expression where any student whose right to education is violated or who wants to share a suggestion or lodge a complaint can dial the toll free number 1800 345 6722. Students can also send an e-mail to schoolstudenthelplinesme@gmail.com to place their concerns before the authorities. The helpline has a well-defined functioning grievance redressal mechanism. The cell has a designated person who listens to phone calls and enters call details in a register. The identity of the caller is kept confidential to avoid any harm to the caller, especially if the complaint or suggestion is sensitive in nature. The information obtained is written down in a register for record keeping. The information is then entered into the computerised database under a suitable category. Letters received through the helpline are also scanned and sent through an e-mail to the concerned authority for further investigation and verification within a deadline.

The case is then investigated by the concerned officer or Headmaster, Block Resource Person or District Project Coordinator, depending upon the nature of the case. Cases which need urgent attention are given priority and are presented to the Commissioner-cum-Secretary for immediate redressal and action. He reviews the action taken on all calls in weekly meetings. The action taken reports are submitted to the helpline cell by the investigating officer though e-mail and in cases of emergencies, a direct message is sent to the concerned field level officer over phone call. Nodal officers in charge, who are senior officers, make a visit to each district once a month to follow-up and monitor activities and the action taken on cases registered. Disciplinary proceedings are then initiated against teachers and officials who are found at fault under the Odisha Civil Services Classifications, Control and Appeal Rules (OCSCCA).

Image 1: Helpline number displayed on school building in Jhumpura village, Keonjhar district

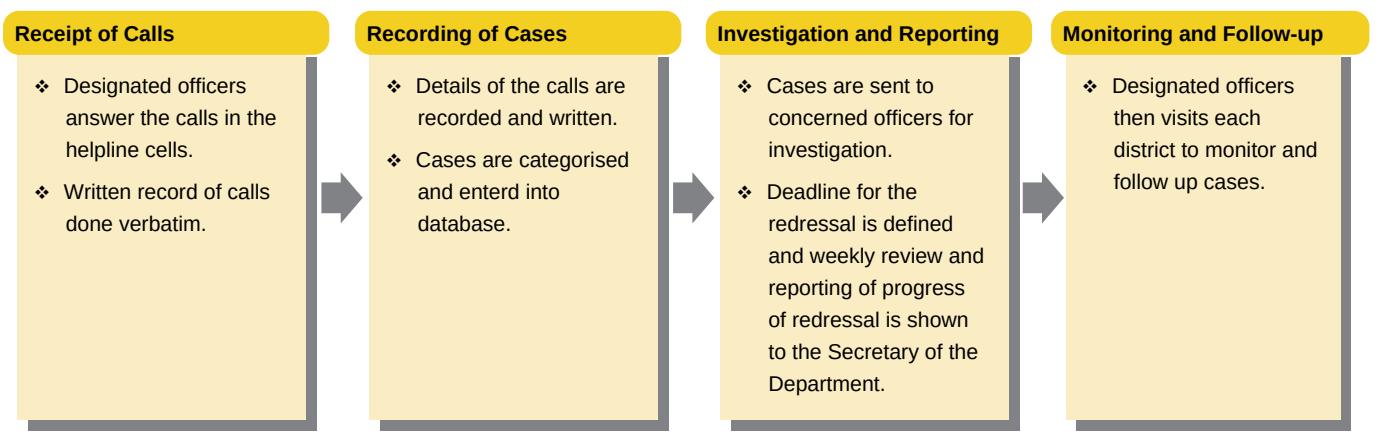
Resources Utilised

The Helpline Cell started with two call attendants-cum-counsellors, one data entry operator and one official assistant. At present the helpline team has 18 members.

The programme is funded by the School and Mass Education Department, Government of Odisha. The Budget provision has been made in the Ministry of Human Resource Development, Government of India (2013-2014) to make the system sustainable.

To spread awareness among students and parents about the helpline, schools have been instructed to display the toll free number and e-mail address on their school walls and buildings. All schools, including government and private schools, as well as schools run by the Scheduled Castes (SC) and Scheduled Tribes (ST) Development

Figure 2: Process flow for addressing calls received at the Sampark helpline



Source: OneWorld Foundation India, 2014

Department, have to host this information for wider dissemination and awareness. Information is also disseminated through printed brochures and sent across to people to encourage them to use the helpline. The toll free number is also printed on students' diaries, *Sathi*.

Many schools and officers of the Department are involved in information dissemination and awareness generation about the helpline within the community, amongst parents, guardians and children through various mediums.

The helpline also demonstrates convergence with other departments for an integrated and holistic redressal of complaints. For instance, the helpline facility is also available to students in about 1,500 schools and hostels run by the SC and ST Development Department across the state. Accordingly, cases from these schools are referred to the concerned departments to address.

Impact

The helpline utilises existing resources to offer an effective state-level service for the protection of students' rights. The programme involves the participation of students, their parents and state level officers to address grievances on time, ensuring appropriate action.

The Sampark student helpline is the only helpline in Odisha to help children in distress by counseling and by providing accurate information over telephone about their rights and entitlements. From 2010-2011, the helpline received a total of 5,054 calls whereas the number of calls in 2013 reached 13,037. This shows the popularity of the helpline as a redressal mechanism among students and parents.

People speak...

Birendrea Pradhan, Jhumpura, Keonjhar

"My daughter, Gayatri (Class-II) met with severe burn injuries in school by falling in hot gruel. I was away from home. My younger brother called the helpline. Thanks to the helpline's immediate intervention my daughter got the best treatment at Keonjhar and Cuttack. She is going to school now."

Khan Mohavvar Alam, Std. VIII, Gopinathpada, Cuttack

"My mother tongue is Urdu. I didn't have Urdu text books to read. The students' helpline made those available to me. I go to school every day. Thank you, helpline!"

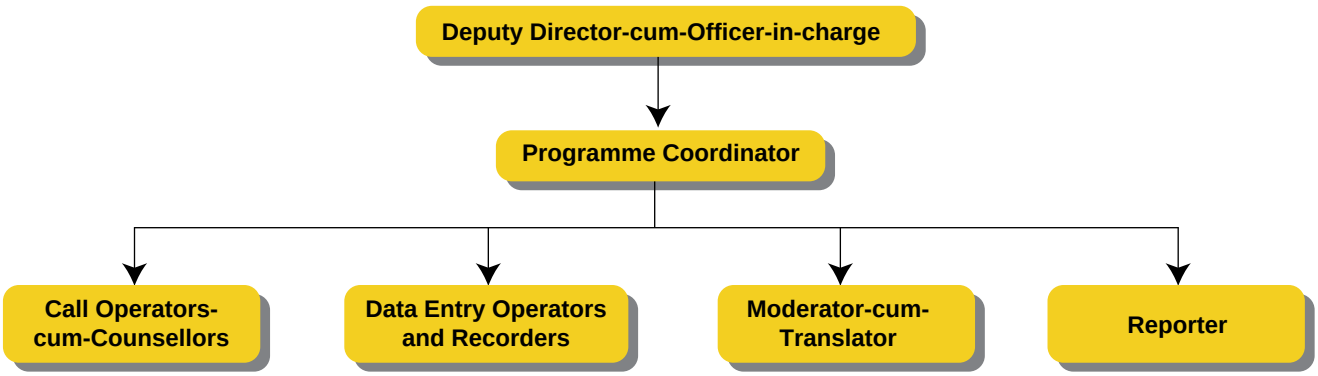
Mamatarani Dwibedi (Rachana's mother) Sambalpur

"My daughter, Rachana, could gain admission to the school due to the student's helpline's timely support. I'm grateful!"

Priyanka Swain, Std. VI, Nehru Bidyapitha, Kendrapara

"Two of my fingers on my right hand were lost in an accident at school. Thanks to the helpline's immediate help and medical care, I am able to write again!"

Figure 3: Organisational structure of the Sampark school student helpline team



Source: OneWorld Foundation India, 2014, and Sampark Helpline, Odisha

The helpline has:

1. Brought accountability in the education system
2. Reduced teacher absenteeism
3. Sensitised school authorities to issues concerning children's rights
4. Facilitated provision of solutions to children in distress
5. Increased mobilisation among field officers
6. Established an effective redressal and feedback mechanism

The school student helpline has been able to open a channel of communication between the students and education authorities, changing the way the system has been functioning till now. The helpline has proved effective in reducing the incidence of corporal punishment. Special provisions have been made for complaints relating to sexual harassment by employing women employees to address grievances from girl students and help them out with other concerns. After the installation of the helpline, significant improvement in the teacher-student relationship has been observed in schools. The helpline centre receives 200-300 calls daily where people clarify their doubts as well as register complaints. The helpline not only registers complaints but also provides counseling to distressed callers.

Key Challenges

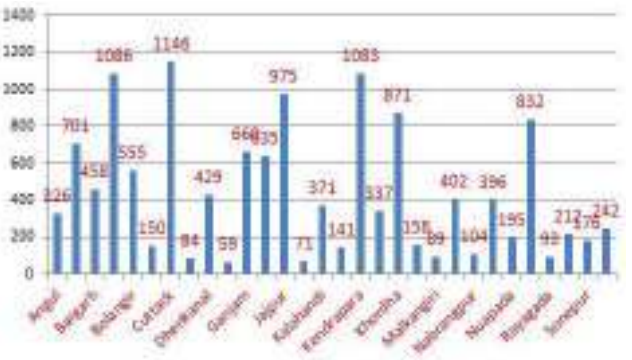
The project implementers faced challenges during the initial stage, but with the passage of time they overcame these to enhance the effectiveness of the helpline. Some of the challenges that the helpline faced includes the use of unparliamentary language by callers, which makes the attendants uncomfortable, and the misuse of the helpline by people making false calls and arguing with call attendants. Also, scores of cases have been found to be false after verification, resulting in loss of government resources. Due to the growing number of cases, field level officers are overburdened with the enquiry and reporting of cases.

Similarly, some of the callers expect higher authorities, such as state level officers, to resolve their matters which may not be possible in each case. On the other hand, there are challenges which have to be dealt with carefully such as cases of sexual abuse or corporal punishment. At the same time, collecting accurate details and verification from people is difficult as officials face resentment and opposition in such situations. A lot of the above challenges were dealt with through training and capacity building of teachers and counselors who have to attend the calls and resolve cases. They were trained to be patient and deal with complainants in a very friendly manner, and assure them of speedy and appropriate resolution of cases.

Broad categories of cases reported:

- Infrastructure related (additional classrooms, construction of school building etc)
- Children with special needs
- Teacher related (absenteeism, shortage of teachers, and negligence in duty)
- Fake enrolment of students
- Corporal punishment
- Clean environment and sanitation (drinking water, clean toilet)
- Mid-Day Meal

Figure 4: District wise calls received at the Sampark helpline between 2010-2013



Source: Sampark Helpline, Odisha, 2013

Replicability and Sustainability

By empowering students and providing them with accurate information while addressing their grievances, the Sampark school student helpline has proved to be a successful redressal mechanism. The helpline has been introduced across the state, in all schools including private and government-run schools.

The strength of this initiative lies in its ability to deliver assistance and counseling to students in distress, to improve the existing school education system through the use of better technology and to address the concerns of students on time. The introduction of the helpline has resulted in unearthing many cases of corporal punishment with students and parents coming forward to lodge complaints. This provides the Sampark helpline with the potential for replication not just in Odisha but

in other states as well. Other states could also adopt this approach of providing help to students and their parents as well as providing them with a chance to participate in improving the school education system.

The increased number of genuine calls at the centre indicates that students are using this service to communicate their concerns which proves that the initiative is sustainable. The project is unique in its ability to sustain itself, covering almost all concerns of students ranging from education to the management system.

Conclusion

The Sampark helpline provides a unique service as it provides children with a mechanism to express their concerns over email and through telephone in anonymity. In Odisha, the helpline has managed to create a positive impact on students and parents by restoring their faith in the school education system. Active feedback and redressal mechanisms by government officials have played an important role in this. The helpline has made a mark beyond the education system as well, by raising the issues of students for open discussion in the community.

Fact Sheet

Theme	**Child Protection**
Nodal Implementing Agency	**Department of School and Mass Education, Government of Odisha**
Geographical Coverage	**All districts of Odisha State**
Target Groups	**School students**
Years of Implementation	**2010 - Present**

EDUCATION

2.2 Migration Card and Migration Monitoring Software: Tracking and educating migrant children in Gujarat

The Gujarat Government's Migration Card initiative helps track inter-state and intra-state migration of school-going children, and the Migration Monitoring Software, introduced in 2009, has enabled tracking and streamlining of implementation in real time. The Sarva Shiksha Abhiyan (SSA) in Gujarat has used this programme successfully to accommodate and educate migrant children in seasonal hostels and in Tent Special Training Programmes. The programme has helped increase retention under elementary education of children who migrate with parents looking for seasonal employment and reduce the drop-out rates of girls in primary education.

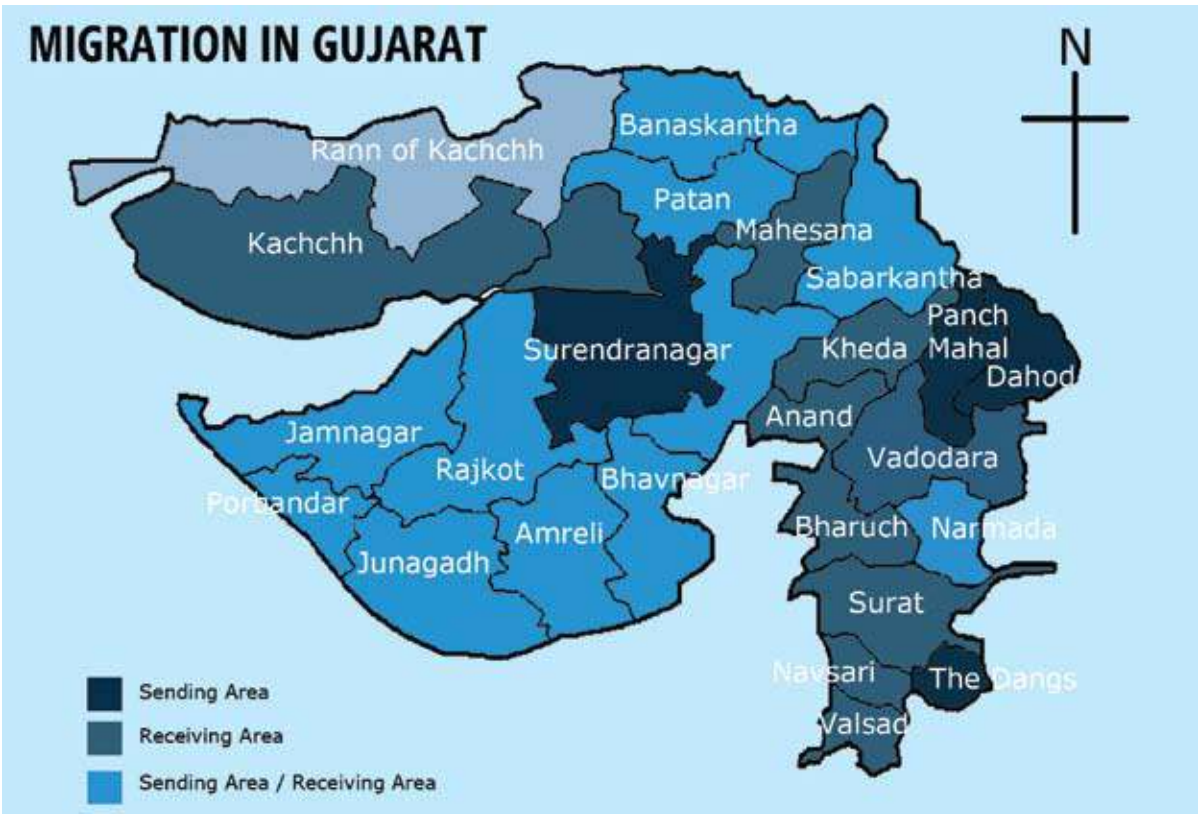
Rationale

The Right of Children to Free and Compulsory Education (RTE) Act, 2009 implemented at the national level envisages free elementary education for children in the age group of 6-14 years. The implementation, however, has faced several roadblocks, including high dropout rates among students.

Migration for seasonal employment is one of the factors known to contribute to the dropout rate of children from schools. Migration due to seasonal employment is caused by many industries including brick kiln factories, construction industry, sugar factories, shipyards, agricultural labour and salt pan units.

While the academic year is from June-April, migration for seasonal employment usually occurs in the months of September-November up to May-June. Therefore, children of parents who seek employment opportunities away from their domicile – within the same state or in others – are often uprooted in the middle of the academic

Figure 1: Mapping of intra-state and inter-state migration in Gujarat



Source: Sarva Shiksha Abhiyan, Gujarat, 2013

year. They also face trouble rejoining schools and drop out of schools altogether.

The Migration Card initiative was introduced in Gujarat in 2001 to track students who were migrating along with their parents within the state or from other states. The main objective was to avoid dropout and ensure the continued education of children during the period of migration. Under the Migration Card Initiative, intra-state children are covered in seasonal hostels at their domiciles while inter-state-children are covered under Tent Special Training Programmes (Tent STPs) in temporary schools set up at the worksites of their parents.

Three cards were printed at the state level and distributed to the schools. The cards would indicate the education level of the student and his/her grades. The student would then continue his schooling at the migrated place and would be permitted to give the examination at the school – either at the migrated place or at the original destination.

While the introduction of migration cards was useful in facilitating the education of migrant children, it had some limitations. In 2009, the Migration Monitoring Software was introduced to overcome these limitations and streamline the process of tracking in real time.

Objectives

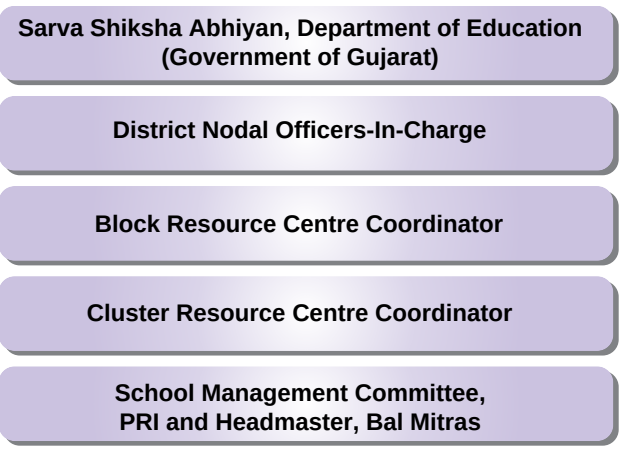
Providing education to migrating children in the age group of 6-14 years is one of the main objectives of this initiative. Other objectives of the initiative include tracking and monitoring students migrating from one cluster, block, district or state to another cluster, block, district or state. The programme also aims at increasing retention and reducing the dropout rate of students in Gujarat. Additionally, it endeavours to map intra-state and inter-state migrant children in Gujarat.

Key Stakeholders

This initiative is run under the Sarva Shiksha Abhiyan (SSA) Mission of the Department of Education, Government of Gujarat. Officials from various sub-departments of the SSA, such as, the Out-of-School Department and Girls' Education Department have been assigned as nodal officers-in-charge of districts under this initiative. The implementing entities at state, district, block, cluster and school levels have been given in *Figure 2*.

At the grassroots level, there are 'Bal Mitras' in Tent STP schools who are special teaching volunteers drawn from the local population. The final and the most important stakeholders are the migrant children.

Figure 2: Key stakeholders of the migration card initiative



Implementation Strategy

Under the Migration Card initiative, three different cards were maintained for facilitating school admissions – Pink Card: Block Resource Centre (BRC) Coordinator; Yellow Card: Headmaster, and White Card: Migrating student. The details of the students used to be manually entered into ward education registers and village education registers, as per the format given by the Ministry of Human Resources Development. However, this manual system faced issues such as lack of accuracy and specificity in records, improper maintenance of the card and loss of card in transit.

Hence, in 2010, it was decided to migrate to an online platform – the Migration Monitoring Software (MMS). A committee was formed for deliberating upon the standardised format to be used online and inputs were taken from the Tribal Department, Child Labour Department, Non-Governmental Organisations (NGOs), Gujarat Council of Educational Research and Training (GCERT), other states and members of the project staff hired for the initiative. Based on these inputs, the MMS was created and launched in May 2010 on a pilot basis in 12 districts and then upscaled to all 26 districts after a successful run. It was recognised that crucial implementation work was required to be done at the cluster level and, hence, it was ensured that internet and computer facilities were provided up to Cluster Resource Centres. As a result, for the first time in Gujarat, 8,000 inter-state migrant students and 16,000 intra-state migrant students began to be tracked.

a. Process flow

A unique pre-printed number is given to each migrant child and is displayed on all migration cards. The pre-printed number helps in preventing duplication and

facilitates online tracking. Each card is then duly filled up by the headmaster of the school in case of intra-state students or the Bal Mitra in case of inter-state students.

These details are then handed over to the Community Resource Centre (CRC) Coordinator who makes an online entry of all the data from the cluster level onwards up to the state level. Thereafter, all reports and information are maintained and monitored online. When migration takes place, the CRC Coordinator of the sending cluster will fill the feedback/OUT form online. Both receiving and sending Coordinators will be updated in real time on their homepage after logging in.

At this stage, a reconciliation process will be carried out by all CRC Coordinators. This is to track children who do not appear at the cluster that they intended to go to. The CRC who receives such a child will send an online feedback recording the new entry and by doing so the CRC Coordinator who was expecting the child to join will also be automatically updated. In cases where the children will remain untraced and the entry will be recorded as such.

b. Project components

The modalities involved in the two cases, intra-state migrants and inter-state migrants are described herein.

Intra-state migrant children: A survey is conducted at the beginning of the academic year in June by the School Management Committee (SMC), other school staff and cluster level officials. The survey shows how many enrolled-students will be sent out of the cluster. In some cases, parents do not inform about intended migration, in which case the children will be accounted for as out-of-school children.

Hostel facilities are provided to children of migrating parents. In 2010, boarding and lodging was provided by local NGOs, but since 2011-12, the children are housed in buildings sanctioned and/or constructed by SSA, Government of Gujarat. The hostels are maintained, constructed and managed by the SMC/community themselves, thus enlisting support from the parents who trust local members.

Intra State Report (Within Gujarat)

District Name	IN Migrant	Directly Received	Enrolled	Feedback Pending	OUT Migrant	Enrolled	Feedback Pending	Untraced
Ahmedabad	76	0	0	76	44	3	41	0
Amreli	25	10	1	14	24	15	9	0
Anand	5	0	0	5	9	1	8	0
Banas Kantha	0	0	0	0	2	1	1	0
Bharuch	11	3	3	5	18	7	11	2
Bhavnagar	13	0	1	12	21	7	14	0
Dahod	0	0	0	0	35	5	30	0
Gandhinagar	3	0	0	3	2	1	1	0
Jamnagar	8	0	0	8	9	0	2	0
Junagadh	13	04	0	9	3	0	3	0
Kachchh	13	2	3	8	21	6	15	1
Kheda	19	17	0	2	4	4	0	0
Mahesana	15	0	0	15	21	1	20	0
Narmada	1	0	0	1	8	3	5	0
Navsari	6	1	0	5	1	0	1	0
Panch Mahals	0	0	0	0	21	6	15	0
Patan	1	0	0	1	1	1	0	0
Porbandar	4	0	0	4	0	0	0	0
Rajkot	27	1	0	26	19	2	17	0

Image 1: Intra-state report with disaggregated information including untraced children

Source: Sarva Shiksha Abhiyan, Gujarat, 2013

Hostel facility includes food and transport for children. In case of medical emergencies, a first aid kit is kept handy and, in serious cases, they are transported by a local community member to the nearest hospital.

Inter-state migrant children: In the case of inter-state migrant children, Tent STPs are set up at worksites under Chapter 2 of the RTE Act, 2009 which provides for alternative schooling to out-of-school children. Setting up temporary tent schools at the worksite has become a viable solution for many reasons. If the migrating students are admitted to regular schools, language proves to be a barrier. In Tent STPs, Bal Mitras (teachers/instructors) who are relatively familiar with the language of the children are assigned to teach.

Image 2: Hostel facility at Sabarkantha district (originally the house of two 'Bal Mitras')

Image 3: The group of 25 boys and 24 girls currently staying at the hostel in Sabarkantha district, accompanied by SMC member and two 'Bal Mitras' (right)

Moreover, parents are not comfortable sending their children to distant places during their work hours. Bal Mitras, who are education volunteers from the local community, are posted at all Tent STPs. They assess the educational capacity of the children at the site, divide them into groups, teach them accordingly, and ensure that children attend classes.

A morning snack and Mid-Day-Meal are also provided at Tent STPs. For example, a Tent STP school at a brick kiln site in Gandhinagar district receives Mid-Day Meal from an NGO, Akshaya Patra, on a daily basis.

These students come to school daily from 11 am to 5 pm. They are grouped and seated based on their educational competency and not as per age classification. Wherever possible, textbook material for the migrant children is complimented with textbooks from their states of origin. The medium of instruction for the students is Hindi. In their hour of play, they play games that they know from their own hometown and also teach the Bal Mitra how to play those games.

Resources Utilised

Government officers of the SSA implement, monitor and evaluate this initiative. While at the CRC and BRC level there are approximately 12 staff members, at the school level the SMC Chairman, headmaster and PRI member discuss information related to schools at Gram Sabha meetings on a regular basis. Tele-conferencing and interaction with field supervisors is carried out to sensitise and involve SMC members. Each SMC member is given training at the state level and live demonstrations are shown at the school and cluster level. The Bal Mitras appointed at Tent STPs hold graduate degrees in the Arts or Education, and are given a week's training, and in some cases, where possible, family members of the

Image 4: Mid-Day Meal delivered by Akshay Patra in Sabarkantha district

Image 5: (Left) Tent STP school at a brick kiln site in Gandhinagar district; 'Bal Mitra' and (right) CRC Coordinator

migrant children who have travelled from other states are roped in as teaching volunteers to overcome the language barrier.

The MMS was built by iNDEXTb, which is an organisation under the Government of Gujarat. It was prepared and piloted in 15 days in 2010, and iNDEXTb has undertaken all subsequent maintenance since then. A technical person has been made available at the district and block levels for this purpose.

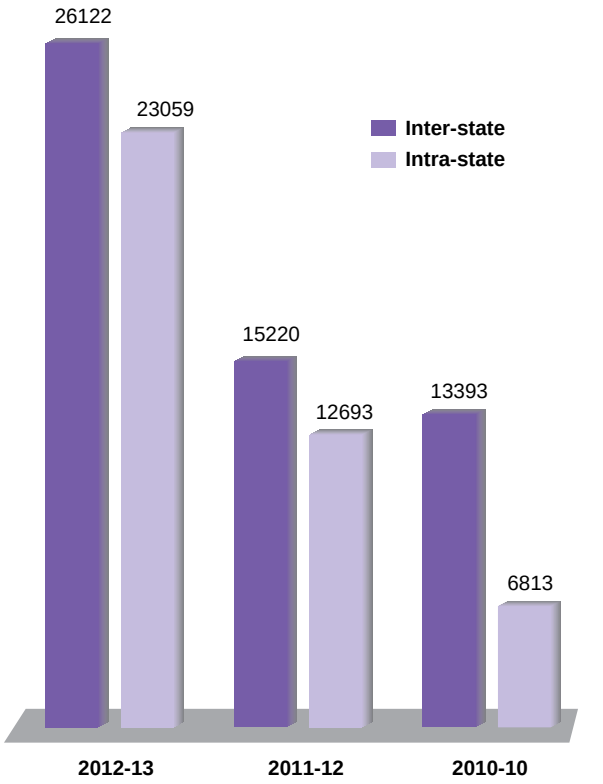
The format of the migration card was made simple to ensure data accuracy. Information on villages, clusters, blocks, districts, District Information System of Education (DISE) code etc. have been pre-loaded into a database. Similarly, detailed information for drop down menus from other states was retrieved from the National Educational University of Planning and Administration (NEUPA).

The MMS has also been made available in Gujarati, Hindi and English for the convenience of both state and non-state users.

Impact

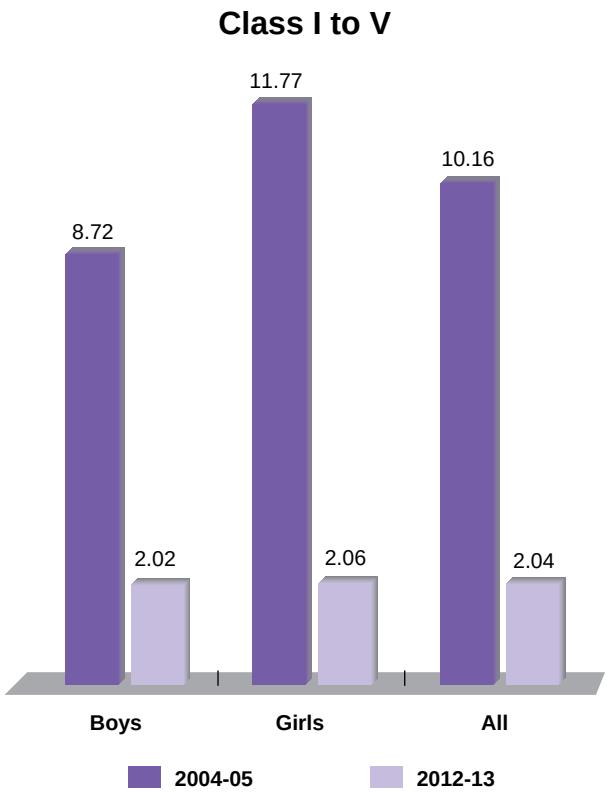
Educational rehabilitation and reduced drop-out rates of migrant children: The Migration Card and Monitoring Software have helped improve time efficiency by reducing the duration of time in tracking migrant children since the progress can be tracked in real time and on a daily basis as opposed to monthly checks. CRC coordinators are able to inform the headmaster of the school in advance, so the needful educational rehabilitation can be undertaken without delay. *Figure 3* shows that the number of children covered under the programme has substantially increased over the years. Also, there is a significant reduction in the drop-out rates of boys and girls till class VII *(Figures 4 & 5)*.

Figure 3: Coverage of (migrant children) under the migration card initiative in Gujarat) (no. of childen)



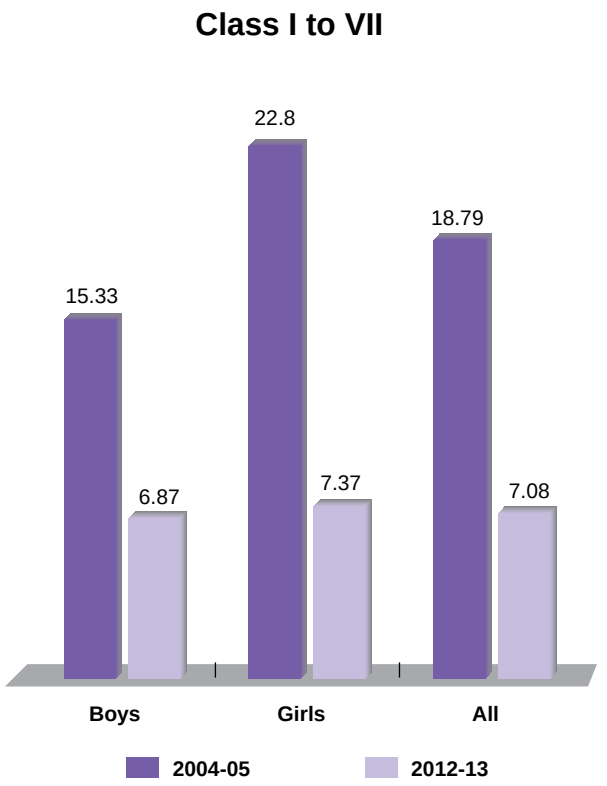
Source: Sarva Shiksha Abhiyan, Gujarat, 2013

Figure 4: Dropout rates of girls and boys for Class I to V in Gujarat (in %)



Source: Sarva Shiksha Abhiyan, Gujarat, 2013

Figure 5: Dropout rates of girls and boys for Classes I to VII in Gujarat (in %)



Source: Sarva Shiksha Abhiyan, Gujarat, 2013

This initiative has bagged an award from Skoch Smart Governance Award 2013 for the 'Migration Monitoring Software' for helping in increasing retention under elementary education.

Key Challenges

Incorrect data entry has been a challenge, especially as data entry was carried out randomly in the initial phase of the initiative. The need was felt to institutionalise this, and to this end, monthly trainings were carried out to familiarise personnel with the modalities involved.

Another difficulty is in finding schools. In certain cases, schools in remote places were hard to track, therefore the process of using the DISE code of schools was initiated in July 2011.

Identifying the level at which tracking has to be carried out is also challenging. In the earlier stages, the first unit of entry and tracking was at the village level, but this was subsequently changed to cluster level due to frequent shifting by migrant parents.

The language barrier, too, is a challenge. The most pertinent problem in educating inter-state migrant children has been the lack of education material in regional languages.

Requests are placed with the states at review meetings held with the Ministry of Human Resources Development or through state and central communiqués. While certain languages such as Marathi are covered by the Gujarat Council of Educational Research and Training, which prints in multiple Indian languages, material in Urdu has been particularly difficult to procure.

In such cases, NCERT material available online is used and Hindi is used as a common mode of instruction. Further, the Government of Odisha now provides textbook material free of cost for this initiative. Since 2013, attempts are being made to induct teachers from other states for Tent STP schools.

Addressing infrastructural issues is also a challenging task. In tribal and remote districts, inadequate internet connectivity limits the use of the online software. Also, construction of permanent hostels could not be implemented earlier due to lack of sufficient funding support. However, the Government of Gujarat has undertaken it and approximately 40 additional hostels are being constructed presently.

Lack of cooperation from parents is also a stumbling block. There are still some cases where the parents do not inform officials about their migration. This challenge is being tackled by teachers and other officials who are trying to generate awareness about the benefits of this initiative.

Inadequate online support and difficulty in coordinating with other states is also a big challenge. Coordinators in states have been given login access and instructions on how to use the MMS. However, a manual system is being followed until such time it is institutionalised.

Replicability and Sustainability

The sustainability of the initiative is seen in its success in reaching out to a large number of inter-state and intra-state migrant children. Community involvement has been enhanced at the grassroots level which has helped in better implementation of the initiative. The strengthening and active upkeep of the role of CRC and BRC coordinators through real time tracking and monitoring have, in particular, contributed to the success of this initiative since 2010.

Administrative support and active participation of the implementing authorities, especially at cluster and block levels, are essential for replicating this initiative. The role of parents, SMC members or even owners of work sites (such as brick kiln owners) must also be given due thought in the introduction of such an initiative. Grievances must be addressed and solved speedily to build a positive environment with such stakeholders.

Conclusion

India's RTE, 2009 cannot be implemented in the true spirit without arresting the high dropout rates. The migrant population is, of course, one of the biggest challenges in this regard. With people from neighbouring states like Madhya Pradesh more prone to migration, it is their children who are sacrificed at the altar of their jobs.

This initiative is especially relevant for those states that witness a high migration rate. It has been crucial in ensuring that the education of migrant children is not broken by the seasonal employment of their parents and in providing a viable option for sustaining their education under the circumstances.

Fact Sheet

Theme	Education
Nodal Implementing Agency	Sarva Shiksha Abhiyan, Gujarat
Geographical Coverage	All districts of Gujarat State
Target Groups	6-14-year-old children of migratory parents
Years of Implementation	Migration Card: 2001 - Present; Migration Monitoring Software: 2010 - Present

The Sarva Shiksha Abhiyan (SSA) in Gujarat has used a tracking system to accommodate and educate migrant children in seasonal hostels, thus helping increase retention of children migrating with seasonally employed parents.

2.3 Pota Cabins: Residential schools for children in LWE-affected areas of Chhattisgarh

Pota Cabins is an innovative educational initiative for building schools with impermanent materials like bamboo and plywood in Chhattisgarh. The initiative has helped reduce the number of out-of-school children and improve enrolment and retention of children since its introduction in 2011. The number of out-of-school children in the 6-14 years age group reduced from 21,816 to 5,780 as the number of Pota Cabins rose from 17 to 43 within a year of the initiative. These residential schools help ensure continuity of education from primary to middle-class levels in Left Wing Extremism affected villages of Dantewada district, by providing children and their families a safe zone where they can continue their education in an environment free of fear and instability.

Rationale

The status of education in Dantewada district of Chhattisgarh was abysmal. As per a 2005 report, the literacy rate of the state stood at 30.2% against the state average of 64.7%.[1] The development deficit in the Dakshin Bastar area, which includes Dantewada district, has been largely attributed to the remoteness of villages, lack of proper infrastructure such as roads and bridges, and weak penetration of communication technology. The situation in this region has worsened due to Left-Wing Extremism (LWE) and violence. According to a study published in 2014, nearly 86 primary and residential schools have been destroyed.[2]

In January 2011, the number of out-of-school children in the age group of 6-14 years in Dantewada district was 50.3%, and 20-30% schools were reported defunct. It was in the backdrop of such adversity that the district administration introduced a range of educational interventions such as Education City, Livelihood Colleges, Choo Lo Aasman and Tamanna.[3] For the benefit of out-of-school children, especially in Left Wing Extremism affected areas, Pota Cabins, or residential 500-seater campuses were installed in 2011.

To address the destruction of concrete structures, the administration decided to build schools made of prefabricated materials such as bamboo and ply so that schools cannot be used as hideouts or armed camps. Secondly, it would also draw children away from the remote and interior areas of villages that are more prone to Left Wing Extremists violence. As these schools are perceived as places where children can receive adequate food and education, they are often referred to Potacabins locally, as 'pota' means 'stomach' in the local Gondi language.

Objectives

The main objective of the initiative includes enrolment and continuous retention of out-of-school children by bringing them to the mainstream society through formal education. It also aims at inculcating a scientific temper in children to prepare them not only for employment opportunities but also for qualitative changes through the provision of basic amenities of healthcare, food and proper accommodation along with an environment that encourages innovation and entrepreneurship. It seeks to promote vocational skills and build capacities for self-employment among students.

Key Stakeholders

The key stakeholders involved in the programme operate at five different levels – state, district, block, cluster and school. The details of the key stakeholders are depicted in *Figure 1*.

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[1] *UNDP and Planning Commission of India. 'Human Development Report of Chhattisgarh'. 2005. Web. 01 April 2014. http://www.undp.org/content/dam/india/docs/human_develop_report_2005_chhattisgarh_full_report.pdf*

[2] *Against the Odds: A Case Study of Educational Initiatives in Dantewada; published by Department of Administrative Reforms and Public Grievances, Government of India, published in 2014 and web accessed on 14.05.2015 from http://darpg.gov.in/darpgwebsite_cms/document/file/DANTEWADA_case.pdf*

[3] *'Education City' is a Rs. 100 crore project wherein a single campus spread over 90 acres was created in Dantewada consisting of educational institutions ranging from primary schools (including Pota Cabin) to polytechnics.; 'Livelihood Colleges' are residential colleges run on a PPP model for youth who are barely literate or semi-literate and are class 5-12 pass. Reputed private organizations like IL&FS impart skill education and provide them linkages for further placement.; 'Choo Lo Aasman' addresses the deficit of science teachers and science education in Dantewada by bringing together students of classes 11 and 12 in two main campuses in the district headquarters and prepares them for professional courses like engineering and medicine.; 'Tamanna' is a special venture to expose students to different opportunities by visiting the district headquarters and major cities like Vishakapatnam, interacting with high-level government officials such as the Collector, and making use of a specially constructed Science Museum and District Library.*

Figure 1: Key stakeholders in the initiative

State	❖ Rajiv Gandhi Shiksha Mission of Sarva Shiksha Abhiyan, Chhattisgarh
District	❖ Collector ❖ CEO of Zilla Panchayat ❖ District Project Coordinator ❖ Assistant Project Coordinator
Block	❖ Block Resource Coordinator
Cluster	❖ Cluster Resource Coordinator
School	❖ Headmaster ❖ Teachers/volunteers ❖ Students (upto class VIII)

The beneficiaries, who are students up to class 8, are either classified by age or by their actual level of education. The defined age group is 6-14 years but sometimes, older children with education levels corresponding to those below 14 years of age are also included in the group.

While the District Project Coordinator (DPC) and the Assistant Project Coordinator (APC) look after district-level implementation, the Block Resource Coordinator (BRC) looks into block level issues. Monitoring activities are undertaken by the Collector at the district level, followed by the APC, BRC and Cluster Resource Coordinator (CRC).

Image 1: Students during dance practice for Annual Day at Karli Pota Cabin

Implementation Strategy

The conundrum in rebuilding schools was that concrete structures take a long time to construct and are easily destroyed by the Left Wing Extremists violence. Therefore, 'portable cabins' made of pre-fabricated bamboo and ply were conceptualised. They are long-lasting and durable, fireproof and waterproof and can be easily rebuilt. Bamboo is procured from Nagaland and cement plinths are laid for the foundation.

Further, it was decided that the Pota Cabins would be built in educational clusters and not in interior areas so that there is no objection to laying cement plinths. This will also ensure that teachers would not be required to go to remote areas, which might affect their attendance, and this would also make monitoring and evaluation easier.

Around 10-12 Pota Cabin schools, each accommodating 500 seats, were built within a span of 4-5 months in 2011, the first one being Kasoli Pota Cabin in Dantewada.

The following changes have been incorporated since the inception of the initiative -

i) Pota Cabins were introduced for conducting Residential Bridge Courses (RBC) which have now

Image 2 and 3: The Kasoli Pota Cabin in Dantewada district, which was the first Pota Cabin constructed under this initiative

been incorporated under the Rajiv Gandhi Shiksha Mission of Sarva Shiksha Abhiyan, Chhattisgarh.

ii) The capacity of Pota Cabins has been reduced to 250 seats in order to reduce congestion.

iii) Further, in 2013, qualified subject instructors have been added to the teaching staff for enhancing the quality of education.

iv) A number of NGOs are collaborating to ensure good educational standards. Read India project has been implemented with Pratham, and Bachpan Banao has introduced 10 Fellows in 10 Pota Cabins in 2013-14 for assisting in and developing new teaching methodologies, and improving the overall quality of education.

v) Lastly, owing to the success of Pota Cabins and acceptance by locals, Left Wing Extremists and the armed forces, and keeping in view the temporary nature of the school structure, Pota Cabins will be replaced by permanent structures and old Pota Cabins will also be transitioned.

a. Process

After the construction of Pota Cabins, the personnel involved – *anudeshaks* (volunteers) from the local Gondi and Halbi speaking population, *adhikshaks* (teacher-in-charge) and other teaching staff – are hired. They are given the dual responsibility of being class instructors as well as wardens for the student residents.

Anudeshaks are also given a target of enrolling children based on the capacity of the school. After conducting a survey, they visit the designated villages in interior areas, convince the parents about the merits of the Pota Cabin education system and bring the children to school. This exercise is now conducted annually in the months of April-June before the start of the academic year.

Image 4: Spelling Bee competition being held in a Pota Cabin

Once the children are brought to the Pota Cabins, they are classified on the basis of age and level of education up to class 8. Children whose educational level is not at par with their age are given special attention and training for a period of six months. All students are provided lodging, food (including Mid-Day Meals), uniforms and textbooks.

Students get acclimatised to the new environment through local games and activities. Further on, the curriculum prepared by the State Council of Educational Research and Training (SCERT) is taught to them in their respective classes.

In some cases, children run away since they are not used to living in closed spaces. In such cases, *anudeshaks* trace them to their homes, bring them back and make additional efforts to habituate them to the new environment. During holidays and local festivals also, children are taken home and dropped back by their parents or *anudeshaks*.

b. Infrastructure and educational facilities

Students are allotted lodging spaces in dormitories on the campus. For the preparation of meals, steam boilers have been introduced in a few Pota Cabins on a pilot basis. This has greatly helped in reducing the time, effort and number of people involved in cooking meals.

Generally, there are three sources of power supply in every Pota Cabin – regular government power supply, generator back up and solar panels.

Modern teaching and entertainment facilities, such as television with satellite channel connections and education package CDs and smart classes equipped with digital learning aids for videos and presentations have been provided. Some Pota Cabins have also been provided with computer labs, library rooms and science labs.

The Pota Cabins have extra-curricular activities like sports, yoga, summer and winter camps, dance and arts programmes on special occasions.

In collaboration with Vigyan Ashram, Pune, a programme called 'Introduction to Basic Technology' (IBT) has been introduced for children studying in classes VI, VII and VIII. The children are given skills training in farming, gardening, electronics, pickle-making and arts and crafts.

Health needs are mostly taken care of by the resident staff but for medical emergencies, every Pota Cabin has been allotted a 'Tata Magic' van with an assigned driver.

(Clockwise from top left) Dormitory in Karli Pota Cabin; Computer lab in Kasoli Pota Cabin; Library in Kasoli Pota Cabin; 'Tata Magic' van for medical emergencies; Mid-Day Meal being prepared in boilers at Karli Pota Cabin

Resources Utilised

One of the key players in implementation is the *anudeshak*. Volunteers who meet the minimum qualification requirement of post-matriculation, and who know the local Halbi or Gondi language are selected. The selection of local volunteers has helped in tackling the problem of sending government officers to Left Wing Extremism-affected areas in overcoming the shortage of teachers in schools, and in convincing parents to send their children to the schools. Currently, *anudeshaks* are paid approximately Rs. 6,000 per month. The staff also includes *adhikshaks* (in-charge), *shikshakarmis* (teacher), subject instructors, security guard and kitchen staff.

Training and capacity building programmes for all instructors are conducted regularly by the district administration, and starting 2014, training by the District Institute of Education and Training (DIET) will also be made mandatory.

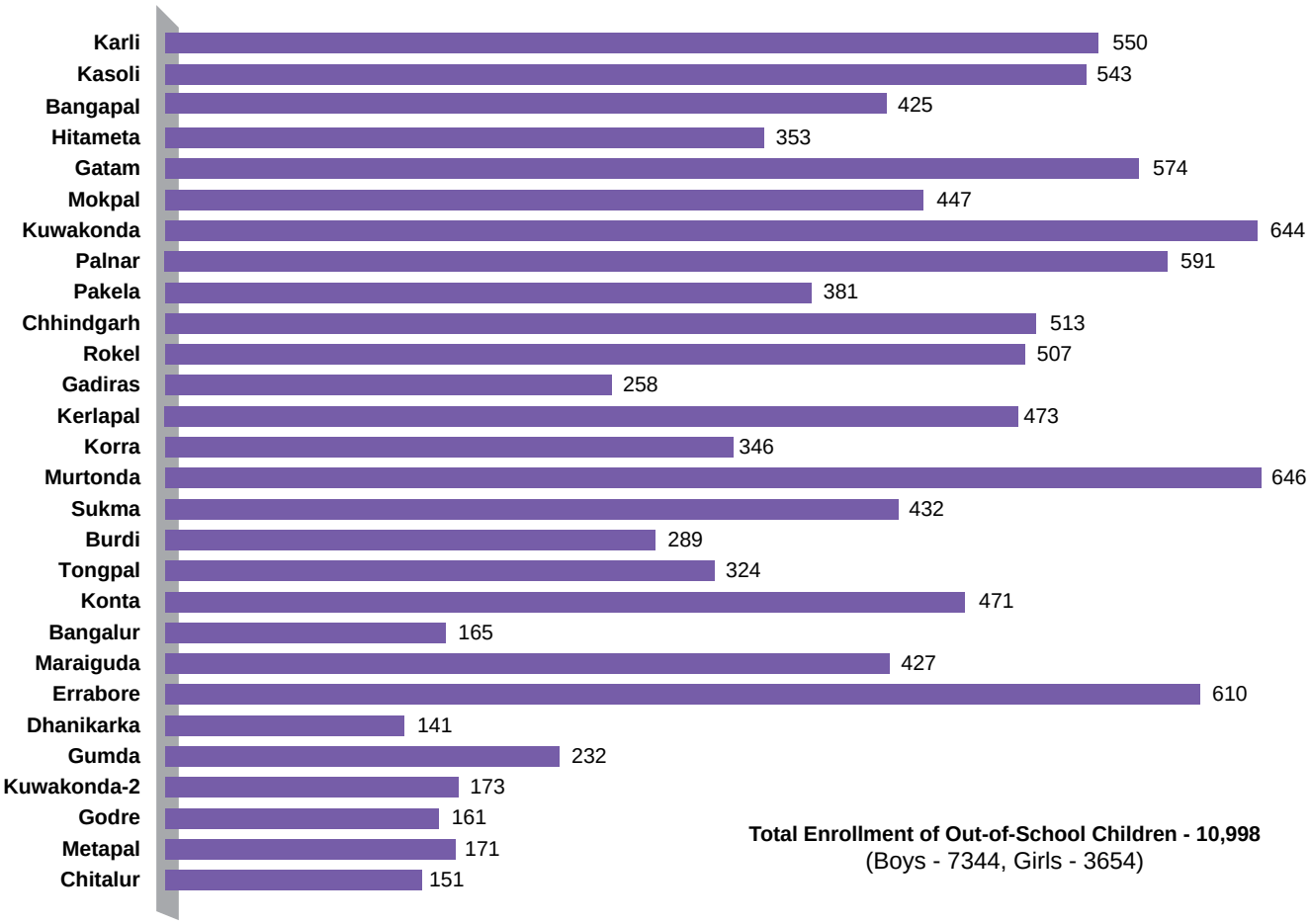
The initial cost of setting up one Pota Cabin school (500 seater) in the pilot phase was approximately Rs. 60-70 lakhs. Around 80% of the implementation cost is borne by the Sarva Shiksha Abhiyan, Chhattisgarh and the remaining amount is drawn from the Integrated Action Plan and Backward Regions Grant Fund of the Government of India, Scheduled Tribe, Scheduled Caste and Other Backward Classes Development Department, and corporate social responsibility funds of National Mineral Development Corporation (NMDC) and Essar.

Impact

Increased outreach: In Dantewada district, there are 17 functional Pota Cabins. The initiative has been expanded to include neighbouring Sukma and Bijapur districts as well, totaling 43 functional Pota Cabins as of 2012. *Figure 2* depicts the impact that has been achieved so far.

Improved enrolment and retention: The Pota Cabin initiative has helped reduce the number of out-of-school children and there has been improvement in the enrollment and retention since its introduction. In just two years of its inception, the number of out-of-school

Figure 2: Number of children enrolled in Pota Cabins in Dantewada and Sukma districts



Source: 'Empowerment through Education in LWE Affected Areas: A Synopsis of Educational Initiatives in Dantewada'. District Administration, Dantewada (CG).

children in the 6-14 age group has come down from 21,816 to 5,780 *(Figure 3)*.

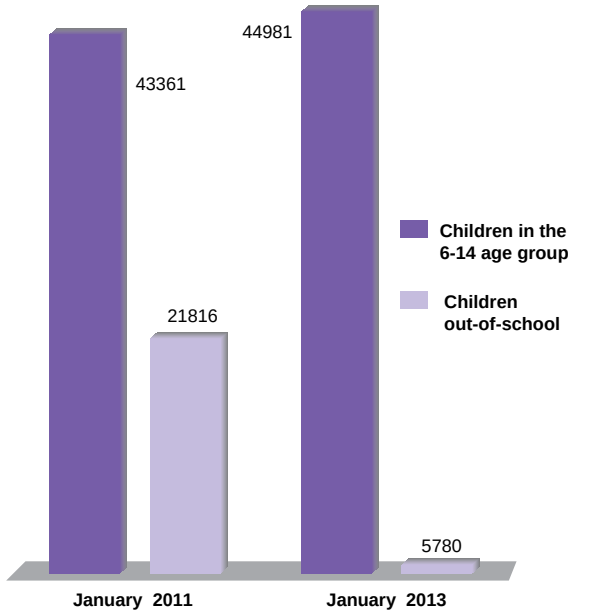
Empowerment of children and local communities: This initiative has empowered the local people and given a voice to the marginalised tribal population. It has instilled faith in the public educational system to an extent that now people feel free to approach the District Collector with their demands for education. Children are able to continue their education in a safe environment.

Key Challenges

One of the foremost challenges was that children would run away from Pota Cabins, mainly because they were not used to staying in closed environments and had difficulty in adjusting. However, this has reduced since initial implementation as the staff has learnt to imbibe elements of the local culture to make the children comfortable.

Another stumbling block was the reluctance of parents to send their children to residential schools. To counter this,

Figure 3: Comparative estimate of out-of-school children of elementary school age in Dantewada district



Source: Dantewada District Administration, 2014 (Working paper)

anudeshaks would inform parents of the facilities that would be made available, and convince them that their children would be provided boarding, clothing, regular meals and a safe place to stay away from LWE-affected areas. Now that the Pota Cabins culture is well-known and established, many parents send children to these institutions of their own accord at the beginning of the academic year.

Another challenge was to convince contractors to build Pota Cabins in LWE-affected areas and in Central Reserve Police Force (CRPF) protected areas. The district administration made efforts to ensure that construction sites were given protection and their access through check points was facilitated.

It was also found that appropriate sanitation habits had to be developed among the students. Hence, with the help of United Nations Children's Fund (UNICEF), the students were trained in basic hygiene standards and sanitation practices. The average life span of Pota Cabins is 15 years but they have started showing signs of breakdown after a period of five years. Hence, there is a transition towards permanent structures. At times the number of volunteers has had to be reduced due to financial constraints and this has caused a shortage in management staff.

Replicability and Sustainability

The success of Pota Cabins is largely due to their ability to address a critical requirement of the local people, leading to strong community support as well as crucially, tacit support of the Left Wing Extremists.

The administration has introduced multiple educational interventions, which ensure the extension of the educational supply chain up to the graduate level. Therefore, Education City and Livelihood Colleges have formed a holistic educational hub wherein the gap at the elementary level is being filled by Pota Cabins.

However, on the financial front, funds from the SSA are delayed for months together at a stretch. Financial constraints, in turn, causes further stress in maintaining adequate qualified teaching staff. While this is being temporarily filled in by *anudeshaks* and subject instructors, it needs to be tackled more comprehensively for making Pota Cabin education part of the mainstream.

Another factor to be considered while replicating the Pota Cabin initiative is to identify fringe locations on the border of Left Wing Extremism dominated areas in such a manner that children who have dropped out, even in interior areas, can be brought back to schools.

The temporary structure of portable cabins should be used to ensure that schools are used only as places of education, and not for any other unintended purpose, thus maintaining the confidence of all stakeholders.

Conclusion

Pota Cabins seek to bring about a generational change by addressing the lack of education in schools that have been destroyed by violence. Attempts are being made to merge Pota Cabins with the primary school system so that it can be brought under the Right of Children to Free and Compulsory Education (RTE) Act, 2009. Pota Cabins have raised hope for a positive change by bringing the dropout children back to the schooling system and fulfilling the goal of 'education for all'.

Fact Sheet

Theme	Education
Nodal Implementing Agency	Dantewada District Administration
Geographical Coverage	Dantewada district of Chhattisgarh
Target Groups	Children up to class 8 (6-14 years)
Years of Implementation	2011 - Present

2.4 Pratibha Parv: Strengthening quality of education in government schools of Madhya Pradesh

Launched across all government schools in Madhya Pradesh in 2011 by the School Education Department, Government of Madhya Pradesh, Pratibha Parv, literally a festival of excellence, is a comprehensive initiative for the assessment of teaching and learning, and evaluation of educational facilities and activities. This initiative has successfully contributed to raising the attendance of primary school students from 71 to 78% (2011-2013), raised middle school attendance from 79.1 to 84% (2011-2013) and reduced the fear of conventional classroom examinations among students. This initiative has covered approximately 1,00,00,000 students in 1,12,788 schools.

Rationale

The Pratibha Parv initiative in Madhya Pradesh evolved as a response to address key education issues and shortcomings in facilities provided in government schools. Even as the government is making efforts to address problems related to infrastructural shortages and student dropouts by implementing schemes such as Sarva Shiksha Abhiyan and the Mid-day Meal programme, it is equally important to concentrate on aspects of teaching and learning to improve the performance of students in schools.

The school education system suffers not only from a lack of infrastructural facilities but also from the shortage of well-trained and motivated teachers. Factors such as a high rate of teacher absenteeism, increased drop-out rates and under-staffed government schools adversely affect the quality of education.

There is an urgent need to improve the education system in government schools and to assess the tools and techniques used by teachers to provide education. Students attending government schools often lag behind their private school counterparts because the lack of infrastructural facilities, teaching tools and techniques negatively affects the quality of education received in government schools.

Image 1: Government school in Bhopal

It was against this background in 2011 that the Government of Madhya Pradesh designed this initiative explicitly to address the needs of government-run schools and to ensure improvement in education quality in primary and upper primary schools. Pratibha Parv draws upon the 'Gunotsav model' of Gujarat, which also assesses the performance of students in a similar manner. It seeks to introduce a comprehensive assessment approach to improve the overall education system across all state-run schools in Madhya Pradesh.

Image 2: A board highlighting child rights

Objectives

The objective of Pratibha Parv is to assess the academic performance of students and ensure improvement in quality of education in primary and upper primary schools. It endeavours to assess the academic performance of students and track it at regular intervals at the elementary education level. It also works to create awareness in teachers and among the general public regarding the quality of education.

Apart from assessing the overall infrastructure, the initiative looks into the provision of additional hours of tuition classes for low achievers. Pratibha Parv is instrumental in verifying the availability and usage of school facilities, and strives to provide social audit opportunities and develop a sense of ownership of the community in the educational process and institutions.

Key Stakeholders

The key stakeholders of the programme include Rajya Shiksha Kendra (RSK), Bhopal which is the implementing agency, the National Informatics Centre (NIC) which provides technical support, the Directorate of Public Instructions and Tribal Development Directorate, and finally school students and teachers who are the beneficiaries.

Figure 1: Key stakeholders of Pratiba Parv

Implementing Agency

- The Pratibha Parv programme is implemented by the RSK, Bhopal and the Education Department of the Government of Madhya Pradesh.

Technical Support

- The technical support for this programme is provided by the NIC, Bhopal and has designed the Madhya Pradesh educational portal. In collaboration with NIC, a special web module has been develop and is loaded on the dynamic education portal. It provides substantial information related to students, teachers, schools and other school related areas for the decision maker at the block district and state level.

Beneficiaries

- The programme covers school students, and teachers who are concerned with the school education system.

Other Partners

- Directorate of Public Instructions and Tribal Development Directorate MP, Bhopal.

Implementation Strategy

The Pratibha Parv initiative seeks to evaluate students' capabilities while at the same time doing away with the fear of the formal examination system. It also involves assessment of teaching arrangements and facilities in the schools, other school activities such the Mid-Day Meal scheme, as well as progress on the syllabus. Attendance of students is also assessed along with the maintenance of school records. Additionally, the general knowledge of students and their personal hygiene are also assessed, their homework is monitored, and identification of students suitable for different grade categories is undertaken.

The Pratibha Parva assessment is carried out in two phases spread over two days. The first phase is a self-appraisal based evaluation involving primary and middle school students. This is undertaken in the presence of officials from a number of government departments at the district level.

The second phase of Pratibha Parva relates to the evaluation of various aspects including the schools' academic achievements and teaching arrangements, school management and amenities as well as community participation. This phase takes place in the presence of Class I and Class II officers from all departments in the district.

Image 3: Students participate in various activities

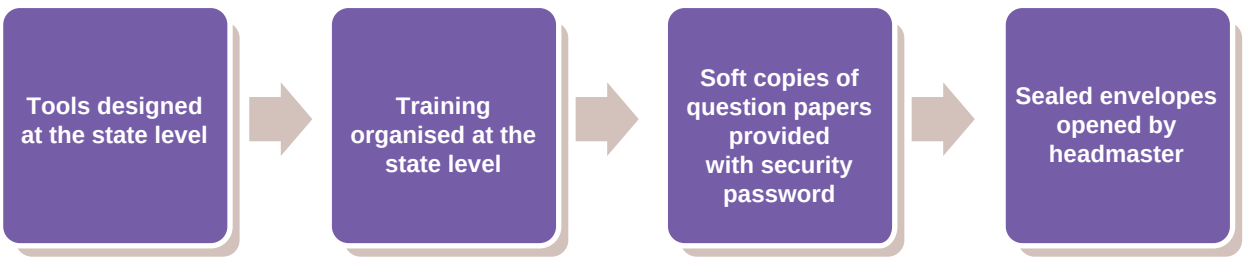
Source: Rajya Shiksha Kendra, Madhya Pradesh

The inititive is monitored at the state level from the RSK, which is the implementing agency. Guidelines are circulated to all relevant officers at the district level and all stakeholders are sensitised about the details and requirements for the initiative, to encourage their participation and support.

The initiative is organised in a campaign mode with attention to its advocacy, conducting meetings with the panchayats, teachers and other staff and through the use of Information Communication and Technology (ICT) tools. RSK is responsible for preparing and designing questionnaires. A district officers' training is organised at the state level, where these officers are trained on conducting, preparing and designing the evaluations, so that they can monitor and supervise implementation. District Collectors are the nodal officers in each district.

The question paper is designed and prepared in the presence of senior officers at the district level and once

Figure 2: Process flow of the initiative



Source: OneWorld Foundation India, 2014 and Rajya Shiksha Kendra, Madhya Pradesh

prepared, copies of the question papers are provided to the Block Resource Persons in sealed envelopes. The sealed envelopes containing examination question papers are opened by the headmasters of different schools on the day of the examination in the presence of the chairperson of the school.

Students appear for the test and the evaluation of the answer sheets is undertaken school-wise by the teachers, after which answer sheets are attested by district level officials, principals and higher faculty authorities. Once the evaluation process is over, school-wise data is compiled at the level of the Block Resource Centre for further analysis by school authorities and teachers before the report is uploaded on the state education portal to be accessed by all stakeholders.

The results of the Pratibha Parv create the foundation for developing school improvement plans attending to areas of academic and curriculum activities that require special attention. The initiative provides feedback on different aspects such as school infrastructure, teaching and learning processes, achievement levels of students in different subjects, identification of weak students, teacher training and meeting other needs and requirements.

Information on weak schools, blocks, districts, state-wide rankings and identified areas of school improvement (specific to each school) are made available to decision-makers to further enhance the process for improving the performance of schools and students, by looking into factors that are negatively impacting performance. Information generated by the evaluation is online and is available for public access, thereby enhancing transparency. Pratibha Parv is regarded as a unique model of system reengineering in schools.

Resources Utilised

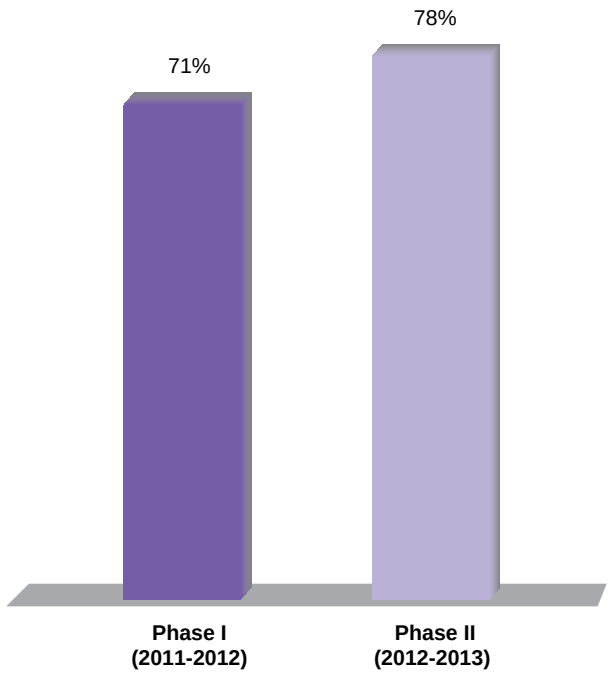
For the implementation of Pratibha Parv for one crore students, more than three lakh teachers, 35,145 external assessors, block and district level field officers and officers working in the state project office were engaged.

The existing infrastructure of the School Education Department was used in the implementation of the initiative and at certain times, the transport was outsourced to a third party. A total amount of Rs 8 crore has been invested in the project including printing of paper, travel allowance/daily allowance, conveyance and training of personnel by RSK, Bhopal and the Education Department of the Government of Madhya Pradesh.

Impact

Better quality of education and improved attendance: Pratibha Parv is reaching out to many students and teachers in under-resourced schools and providing them with an opportunity for better quality of education. It has reduced the fear of examination among students by making the assessment procedure more student-friendly

Figure 3: Students attendance in government primary schools in Madhya Pradesh



Source: Rajya Shiksha Kendra, Madhya Pradesh

and has been able to boost the motivation of students and teachers. Between Phase I in 2011-2012 and Phase II in 2012-2013, the initiative has improved the attendance of students at the primary level from 71% to 78% while at the middle level it has gone up from 79.1% to 84%.

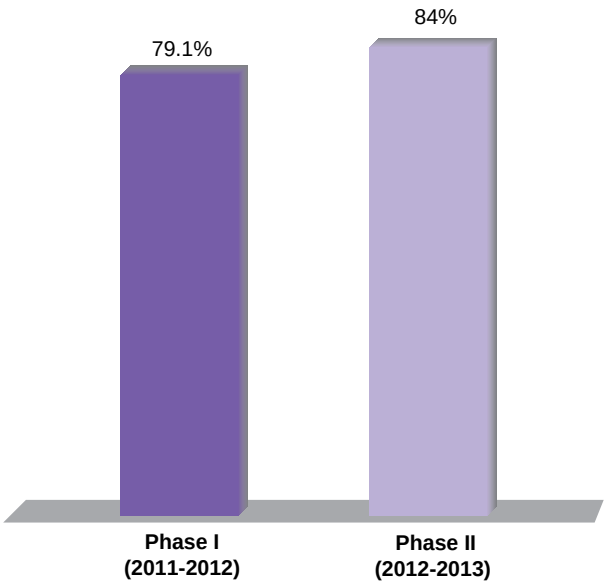
Identification of areas for improvement: This comprehensive assessment programme by the Government of Madhya Pradesh has been able to achieve several short terms goals including identification of weak students, finding out gaps in the teaching-learning processes, improving the health of the students and reducing student and teacher absenteeism.

Improvements in infrastructure and facilities: Some of the other goals achieved are greater cleanliness, creation of school libraries and a culture of sports, implementation of school calendar presenting an annual time table of students' daily activities, conducting cultural events and ensuring basic amenities like drinking water, toilets etc.

Strengthened monitoring of schools: The creation of a web-based model has been one of the biggest achievements of Pratibha Parv as it helps in monitoring the performance of weak schools and students by identifying school-specific needs. It covers all government schools in the state, and has developed a database for the overall ranking of the districts according to results of the evaluation. It has successfully sensitised the community towards the importance of quality education.

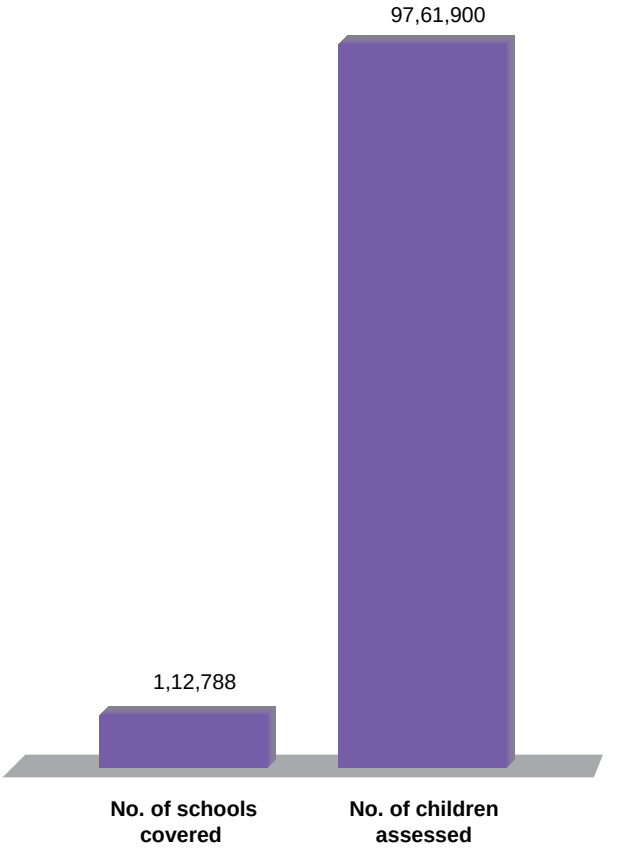
Wide coverage and recognition: As of March 2014, the initiative has been able to cover approximately one crore students and 47,650 assessors, and monitored 1,12,788 schools. The initiative has been awarded the gold icon in the National e-Governance Awards-2010, CSI Nihilent e-Governance Award 2008-09; the Manthan South Asia Award-2009; and the MP State Government e-Governance Award 2009.

Figure 4: Students attendance in government middle schools in Madhya Pradesh



Source: Rajya Shiksha Kendra, Madhya Pradesh

Figure 5: Performance of the initiative (schools covered and number of children assessed) in Madhya Pradesh, from 2011 to 2014



Source: Rajya Shiksha Kendra, Madhya Pradesh

Key Challenges

Like many other initiatives focussing on improving the education scenario in the country, especially in government schools, Pratibha Parv initially struggled to bring about changes in existing system and convincing teachers and students about the new assessment programme. A teachers' protest on the issue of their salaries in 2012 brought to the fore front how the initiative could be held hostage to non-cooperation from teachers. Long-drawn negotiations with the teachers' union were undertaken to resolve the issue.

Another challenge the initiative faced pertained to the differential abilities of students within the same class. This came to light during the inspection of school performance, where it was observed that while some students could read and understand a particular subject,

many others in the same classroom were not well-versed with the basics. The challenge was to work out a strategy to benefit the weakest students, schools or districts and iron out disparities by improving teaching performance and learning achievement.

Since the initiative is implemented across the state, challenges with respect to capacity related issues in adapting to the new practice were encountered. The government undertook building the capacities of existing teachers and staff in government schools by providing them training that would help enhance their skills.

Further problems were also faced in standardising the data entry format and the online updation of other relevant information. As the initiative is implemented in all government schools across the state, it involved reaching out to schools in remote locations as well, which raised problems of accessibility. Also, many schools in remote areas were found to be without teachers or students due to lack of resources and poor access.

Replicability and Sustainability

The use of localised and available resources makes Pratibha Parv a self-sustainable initiative. The development and implementation of Pratibha Parv did not require any additional resources. The programme leverages existing resources, both financial and human, in a cost and time-bound manner. The funds required for printing of question papers, and tools needed for the collection of data are provided by the department.

The Department also has well established offices in all the blocks and has trained human resources to upload the data online. It also provides important inputs to the departmental officers. Even the gaps identified in data are taken care of by the school.

The initiative holds immense potential to be replicated all over the country and bring greater improvements in the quality of education. The inspiration to conduct an assessment of the students came from the Gunotsav model of Gujarat. The Gunotsav model was studied by the Madhya Pradesh Government and was further enhanced according to the needs of the state.

The strength of this initiative lies in the development of a web-based model which makes it highly replicable for others states as well. For any state to replicate this model, it is important to train the staff, develop state-specific tools and develop the web-based module for transparency and accessibility.

These factors make the initiative economically viable and sustainable. Further, the initiative is proving its social relevance by providing an opportunity for government schools to rise to be at par with private schools in the quality of education.

Conclusion

Pratibha Parv presents an excellent example of taking a step towards improving the quality of school education. This model has been appreciated by parents, the community as well as by other states. Self-appraisals and departmental and third party appraisals have helped identify the lacunae in the educational system and the comprehensive assessment programme has helped academic and administrative decision-making.

Fact Sheet

Theme	Education
Nodal Implementing Agency	Rajya Shiksha Kendra, School Education Department, Government of MP
Geographical Coverage	All districts of Madhya Pradesh State
Target Groups	Government school students and teachers
Year of Implementation	2011 - Present

Andhra Pradesh's Saakshar Bharat programme has facilitated opportunities for continuing education by extending educational options to adults who have dropped out of, or never entered the formal education system with its emphasis on basic literacy, post-literacy and continuous education.

2.5 Saakshar Bharat: Sustaining and enhancing efforts in adult education in Andhra Pradesh*

Seeking to promote and strengthen adult education, especially women's education, Andhra Pradesh's Saakshar Bharat programme has facilitated opportunities for continuing education by extending educational options to adults who have dropped out of, or never entered the formal education system. With its emphasis on basic literacy, post-literacy and continuous education, the initiative forms a continuum as opposed to segmenting adult education. Enrolment of the programme has increased progressively over the years - up from approximately 15 lakhs to over 45 lakhs between the years 2010-11 and 2012-13. The number of adults enrolled through during this period is above 83 lakhs.

Rationale

Low levels of literacy have been a persistent problem in India, despite the implementation of strong and sustained government programmes to tackle this issue. The National Literacy Mission launched in 1988 with the purpose of imparting functional literacy to non-literates between the ages of 15 and 35 years produced 127.45 million literates. As a result, the literacy rate jumped by 12% between the Census of India undertaken in 1991 and that in 2001, from 52.21% to 64.84%.

But the sheer numbers of illiterates recorded in the 2001 Census, putting the number of illiterates in the 15 years and above age group at 259.52 million, called for further introspection. This was compounded by the fact that wide disparities were reflected in terms of gender, social groups and regions. Thus, notwithstanding the progress achieved, India still has a long way to go to reach the world average rate of literacy, which is 84%. In the context of Andhra Pradesh, the significance of adult literacy is pronounced, as according to the 2001 Census, the state had a literacy rate of 60.47% and a gender gap of 19.89%.

The Saakshar Bharat programme, launched at the all-India level in 2009, was conceptualised with the goal of creating a learning society with focus on non-literates and neo-literates in the age group of 15 years and above with a special focus on women. This programme seeks to reach 80% literacy in the target group along with reducing gender disparity in literacy to less than 10% by 2012. The programme also aims to reduce other socio and regional disparities.

Objectives

The main objective of the programme is to impart functional literacy and numeracy to non-literate and neo-literate adults. It also seeks to enable neo-literate adults to continue their learning beyond basic literacy and acquire equivalency to the formal educational system. The programme strives to impart relevant skill development programmes to non-literates and neo-literates improve their earning and living conditions. It also aims to promote a learning society by providing opportunities to neo-literate adults for continuing education.

Key Stakeholders

The key stakeholders of the programme are the National Literacy Mission, State Literacy Mission, volunteer teachers, *preraks* or coordinators, state resource centres, change makers in the community of local NGOs and neo-literates above 15 years of age, especially women.

Figure 1: Key stakeholders of Saakshar Bharat

** The field work for this case study was conducted in Andhra Pradesh before the state of Telengana was carved out of it in June 2014.*

Implementation Strategy

The basic literacy programme was launched in in 19 districts – Adilabad, Anantapur, Chittoor, Guntur, Karimnagar, Khammam, Kurnool, Mahbubnagar, Medak, Nalgonda, Nizamabad, Prakasam, Rangareddy, Sri Potti Sriramulu Nellore, Srikakulam, Visakhapatnam, Vizianagaram, Warangal, YSR of Andhra Pradesh, having less than 50% female literacy in 2011. The programme focusses on four components including basic literacy, vocational skills, equivalency to formal education, and continued education. The programme seeks to achieve these goals by boosting the neo-literates' capacity through libraries and newspapers at Adult Education Centres (AECs).

Table 1: Progress of Saakshar Bharat

Targeted Beneficiaries	79,52,984
Project Cost	Rs. 5,91,70,49,131
No. of AECs	18921
No. of Districts	19
No. of Blocks	945
No. of GPs	18921

Source: Andhra Pradesh State Literacy Mission Authority

a. Process Flow

The process started with the constitution of the management committees at various levels, right from the national level to the Panchayat level. At the state level the Directorate of Adult Education acts as the secretariat of the State Literacy Mission Authority, followed by the Zilla Lok Siksha Samithi (ZLSS) at the district level, the Mandal Lok Siksha Samithi (MLSS) at the *mandal* level and the Gram Panchayat Lok Siksha Samithi (GPLSS) at the Gram Panchayat (GP) level *(Figure 2)*.

This was followed by the opening of bank accounts for these committees. The allocation of funds is activity based, and funds are disbursed directly by the APSLMA to the account of committees at each level starting from the state level down to the Panchayat level, with clear authorisation for spending of funds marked against the activities to be undertaken.

The next step was to conduct a survey of the number of non-literates at the village level, which is followed by opening of AECs at every village Panchayat with a population of 5,000. Each AEC is supported by two *preraks*. Simultaneously, the teaching-learning materials for basic education are prepared by the State Resource Centre (SRC).

The National Literacy Mission Authority in collaboration with the National Institute of Open Schooling (NIOS) conducts assessment tests for the learners enrolled in basic learning programmes. Held bi-annually, six tests have been conducted so far with more than 50 lakh neo-literates qualifying these tests.

Andhra Pradesh launched its equivalency programme in January 2014 as a pilot, which is being implemented in

Figure 2: Management structure of Saakshar Bharat

Source: Andhra Pradesh State Literacy Mission Authority

Table 2: National Institute of Open Schooling assessment details

Date of Examination	No. of learners attended	No. of successful learners	% Success
06-03-2011	10.08 lakh	5.54 lakh	54.42
20-08-2011	10.07 lakh	5.63 lakh	55.91
18-03-2012	16.41 lakh	12.48 lakh	76.30
26-08-2012	16.10 lakh	11.56 lakh	71.80
17-03-2013	11.67 lakh	8.40 lakh	71.98
25-08-2013	13.88 lakh	Results awaited	
Total	**78.31 lakh**	**43.61 lakh**	**67.99**

Source: Andhra Pradesh State Literacy Mission Authority

one centre in each *mandal*. The equivalency component of the programme aims to mainstream neo-learners into the formal schooling system. It envisages completion of course A (equivalent to Standard 3 of formal school) and course B (equivalent to Standard 5) to be completed in one year.

The equivalency programme is still at a nascent stage with Primers A and B prepared by the Andhra Pradesh Open Schooling Society. This component will also involve an assessment test at the end of the year and the qualified candidates will go on to level C (equivalent to Standard 8).

The fourth component of the Saakshar Bharat programme is vocational training. The training under this component is being provided in collaboration with the Jan Shikshan Sansthan. Skills such as tailoring, soap-making, beautician courses and zari-zardosi courses are being imparted under this component. This component is financed through the state resources and Government of India (GoI) does not provide any financial resources for this component. APSLMA earmarks Rs. 6000 for each AEC to be utilised for vocational training activities.

b. Awareness

Since adult education requires a change in perception among target beneficiaries about the need for literacy, the process of awareness generation is critical. A state-wide campaign, 'Saakshar Bharat Yatra', has been organised in collaboration with the Bharat Gnana Vignana Smithi in Chitoor, YSR Kadapa, Kurnool, Mahaboobnagar and Rangareddy districts to mobilise learners. Similarly, Yatras have been organised in Vishakhapatnam as well. Participation of ministers and senior officials ensured wide coverage by media. A motivational film was also made and shown during the awareness generation drives.

c. Trainings

Training is an important component of this initiative. The training process starts with identifying and training the resource persons and master trainers at the state level. At this level, the trainings are provided by SRCs located in Hyderabad and Vishakhapatnam. These resource persons and master trainers then begin training the state, district, and *mandal*-level trainers. The trainings are also organised for *preraks* at the *mandal* level. As new initiative *Manna* TV (State government channel) is used to provide training, orientation and guidance to almost 37,000 functionaries on various aspects of the programme.

d. Monitoring

An effective mechanism for monitoring is in place to ensure smooth implementation of the programme.

The Director, Adult Education, holds a Monthly Review Meeting on the 7th of every month with the Secretaries of the Zilla Lok Shikshan Sansthans. Similarly, the District Collector; Deputy Director, Adult Education; and CEO, Zilla Parishad, hold review meetings at the district level with *mandal* coordinators on the 5th of every month.

At the divisional level, similar meetings are held by the divisional in-charges such as project officers/ assistant project officers of the adult education mission fortnightly. *Mandal* development officers and adult education supervisors hold review meetings with village coordinators on the 27th, 28th and 29th of every month.

Along with the traditional mechanism of monitoring, a web-based MIS system has also been developed. It is a web-flow based-system that connects all major stakeholders to the Panchayat level. This system is designed to facilitate physical and financial planning,

monitor and review the progress and evaluate the impact of the programme from the grassroots level onwards.

The MIS also enables a real time assessment through the online feedback component, facilitating corrective interventions. However, a mid-term assessment study, conducted by Indian Institute of Management -Bangalore, highlights challenges that hinder an effective working of this MIS system such as passwords, error messages and lack of computer literacy among the intended citizen-users and *mandal*-level functionaries and connectivity issues.

Resources Utilised

The Saakshar Bharat programme in Andhra Pradesh has been well established in terms of human resources. Since its launch in 2011, 37,842 *preraks*, 3,05,694 volunteer teachers, 37,842 master trainers and 1,890 resource persons have been appointed.

In addition to these appointments, 76 district coordinators and 945 *mandal* coordinators have been appointed in all the Saakshar Bharat districts. A critical factor in the successful implementation of Saakshar Bharat has been the existence of the Directorate of Adult Education since the 1980s. This ensures availability of a dedicated team with over 30 years of experience in the adult education sector. The infrastructure, financial as well as human resources of this Directorate were utilised in the implementation of the programme.

Table 3: Resources utilised

Particulars	Total (Rs. in Crores)	GOI Share (75%)	State Share (25%)
Total approved cost	877.23	657.93	219.30
Amount Sanctioned so far	514.91	403.49	111.42
Expenditure	355.86	334.21	111.40

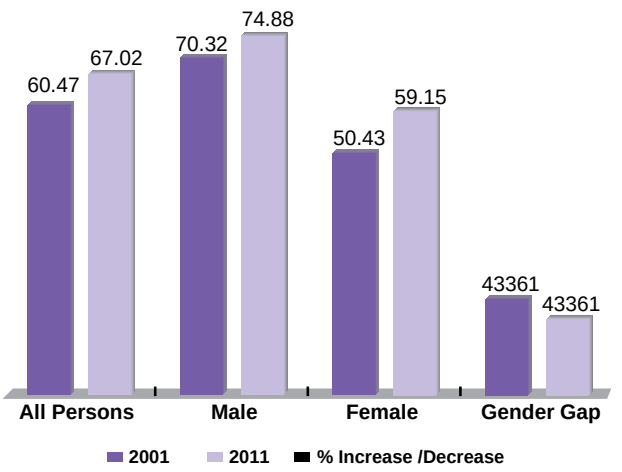
Source: Andhra Pradesh State Literacy Mission Authority

Impact

Improvement in literacy rate: The initiative has significantly impacted the overall literacy rate in the state of Andhra Pradesh as it has improved from 60.47% in 2001 to 67.02% in 2011 with a 6.55 percentage increase.

Reduction in gender gap in literacy: An analysis of gender disaggregated data on literacy in the state shows that the male literacy rate increased from 70.32% in 2001

Figure 3: Impact of the programme in Andhra Pradesh (in %)



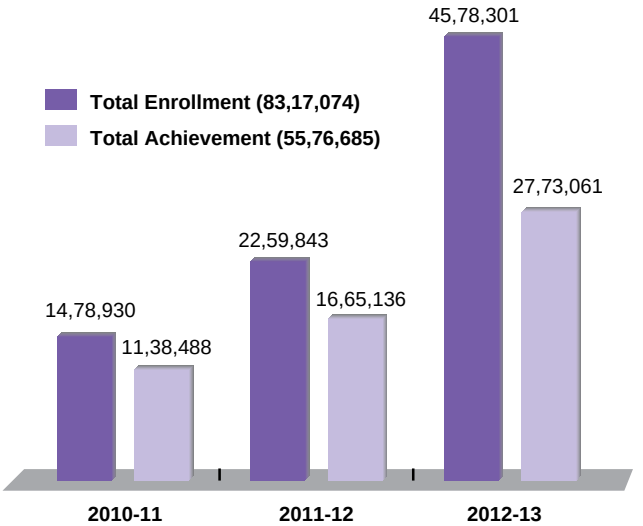
Source: Andhra Pradesh State Literacy Mission Authority, and OneWorld Foundation India, 2014

to 74.88% in 2011 showing a 4.56 percentage increase. Similarly, female literacy increased from 50.43% in 2001 to 59.15% in 2011 showing a marked increase of 8.72%. The gender gap also decreased significantly from 19.89% in 2001 to 15.73 in 2011, marking a decrease of 4.16%.

Increase in enrollment: The enrollment rate has seen a progressive increase from 2010-11 through 2012-13 and achievement rate is also high and keeps increasing in tandem with the increase in enrollment *(Figure 4)*.

The vocational skills component of Saakshar Bharat programme has also shown significant impact as depicted in *Table 4*.

Figure 4: Impact of the programme on enrollment and achievement in Andhra Pradesh (No. of persons)



Source: Andhra Pradesh State Literacy Mission Authority, and OneWorld Foundation India, 2014

Table 4: Status position of vocational skills

Name of the District	No of Programmes conducted	No. of beneficiaries covered
Adilabad	866	25,980
Ananthapur	1,336	33,363
Chittoor	1,108	33,247
Guntur	284	18,230
Kadapa	41	1,025
Khammam	171	5,146
Kurnool	897	26,937
Mahaboobnagar	921	23,260
Medak	1,059	27,395
Nalgonda	854	21,350
Prakasam	77	1,925
Rangareddy	200	5,000
Srikakulam	165	4,950
Visakhapatnam	150	3,750
Vizianagaram	120	7,620
Warangal	247	5,434
Total	**8,496**	**244,612**

Source: Andhra Pradesh State Literacy Mission Authority, and OneWorld Foundation India, 2014

Key Challenges

The attitude of the targeted population towards literacy was the biggest challenge. The first step of bringing people, especially women, from their homes to the literacy centres was critical for implementing and sustaining the programme. This was countered by extensive awareness generation campaigns and intensive engagement of preraks with the community. While the initial entry of the targeted population into adult education centres is a challenge, a continuous effort is required to retain them in the learning process. This is again a challenge since the learning material and the environment need to be conducive to their needs.

Aspects such as equivalency and continued education have been started in order to address this challenge. It is hoped that the basic certificates that will be provided to programme beneficiaries achieving different qualifications will garner greater recognition and respect for the learning attained at these centres. These certificates could be used by neo-learners in pursuit of jobs.

Replicability and Sustainibility

Adult education is critical for India to eradicate illiteracy and to ensure greater opportunities for progress to the marginalised sections of society. By addressing this need, the Saakshar Bharat programme makes a unique

People speak...

Chandrakala, Velimela Village

Madam (*prerak*) came to tell us that we should come to the centre in the evenings and spend time with her. It would be good for us and we will learn how to read and write. Initially I was scared as I did not know how to read or write. Now I have started on Primer A. My children also encourage me to continue.

Awards

Andhra Pradesh State Literacy Mission Authority (APSLMA) won three awards at the state, district and village levels for successful implementation in 2012:

- **APSLMA at the state level got the award for improving the literacy percentage.**
- **Vizianagaram district in Andhra Pradesh was selected for Saakshar Bharat award for its efforts in implementation. Pre-implementation, 7.39 lakh women above 15 years of age were illiterate. Post-implementation, 61% of this number was made literate and efforts are ongoing to expand literacy levels.**
- **The P. Yeleru Gram Panchayat in Anantpur district got the award for improving the literacy percentage.**

and essential contribution towards the country's growth and development. The programme uses an effective mechanism to mainstream those adults who did not have the opportunity to become literate. In the post-Right-to-Education era, this service gets redefined as a duty of the State rather than a service. The 'Andhra Model' and the sheer numbers that are being targeted enhance the chances of replicability in states like Uttar Pradesh.

Conclusion

The energy and passion with which the Saakshar Bharat programme has been implemented in Andhra Pradesh can be gauged from the initiatives that have been taken up in different districts to enhance its reach and impact.

The District Collector of Vizianagaram initiated a special intensive literacy drive to cover 4,00,000 learners, primarily MGNREGA beneficiaries, by involving civil society organisations. The ZLSS has conducted the NIOS assessment test in March 2012 for all learners in Vizianagaram.

For this activity, Vizianagaram district was recgonised in the *Limca Book of Records*. Similarly, the District Collector of Mahaboobnagar initiated a special literacy drive in low literacy *mandals* such as Gattu, Leeja, Maldakaland and Dharur to cover 1.50 lakh non-literates. Such high levels of passion on the part of the state and district administrations to ameliorate illiteracy have made a significant impact on the literacy canvas of the state.

Fact Sheet

Theme	Education
Nodal Implementing Agency	Andhra Pradesh National Literacy Mission
Geographical Coverage	19 Districts of Andhra Pradesh State
Target Groups	Women and Minority groups
Years of Implementation	2009 - Present

ENVIRONMENT

2.6 Avadi Sewage Treatment Plant: Sustainable off-grid sewage treatment in Chennai

The Tamil Nadu Police Housing Corporation (TNPHC) has successfully constructed an off-grid sewage treatment plant (STP) to improve living conditions in the police housing colony in Avadi, a suburb of Chennai. This sewage treatment plant has not only solved the problem of sewage disposal but also provided a pond of treated water for fishing, vegetable cultivation and recharging of groundwater. It treats 12 lakh litres of sewage every day with no negative discharge, produces manure, recharges groundwater, removes the source of foul odour and waterborne diseases, and beautifies the area.

Rationale

The lack of sewage treatment facilities was a major concern for residents of the police quarters in Avadi, a suburb of Chennai under the municipality of Thiruvallur district. The police colony, constructed by the Chennai Public Works Department (PWD) in 1966, occupies an area of 1,000 acres and houses approximately 12,500 residents from 2,000 households. However, as the Avadi area does not fall under Chennai city limits, it was not connected to the underground sewer system and had to dispose of its sewage through septic tanks.

The problem with this arrangement was that the percolation of water from the septic tank to the subsoil was little, as the soil was largely clayey. This resulted in heavy stagnation of wastewater around the police quarter area, which became a source of foul odour and waterborne diseases, causing severe inconvenience to residents.

Image 1: Land affected by sewage was earlier unutilised

Source: Tamil Nadu Police Housing Corporation

The residents complained to the TNPHC, a state-level nodal body in charge of all police-related construction matters. After studying the area and the problems faced, a decision was taken to construct an off-grid STP that would transform waste into useful material.

Objective

The STP was constructed with the objective of treating and reusing the sewage water generated in the Avadi police quarters.

Key Stakeholders

The programme is being implemented by the TNPHC with the financial support of the Government of Tamil Nadu, and the beneficiaries are the residents of Avadi.

Figure 1: Key stakeholders

Residents of Avadi police quarters
- Beneficiaries of the initiative

Tamil Nadu Police Housing Corporation
- Main implementing agency

Government of Tamil Nadu
- Provides administrative approval and financial sanction

Implementation Strategy

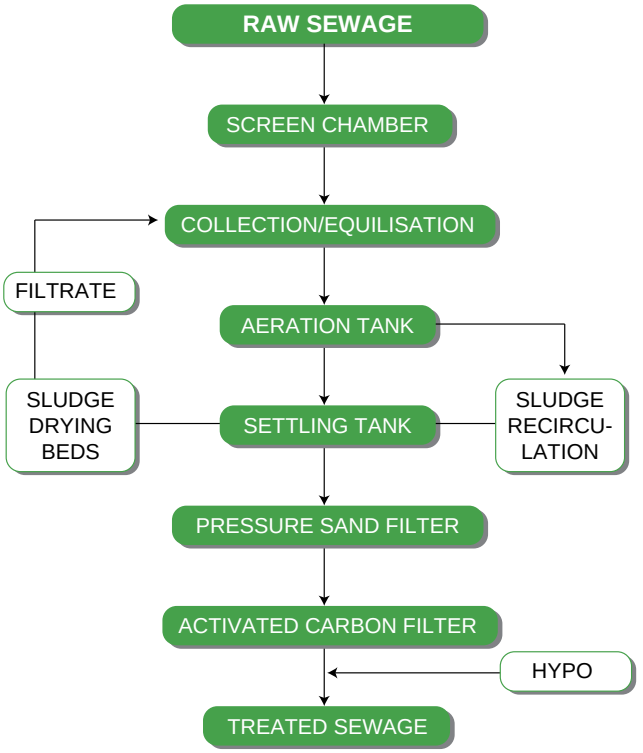
The approach followed for implementation involved focussing on the basics initially, testing the essential viability of the project and then, if successful, scaling it up. Thus, the first goal of the project was to contain the existing damage and treat the sewage that was being generated. Emphasis was also placed on building a robust system that would be as maintenance-free as possible. Accordingly, the methodology of activated sludge control was chosen for deployment due to its simplicity and reliability. The method uses air and a biological floc composed of bacteria and protozoa to treat sewage. A contractor was selected through an open tendering process to construct the STP using this method. Unplasticised Polyvinyl Chloride (UPC) material was used in construction, as it does not corrode easily and requires less maintenance.

Phase I of the project began in 2003, with the target of treating 2 lakh litres of water daily and constructing a pond to store the treated water and use it to recharge the groundwater table. The project was completed in 2004. Phase II began in 2011 and had the target of treating 10 lakh litres of water daily. An additional STP was constructed for this purpose by 2012.

After the construction of the treatment plant, its maintenance was handed over to the members of the police colony. Constables and pump operators were trained for three months by the implementing agency.

The STP in Avadi is now almost maintenance-free. The process flow for the system is illustrated in *Figure 2*.

Figure 2: Process flow chart for sewage treatment



Source: Tamil Nadu Police Housing Corporation

Image 2: (Clockwise from top left): Collection well; clarifier; settling tank; pressure sand and activated carbon filter; sludge drying bed, and treated water pond with walking track

Source: Tamil Nadu Police Housing Corporation

Resources Utilised

Details about the resources utilised in the construction of the STP in Avadi are presented in *Table 1*.

Table 1: Resources used in establishing the STP in Police Colony (Avadi)

Funds (in Rs.)		Additional Resources	
Set-up cost		Sand	1,000 cu.m
Phase I	30,00,000	Brick jelly	96 cu.m
Phase II	1,00,00,000	Stone jelly	850 cu.m
		Bricks	4,000 bags
Running cost		Cement	10,000 bags
Monthly electricity bill	15,000	Manpower	3,000

Source: Tamil Nadu Police Housing Corporation

Impact

Treatment of sewage, removal of odour and diseases: The immediate outcome of the STP in Avadi has been to treat 12 lakh litres of sewage every day with no negative discharge, produce manure, recharge groundwater, remove the source of foul odour and waterborne diseases, and beautify the area.

Production of economically valuable items: The water produced by the STP is being used for cultivation of bananas, coconuts and vegetables; fish like katla, kapis and logu; and beema bamboo, which is used in the production of furnace oil, paper, cloth, ornamental items and mats. This fast growing, thorn-free plant generates high levels of oxygen and also acts as a green boundary wall. The 1,000 beema saplings brought from Hosur, Bengaluru, will be ready for harvesting in five years. The products cultivated at the site are used in police canteens and are made available to the colony's residents at subsidised rates.

Key Challenges

Residents of the police colony were initially reluctant to use the treated water. To address this issue, senior police officers were involved in building a consensus leading to acceptance of the initiative. The Additional Director General (Police), Inspector General (Prisons) and a former Police Commissioner of Chennai visited the field site, held discussions with the residents of the colony and encouraged them to use the treated water. The unutilised land around the plant was divided into plots that were to be used for cultivation. Three teams were formed to carry out the cultivation, and within six months the land reaped a harvest of bananas. The culture of cultivation caught on, and kitchen gardens irrigated by the pond are now a common sight in the colony.

Subsequently, the TNPHC introduced fish cultivation in the pond by providing seeds and feed. However, residents showed reluctance in consuming the fish. To deal with this, the previous strategy of involving high-level leadership was successfully used again. In fact, the Additional Director General (Police) set an example by consuming some of the fish himself. This encouraged many of the residents to follow suit.

Replicability and Sustainability

The STP in the police quarters in Avadi successfully converts waste into useful material. It replenishes the environment, produces economically valuable items and removes a major source of inconvenience for the community. The set-up costs for the plant were drawn from the funds earmarked for waste disposal in the housing project. The STP's maintenance cost is low, and there is no requirement for additional allocations.

Image 3: (Left) Cultivation of bamboo and (far right) bananas

Source: Tamil Nadu Police Housing Corporation

The fruits of the project are directly available to the community, which also has a stake in maintaining the system.

The Government of Tamil Nadu recognised the value of the initiative and replicated it in several other locations in the state. In 2010-2011, it launched a project in Madurai Central Prison. The plant cost Rs 45 lakh and has a treatment capacity of 2 lakh litres. The treated water is being used to cultivate vegetables. The government has decided to scale up and implement the model in all the prisons of the state. Similar projects have already been implemented in the Tamil Nadu Police Academy in Vandalur and in Kumarasampatti quarters in Salem district. There are plans to use the Avadi model in the construction of 2,673 houses for uniformed service personnel under the Own Your House scheme in Malakottiyur near Chennai.

Conclusion

The construction of the STP in Avadi shows how off-grid or isolated systems for sewage treatment can effectively manage sewage in a way that converts waste into useful products and also recharges the environment. Having already been replicated at several sites in Tamil Nadu, the model offers a proven strategy for responsible and productive sewage disposal.

Fact Sheet

Theme	Environment
Nodal Implementing Agency	Tamil Nadu Police Housing Corporation
Geographical Coverage	Tamil Nadu Police Housing Colony, Avadi suburb, Chennai, Tamil Nadu State
Target Groups	The residents of Avadi Police Housing Colony
Years of Implementation	2003 - 2012

2.7 Dhara Vikas: Creating water security through spring-shed development in Sikkim

Dhara Vikas is an innovative programme to revive and maintain drying springs in the north-eastern state of Sikkim. A robust climate adaptation strategy for drought-prone districts, Dhara Vikas (meaning, spring-shed development) is helping to alleviate the problem of rural water scarcity by reducing surface runoff of rainwater and allowing more water to percolate down to recharge underground aquifers, which, in turn, ensures increased discharge from springs. Besides its significant impact on crop patterns and yields, the programme has also worked on developing a village spring atlas and a water source atlas for the state. Water access to the population through this initiative has also led to improved sanitation practices.

Rationale

The adverse impact of climate change on rainfall threatens the delicate, holistic balance that once stimulated the Himalayan ecosystem. Sikkim, too, has witnessed a change in rainfall pattern, including increased intensity of rainfall, reduction in temporal spread, and a significant fall in winter rainfall[1]. The impact of this change on the lives of the Sikkimese people gained wide attention during a seminar in 2008, organised by the World Wildlife Fund (WWF) on World Water Day, when a group of local women spoke about the daily drudgery caused by lack of water[2]. The problem of water scarcity was more pronounced in South Sikkim and West Sikkim districts, which fall in rain-shadow areas and receive much less rainfall than other districts. According to the *Sikkim First,* an economic and political journal, about 65,000 (nearly 80%) of the state's rural households depend on springs for drinking water and irrigation. Recognising the urgent need for ensuring water security, the Rural Management and Development Department (RMDD), Government of Sikkim (GoS), conceptualised the Dhara Vikas initiative to revive the state's dying lakes, springs and streams. Estimates suggest that in mountainous terrain less than 15% rainwater percolates down to recharge springs, while the rest is lost as surface water. The core thrust of Dhara Vikas is to catch this runoff water and use it to recharge groundwater sources.

Objectives

The primary objective of Dhara Vikas is to ensure water security by breaking the cycle of abundance and scarcity of water. It also seeks to enhance the hydrological contribution of the mountainous ecosystem as a water tower for the people, and ensure disaster risk management by reducing landslides and floods.

Key Stakeholders

This initiative is being run by various departments of government with the support of private institutions. RMDD is the nodal agency for this initiative.

Figure 1: Key stakeholders in the Dhara Vikas initiative

Nodal Agency

- Department of Rural Management and Development

Government Departments

- Department of Forest, Environment and Wildlife Management
- Department of Science and Technology and Climate Change
- Department of Mines and Geology
- Indian Space Research Organisation, Department of Space, Bengaluru

Private Institutes

- G.B Pant Institute of Himalayan Environment and Development
- World Wildlife Fund (India)
- Gesellschaft für Internationale Zusammenarbeit (India)
- Peoples' Science Institute, Dehradun
- Chirag, Nainital
- Arghyam, Bengaluru
- Advanced Centre for Water Resources Development and Management (ACWADAM), Pune
- Tolani Maritime Institute (TMI) India, Sikkim
- Bhabha Atomic Research Centre, Mumbai

Beneficiaries

- People of South and West districts in Sikkim

[1] *Tambe, S., Arrawatia, M. L., Bhutia, N. T. and Swaroop, B. Rapid, cost effective and high resolution assessment of climate-related vulnerability of rural communities of Sikkim Himalaya, India. Current Science, 2011, 101(2), 165-173.*

[2] *This lack of water was primarily due to drying up of lakes and decline in the lean period discharge in streams and springs.*

Image 1: Rural hardship due to water scarcity in Namthang block, South Sikkim

Source: Rural Management and Development Department, Government of Sikkim

Implementation Strategy

Increasing occurrence of droughts in South Sikkim and West Sikkim districts, where the springs and streams used to dry up every year between the months of March to May, led the RMDD to launch the Dhara Vikas initiative in 2008. The initiative was launched under the centrally sponsored Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme, with technical support from other government agencies and organisations like WWF - India; People's Science Institute, Dehradun; ACWADAM, Pune, and Arghyam, Bangaluru.

Dhara Vikas aims to revive and maintain the *dhara* (springs) in the South and West districts of Sikkim by using rainwater harvesting, geohydrology and Geographical Information System (GIS) techniques.

Image 2: Community participation in Namthang block, South Sikkim

Source: Rural Management and Development Department, Government of Sikkim

The first year of the programme saw the initiation of several capacity building measures for the existing workforce. About 20 programmes were organised in coordination with various NGO stakeholders to develop specialised knowledge and skills in areas such as rainwater harvesting, geohydrology, and spring discharge measurement; use of Global Positioning System (GPS); and laying of contour trenches.

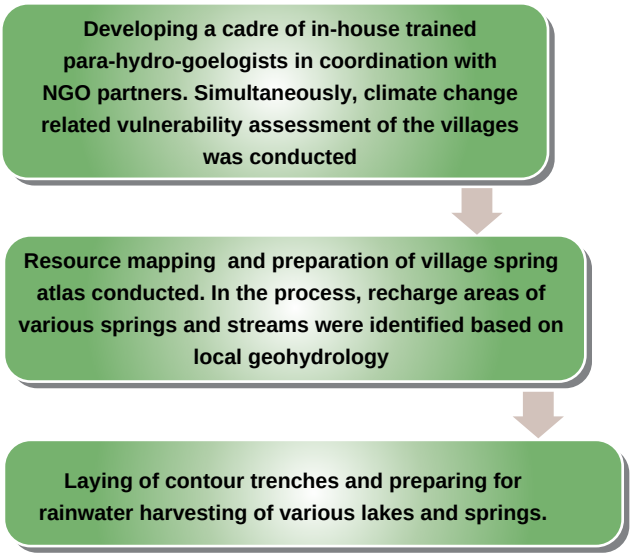
Image 3: Trenches to trap the runoff rainwater in Namthang block, South Sikkim

Source: Rural Management and Development Department, Government of Sikkim

Simultaneously, RMDD identified the recharge areas of various springs and streams based on the varying structure, weathering and fracture pattern of rocks. The pilot phase in the year 2010 aimed at reviving the Nagi Lake in South Sikkim district, focussed on digging of trenches and laying of pipes for the recharge of select lakes and springs. The encouraging results of these interventions became evident by 2011, after which the initiative was scaled up in 2012 to cover the South Sikkim and West Sikkim districts. Dhara Vikas enabled a remarkable convergence of expertise from various departments like forest, mines and science and technology, who provided their specialised knowledge on relevant subjects. Activities such as laying of trenches and GI pipes were taken up under the national flagship MGNREGA programme. The major stages of the initiative are depicted in *Figure 2*.

Implementation of the Dhara Vikas initiative has primarily focussed on executing a scientifically robust strategy and generating awareness. The initiative's strategic focus has been on controlling runoff water and increasing its permeation to enhance groundwater recharge. Activities toward this objective include developing springs-sheds,

Figure 2: Activities initiated by the Dhara Vikas programme



Source: Rural Management and Development Department, Government of Sikkim, and OneWorld Foundation India, 2014

enhancing hydrological contribution of hill-top forests, reviving lakes to function as recharge structures, expanding minor irrigation networks for paddy cultivation, terracing sloping lands, enhancing water storage infrastructure, developing para-professionals in geohydrology, and carrying out research and documentation.

Dhara Vikas has not required any separate grievance redressal mechanisms. The nature of initiative has been such that it required the committed involvement of villagers, as the problem being addressed impacted all the members of the community. Decisions related to digging of trenches and recharge points were based on principles of geohydrology, which mitigated the potential problems associated with arbitrary decisions. All work-related resolutions have been taken up in the Panchayats and sorted through village-level discussions.

Pilot project - Nagi Lake

Before the launch of the Dhara Vikas programme, the Nagi Lake in South district of Sikkim had dried up, gradually killing all the springs recharged by it. The pilot project made the lake perennial again and resurrected springs, such as Setikhola, thereby providing water security even during dry months. For details, visit: www.sikkimsprings.org

Awareness generation has been an important part of Dhara Vikas. As the project was initiated in response to the problem of water scarcity, the villages with the most acute shortage were selected for implementation during the initial phase in 2009. Public awareness was high in the areas where the pilot was conducted. Micro-level planning invariably involved discussion with the local populace. As the initiative was being implemented through MGNREGA, the locals were also kept updated on aspects of implementation.

According to RMDD, the success of the programme, which has revived five lakes and 50 springs, has generated more demand from villages that suffer from similar water scarcity. With the revival of lakes and springs and the increased awareness, villagers in the area have also started constructing water storage tanks. They use the day-time discharge from springs for irrigation, while the night-time discharge is used to fill personal tanks by rotation.

Resources Utilised

The initiative has made remarkable use of the existing resources by converging the activities of various Departments to ensure effective implementation. NGO partners like WWF provided support in training and assessment studies. More than 20 training programmes have been organised by various NGO partners in collaboration with RMDD. It's estimated that an amount of Rs 2.5 crore has been spent on spring-shed development activities, covering a total area of 400 hectares and resulting in annual groundwater recharge of 900 million litres[3].

Impact

Recharging lakes, reviving springs, reforestation: Dhara Vikas has created a significant impact by recharging lakes and reviving several springs in Sikkim. As many as 50 springs have been revived, most of them in Kaluk, Rhenock, Ravangla, Sumbuk, Jorethang and Namthang. Further, five lakes, namely Dolling, Deythang, Nagi, Karthok and Datum, were revived by the initiative. It has also led to reforestation of seven hill-top forests at Simkharka, Sadam, Tendong, Maenam, Gerethang, Chakung and Sudunglakha. Overall, at an investment of Rs. 2.5 crore over the last four years, Dhara Vikas has brought about 900 million litres of annual groundwater recharge.

Creation of a cadre of technical specialists: Dhara Vikas has also developed seven master trainers as in-house cadre of para-hydrogeologists.

[3] *Sikkim First Bureau, web accessed on December 6, 2013, from: http://sikkimfirst.in/2013/11/10/sikkims-dhara-vikas-initiative-gives-fresh-lease-of-life-to-dying-mountain-springs/*

Image 4: Recharging lakes by piping surface rainwater flow in Dolling lake, South Sikkim

Source: Rural Management and Development Department, Government of Sikkim

Creation of a village spring atlas and web portal: Another significant impact of the initiative is the creation of the village spring atlas web portal which provides information on 700 springs, and can be accessed at www.sikkimsprings.org.

Benefits to agriculture and farming: Dhara Vikas has made a significant impact on crop patterns and yields. According to Bengaluru-based Indian Institute of Science's assessment report (2013), increased irrigation has encouraged farmers to cultivate new crops such as beans, radish, cauliflower, cabbage and chilly, along with paddy and tomatoes. Many perennial garden fruits, such as guava, banana, orange and litchi, have been cultivated following this initiative. The report also indicates an average of 15% increase in crop yield and 25% increase in the cultivation of irrigated crops such as paddy, tomato and vegetables.

Improvements in sanitation: Another notable impact of the programme is the improvement in sanitation, which was earlier seriously compromised due to water scarcity.

Dhara Vikas' Innovative Approach

1. Developed para-geohydrologists to bridge the knowledge gap on geo-hydrology and revival of springs at the village level
2. Adopted a landscape-level approach by reviving springs, streams and lakes
3. Succeeded as a community-driven initiative that created grassroots demand by successfully carrying out pilot projects on spring-shed development
4. Linked with the MGNREGA national scheme for sustainable funding support

Key Challenges

As this initiative involved the implementation of a new concept, many lessons were learnt along the way. Trenches for groundwater recharge were initially dug without adherence to geo-hydrological requirements. Some trenches were dug on terraced fields instead of on sloping land, while others were dug without supervision which could ensure maximum trapping of surface runoff, thus making them ineffective. Similarly, many horticulture and forestry activities initially undertaken to improve groundwater recharging did not show any positive outcomes. In time it was realised that trenches and ponds had a greater impact on groundwater recharging and soil moisture than plantations, which lose moisture through evaporation.

In certain locations, the lean period discharge was not recorded, making any conclusive impact assessment impossible. Also, as the programme gathered momentum, its positive effects generated demand for scaling up, which could not be met due to the limited number of trained staff.

Achievements

Prime Minister's Award for Excellence in Public Administration (2011–2012) to Rural Management and Development Department (RMDD), Government of Sikkim

National Groundwater Augmentation Award (2010–2011) to WWF-India for technical support to MGNREGA-Dhara Vikas of RMDD; given by the Ministry of Water Resources, Government of India

T.N. Khoshoo Memorial Award by ATREE (2011) to Sandeep Tambe, Special Secretary, RMDD, Government of Sikkim, in recognition of his efforts in sustainability and community-based governance of common property resources in Sikkim

eNorth East Award (2012): Winner of Village Spring Altas for conservation of Himalayan springs and adapting to climate change (www.sikkimsprings.org)

Replicability and Sustainability

The ecologically sound and scientific solution implemented by Dhara Vikas is seen as a highly replicable strategy to tackle the pervasive and persistent problem of water scarcity in mountainous regions. Representatives from countries like Nepal and Bhutan, which have a similar topography as Sikkim, as well as from other hilly Indian states, like Arunachal Pradesh and Himachal Pradesh, have visited the state to understand the process of spring-shed development. They plan to implement similar initiatives in their respective geographies.

The sustainability potential of this initiative is also reasonably high, as it taps into plan funds and the MGNREGA scheme and uses infrastructure that already exists within various Departments. Other than the trenches and GI pipes used for groundwater recharging, Dhara Vikas does not demand the creation of any new infrastructure. Once the initial pilot is successful, the impact itself paves the way for Gram Panchayats taking up ownership as well as the responsibility for upkeep and maintenance of the project.

People speak...

Experience of a beneficiary

Lendup Lepcha is a beneficiary of the Dhara Vikas project. He considers the improved availability of drinking water to be the biggest benefit of the programme. Like everyone else in the village, Lendup too has his own water tank. He believes that the Panchayat and block development officers played an important role in ensuring water security, which opened income avenues for the local population. Earlier, he was not able to cultivate in the lean period due to lack of adequate irrigation facilities. After the implementation of Dhara Vikas, the improved availability of water for irrigation has allowed him to diversify into horticulture and vegetable cultivation. Unlike before when he could only cultivate dry crops such as ginger, Lendup now also grows vegetables such as tomato, peas, cabbage and cauliflower. This diversification has increased his income. Lendup believes other parts of the state should also be brought under Dhara Vikas so that many others can benefit from it.

Conclusion

Dhara Vikas has had a profound impact on the lives of people living in water-scarce areas of Sikkim, and this innovative intervention is set to continue in future. In keeping with its utilisation of latest technology for spring-shed development, Dhara Vikas has initiated an environmental isotopic fingerprinting study of springs in Sikkim, in collaboration with the Bhabha Atomic Research Centre (BARC), to increase knowledge of mountain aquifers. This technique can further strengthen the understanding of recharge areas and pinpoint specific locations for optimal recharge of a spring.

Apart from this, a training handbook is being prepared to illustrate the process of groundwater recharge. Pilots of other water security initiatives, including documentation of village water budget, village recharge areas and ways in which water efficiency can be enhanced are underway.

Fact Sheet

Theme	Environment
Nodal Implementing Agency	Rural Management and Development Department, Government of Sikkim
Geographical Coverage	South and West Sikkim districts (only mapping covered Sikkim State)
Target Groups	Citizens of Sikkim
Years of Implementation	2009 - Present

An environment management initiative of the Dr. B.R. Ambedkar Institute of Technology promotes environmental conservation and awareness through implementation of rainwater harvesting, effluent treatment and paper recycling that meets about half of the institute campus' water requirement.

2.8 Environment Management Initiative: A unique low-cost model in Andaman and Nicobar Islands

In July 2005, the Dr. B.R. Ambedkar Institute of Technology launched an environment management initiative in Port Blair, Andaman and Nicobar, with the aim to promote environmental conservation and awareness through implementation of rainwater harvesting, effluent treatment and paper recycling. As a result of this initiative, nearly half of the institute campus' water requirement is being met through rainwater harvesting. Simultaneously, the paper recycling plant set up under the initiative produces 500 file folders every semester; and the solid waste management component has helped reduce waste.

Rationale

This environment management initiative was implemented inside a residential educational campus, comprising buildings and living quarters. The campus faced a severe waste management problem, an issue that is felt universally across urban settlements, negatively affecting the environment and consequently, public health. The waste management problem was further complicated by the fact that waste segregation was not practised by the students and other residents of the campus, as a result of which organic recyclable waste was being mixed with inorganic toxic waste. In any case, the waste was not collected regularly. The absence of waste segregation and waste collection by students in a systematic manner resulted in piling up of waste and growth of harmful bacteria, which posed a health risk to all campus residents.

The environment management initiative was introduced in response to this scenario. It focussed on implementation of different waste management techniques, including recycling of paper, effluent treatment and rainwater harvesting within the campus.

Image 1: Solid waste management system

Objectives

The overall objective of the initiative was to demonstrate sustainable environmental practices and solve the various waste and water management problems of the institute. The aim was to set up a rainwater harvesting plant that could meet 50% of the campus' water requirements; an effluent treatment plant (ETP) that could make 50,000 litres of water available for horticulture and other activities; a solid waste management plant to covert biodegradable solid waste into organic manure; and a recycling plant to produce paper and jute material for 500 file folders every semester.

Key Stakeholders

Dr. B.R. Ambedkar Institute of Technology, which operates under the Department of Higher Education, implemented the initiative. The Department of Science and Technology, Andaman and Nicobar, and the Andaman

Figure 1: Key stakeholders

- **Dr. B.R. Ambedkar Institute of Technology**
  - Implementation agency
- **Department of Science and Technology, & Andaman Public Works Department**
  - Techological support
- **The World Bank**
  - Financial support
- **Students and staff members of the institute**
  - Operation and monitoring of the project

Public Works Department provided the technological support for implementation, while the World Bank provided financial support to the initiative. Students and staff members of the institute provided operating and monitoring support.

Implementation Strategy

The Andaman and Nicobar administration, along with members of the Institute, implemented this initiative for efficient waste management at the Dr. B.R. Ambedkar Institute of Technology which is spread over 16.8 hectares. Keeping in mind the adversities of the region, the project was designed and successfully implemented utilising the available natural resources. The main components of the project were biodegradable solid waste management, rainwater harvesting, effluent treatment and recycling of paper waste. Each of the components is discussed in detail below.

Solid Waste Management System

The system for waste management was implemented to manage solid and liquid waste produced within the campus and to reduce their negative effects on human health. Under this system, waste is segregated at source and put into multi-coloured bins – green bins are used for compostable waste and blue ones are used for non-compostable waste. Yellow bins are meant for disposing rubber items, while grey bins are for the disposal of industrial waste such as automobile filters.

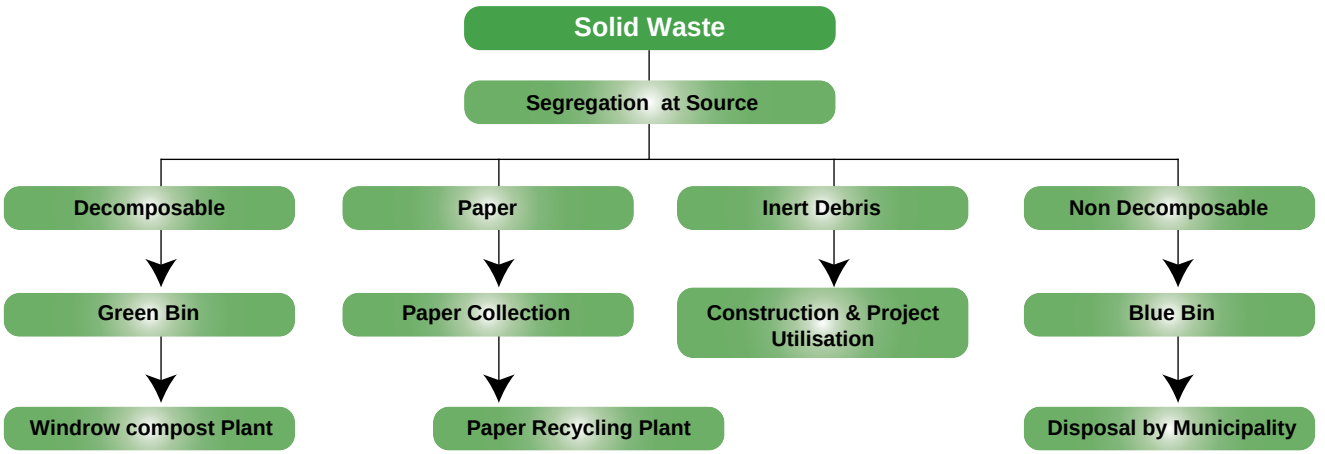
The quantity of waste produced is then studied and the part of it that is organic waste is managed by a technique known as windrow composting. This technique is used to produce compost by piling organic matter such as animal manure or crop residues in long rows (windrows). The method is used to produce large amounts of compost. The rows are rotated to improve oxygen content, mix or remove moisture, and redistribute the manure. Partially transparent green fibre roofing is used during the rainy season to prevent the entry of water into the composting ground.

Effluent Treatment Plant (ETP)

The liquid waste produced from domestic units (kitchens, bathrooms and laboratories, including the waste from water closets) is treated in the ETP, which was set up in 2003. Most of the water comes as liquid waste containing sullage and soil waste, which needs to be disposed off and treated. The ETP consists of a screen, collection well, grit chamber, anaerobic digestion chamber, aeration tank, clarifier, and sludge drying beds. It is able to treat all kinds of liquid waste.

Image 2: Manure composition

Figure 2: Solid waste management system



Source: Dr. B.R. Ambedkar Institute of Technology

Rainwater Harvesting System

The management and distribution of water in the campus was a source of concern, especially due to the absence of community participation in water management and a water harvesting system. This necessitated the need for rainwater harvesting to recharge the groundwater. In order to ensure adequate supply of clean water, a rainwater reservoir was constructed at the institute. This reservoir collects the surface run-off in bore wells. The water is then treated using pressure filters and chlorine contact basins, and the treated water is used for gardening, fire fighting etc.

Recycling of waste paper

The institute also set up a paper recycling plant. The large amount of paper waste created by the institute is recycled in this plant to make folders and other necessary materials. The process of paper recycling involves mixing used waste paper with water and chemicals to make it soft. It is chopped down into finer pulp or slurry, which is then strained through a screen to remove plastic and other impurities. The pulp is spread on large sheets using rollers and left to dry. Once the paper dries, it is cut into different shapes as needed and given a finishing touch. Recycling of paper reduces air pollution, contributes to the conservation of trees and lowers waste disposal at landfill sites.

Image 3: Recycled Paper

Resources Utilised

The contribution of students at the institute was crucial in the planning and implementation of the initiative. They took the responsibility of monitoring and operating the different plants/units deployed in the campus as part of the Initiative.

Table 1: One time cost of setting up different plants

Plant type	Cost (in Rs)
Effluent treatment plant	70 lakh
Paper recycling plant	5 lakh
Rain Water Harvesting	15 lakh (2 members)

The units operate by using available natural resources, such as rainwater or waste items like used paper, effluents and biodegradable waste.

Impact

Sustainable waste management processes, clean environment: This environmental initiative in Andaman and Nicobar has demonstrated effective and sustainable waste disposal practices to the community. It has shown that even remote and disadvantaged areas have the potential to develop sustainable environmental options. The biodegradable waste management system established under this initiative has created a clean and hygienic living environment inside the campus. The initiative is encouraging people to adopt such practices and improve their surroundings.

Recycling of solid and liquid waste to generate useful by-products: After the launch of this initiative, almost 50% of the campus' water requirement is being met through rainwater harvesting; 50,000 litres of water is available for fire fighting and horticulture activities through processed ETP discharge; the paper recycling plant helps produce 500 file folders every semester; and the solid waste management project has improved the environment by reducing waste. Thus, the initiative is introducing students and others to the idea of environmental conservation and encouraging them to develop streamlined waste management and environmental practices for better living.

Key Challenges

Community participation is a core component in implementation of an initiative such as this. Interactions with the administration and officials at the institute revealed constant challenges in convincing the community about the various environmental practices. During the initial phase, people were disinterested and reluctant to participate in the waste management system. They did not readily participate in the segregation of waste into solid and liquid and ensure disposal into different bins. However, there was a gradual increase in awareness and an acknowledgement of the need for the project. The

Image 4: Paper recycling plant

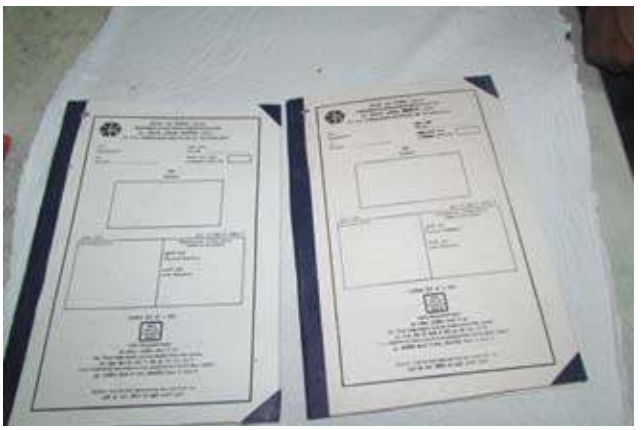


Image 5: File foldes made from recycled paper

Table 2: Percentage of waste generated

Type of waste generated	Percentage
Organic waste	64.90
Paper waste	15.46
Plastic waste	11.01
E-Waste	2.00
Other waste	6.63

Source: Dr. B.R. Ambedkar Institute of Technology

Table 3: Quantity of effluent obtained

Parameters	Effluent quantity
Ph value	6.4
Suspended solids	40mg/1
Dissolved solids	9mg/1
B.O.D	2.5mg/1
Total residual chlorine	Less than 0.1ppm

Source: Dr. B.R. Ambedkar Institute of Technology

growing contribution of the students and staff members helped establish a strong foundation for the project and enhanced the environmental and economic viability of the initiative to enable the achievement of almost all its targets.

Replicability and Sustainability

The utilisation of natural resources like rainwater and waste materials like paper, effluent and solid and liquid waste, and the leveraging of the existing network of local human resources (students and staff members of the campus) make this a highly sustainable initiative. Neither did the development and implementation require continuous external support, nor did it burden the community with any additional responsibility.

The initiative tapped into the existing human and financial resources and did not require high investment or technology. These factors make it an environmentally and economically viable and sustainable initiative. It also carries social relevance as it involved creating awareness among students, the younger generation, to be more

Table 4: Quality of effluent to be disposed

Parameters	Effluent disposed into inland surface water (IS:2490)	Effluents disposed into marine coastal area (IS:2490)
Ph value	5.5 to 9	5.5 to 9
Suspended solids	100mg/l	100mg/l
Dissolved solids	2100mg/l	2100mg/l
B.O.D	30mg/l	100mg/l
Total residual chlorine	1mg/l	1mg/l

Source: Dr. B.R. Ambedkar Institute of Technology

sensitive toward the environment and contribute to the community's well-being.

This initiative is highly replicable. Its strength lies in the adoption of sustainable practices, coupled with adequate community participation for achieving best results. Successful implementation of this environmental initiative in an area like Andaman and Nicobar, which has a fragile ecosystem, difficult topography and limited infrastructure, should serve as an example for other states.

Conclusion

The uniqueness of this initiative lies in the simple yet effective and efficient solution it offers to alter waste management and environmental practices. Recognising the importance of the community in ensuring sustainability, this environment management initiative has been put completely under the charge of the community, especially students and the younger generation, making it an exemplary practice.

Fact Sheet

Theme	Environment
Nodal Implementing Agency	Dr. B.R. Ambedkar Institute of Technology, Department of Higher Education, Andaman and Nicobar Administration
Geographical Coverage	Within the campus of Dr B.R. Ambedkar Institute of Technology, which is spread across 16.8 hectares
Target Groups	Students and staff members of the institute
Years of Implementation	2005 - Present

The Karnataka Forest Department has initiated India's first end-to-end online system for tracking forest produce by managing transit of produce as user departments have access to all the data on a single, simplified dashboard that can track the high volume of transactions.

2.9 Forest Produce Tracking System: Facilitating resource management from source to sink in Karnataka

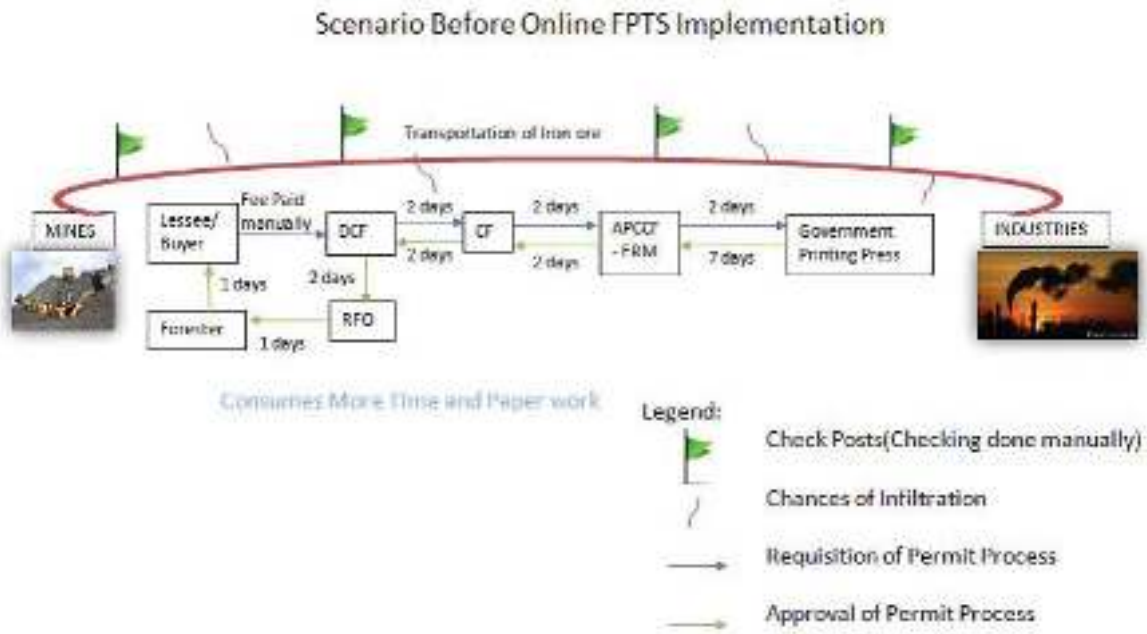
Forest Produce Tracking System (FPTS) is a cutting edge web-based application, which was developed and implemented by the Karnataka Forest Department (KFD) in 2011. India's first end-to-end online system for tracking forest produce, FPTS represents a radical shift in the approach toward transit management as user departments have access to all the data on a single, simplified dashboard which generates reports on transit passes (TPs), rejected applications, check post registers and tracks delayed arrivals too. The FPTS automatically tracks a voluminous number of transactions, handling approximately 4,000–5,000 TPs issued daily.

Rationale

Prior to the introduction of the FPTS, the Karnataka Forest Department (KFD) used a manual system to manage and regulate the extraction of natural resources such as timber, minerals and firewood. A forest officer would inspect a load at the source of release and issue a TP to the owner of the material, certifying the details of the load. This certificate was periodically verified at each forest check post till the sink.

However, this manual system suffered from several shortcomings. It was very time consuming as multiple authorities, approvals and logistics were involved in the issuance of TPs. The enormous volume of paper-based TPs made it difficult for KFD to effectively carry out its core function of monitoring and regulation. Also, the workload often forced issuing officers to sign pre-written passes as it was near impossible to be present at all locations to issue loads and transit passes. The absence of a mechanism for independent verification of TP entries at check posts and the inability to identify the transported material, leading to mixing with illicit material, were among the other issues that affected the previous system. The system was made even more ineffective by the rampant corruption at the issuing stage, owing to discretionary powers being vested in multiple issuing authorities; printing of counterfeit TPs; ferrying of multiple loads with the same TP; and pilferage of resources as no weight was taken at loading points. Taking mining as an example, *Figure 1* shows the operation of the previous manual system of obtaining permits for the extraction of forest produce and issuing TPs.

Figure 1: The scenario before implementation of FPTS



Source: Karnataka Forest Department

The Bellary mining incident of 2009-2010 was seen as a major symptom of this systemic weakness. It generated significant bad press but, on the positive side it created a favourable political climate for reform. The Karnataka Lokayukta report on illegal mining in Bellary had a chapter on the use of Information and Communications Technology (ICT) for regulation of ore movement. This provided impetus to the KFD officials in the e-Governance working group to take up the task of re-engineering the system. High-level government support as well as very little resistance, owing to the conducive political climate, created favourable conditions for introducing the systemic reform. The FPTS emerged from this reform.

Objectives

The primary objectives of this initiative are to use Information and Communications Technology (ICT) to re-engineer the system of TP generation, making it efficient, transparent and simple for all stakeholders. The initiative aims to enable comprehensive and scientific natural resource management by enabling real-time tracking of what is being extracted, from where, by whom and for what purpose, so that policy decisions are based on data, not assumptions.

Key Stakeholders

The key stakeholders involved in the programme are KFD, industries and the citizens who ultimately use data made public by this initiative.

Figure 2: Key stakeholders of the FPTS Programme

Karnataka Forest Department

- Designed, developed and deployed the ICT solution in collaboration with NIC
- Main user of the application for operations, monitoring and regulation

Business/Industry

- Stakeholders who carry out extraction of forest produce

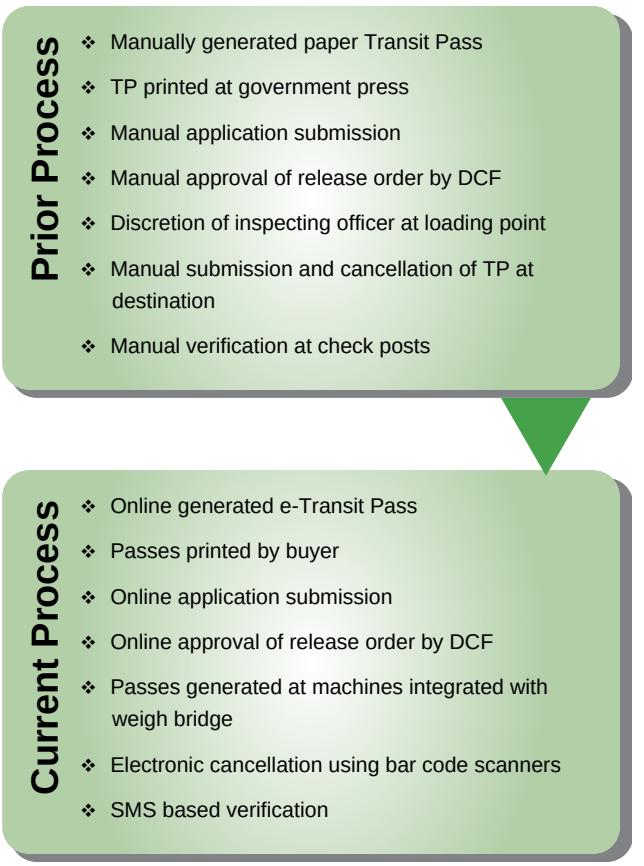
Citizens

- The ultimate beneficiary who can use the data made public by FPTS

Implementation Strategy

Aiming to establish a self-regulating and persuasive system, the Government of Karnataka began by carrying out end-to-end process re-engineering of the forest produce tracking system, from source to sink. All systemic changes were carried out strictly in conformity with the provisions of the Karnataka Forest Act and related rules so as to avoid recourse to amending existing rules as that would be time consuming. Iron ore was the first forest produce chosen for tracking (now FPTS also tracks manganese). The process changes were deployed through the web-based FPTS[1], an end-to-end solution for generating TPs and tracking the movement of forest produce from source to sink. *Figure 3* presents the process changes affected by FPTS.

Figure 3: Process changes affected by FPTS

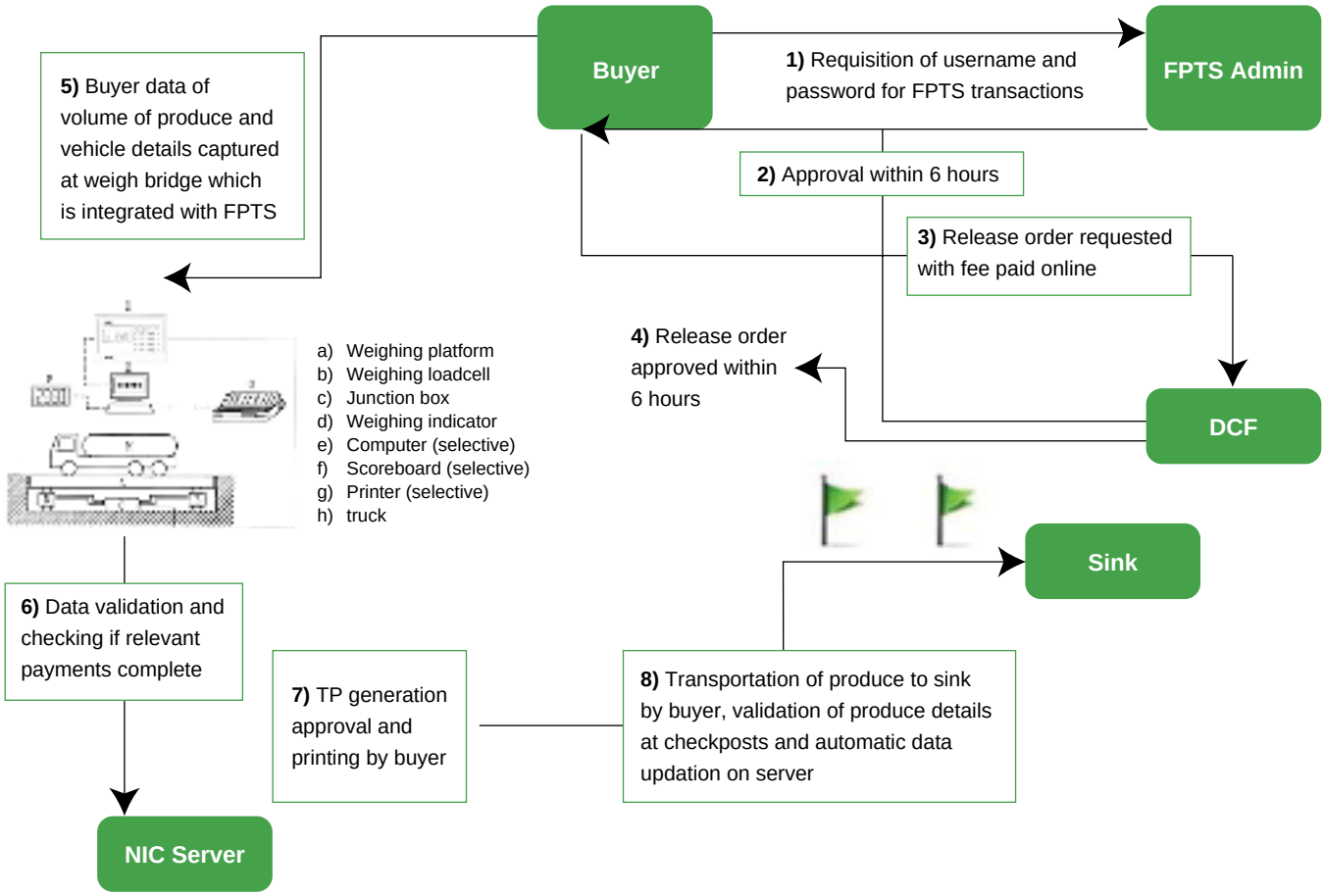


Source: Karnataka Forest Department, and OneWorld Foundation India, 2014

The FPTS application was developed at the ICT Centre of the KFD, with technical assistance from the National Informatics Centre (NIC). The application was developed on .NET and SQL. The entire project, from initiation in June 2011 to state-wide rollout in January 2012, took seven months, with three months spent on application development. The new process is shown in *Figure 4*.

[1] *http://164.100.80.10/forest_epermit/(S(yyjucc55wfh5tjzlyugsx1ql))/default.aspx*

Figure 4: Process flow after FPTS implementation



The implementation of FPTS has enabled a systemic transformation. In the new system, applications are submitted online and buyers can print the release order as well as the TP. The FPTS system prints TPs with quick response (QR) codes and microprint watermarks, which the check-posts automatically verify using 2D QR scanners. The veracity of TPs can also be cross-verified through SMS by messaging KFD INFO (TP No, year) to #09898915455. All basic data on buyers, along with release details, is recorded in the NIC server and used for validation at the weighbridge before generating approval.

Weighbridges are also equipped with digitisers for converting analogue weight to digital and camera integrated licence plate recording to capture vehicle registration numbers. To ensure easy acceptance and implementation of the new system, the offiline process was discontinued immediately after the FPTS rollout and only documents generated through FPTS were accepted. The legal status of the e-Transit Pass has faced no problems, as it is in conformity with the Section 4 of the Information Technology Act, 2000.

The new system (FPTS) also provides for a robust system of authorisation. The password policy is strictly enforced. Buyer transactions are facilitated through Secure Word. Digital signature certificates are used to validate the login and authorise transactions and biometric checks are implemented. The overall implementation has become easier as the bulk of infrastructure requirements have shifted to buyers. The new system's change management strategy aims to initially retain the complex functions at the head office and develop simpler functions, and thereafter gradually increase devolution as the acceptance and comfort levels improve.

Resources Utilised

FPTS was developed in-house by the KFD and as such did not require any additional resources for web application development. For field deployment, ICT infrastructure and human resource training were the main resources utilised, the details of which are given in *Table 1*.

Impact

The deployment of FPTS has resulted in transparent, accountable and efficient movement of forest produce from source to sink.

Table 1: Implementation cost of FPTS

Training and deployment				Cost per check post computerisation (total 48 check posts)	
Item	Quantity	Rate (Rs.)	Amount (Rs.)	Item	Cost (Rs.)
Workshops for 80-100	5	15,000	75,000	1 Computer	40,000
Travel cost once vehicle hired, department vehicles used	1	12,000	12,000	1 Scanner	7,000
Team viewer software	1	57,000	57,000	1 UPS	10,000
Support centre (1 year) installed for general grievance used	3	1,000	36,000	Destination CP	None
Cell phone charges (1 year) and data connection charges	5	3,000/month	1,80,000		
Total			**3,60,000**		**57,000**

Source: Third party evaluation of process innovation "Mineral Movement Administration through innovative use of ICT" of Karnataka Forest Department

Ease of tracking: User departments have access to all the data on a single, simplified dashboard. They can view reports on TPs (by release order or date). Rejected applications, check-post registers and delayed arrivals too can now be tracked using FPTS. The general public can check TP details and track produce movement through SMS. Every material at the sink can be traced to a source mine even if multiple legs of journey with multiple modes of transport are involved.[2]

Improved transparency, better monitoring: FPTS automatically makes the details available at a central location and enables instant report generation, thereby greatly strengthening KFD's monitoring and evaluation capacity as well as bringing complete transparency to the system. It handles approximately 4,000–5,000 TP issues every day. *Table 2* provides details on the total number of TPs generated and quantity transported, tracked through FPTS over a period of three years.

Greater efficiency: FPTS has enhanced efficiency by allowing buyers to enter the TP data themselves. Automation of TP issuance and checking has significantly reduced idle time at loading points. The process time for the approval of a release order has come down to 12 hours, significantly reduced from the earlier minimum time of 21 days. Online generation of compliance and performance reports has eliminated the need for storage space (for paper records) and resulted in environmental gains as well as financial savings. FPTS has computerised a core process, thus providing basic data for a series of other functions such as accounting, offence management, revenue receipts and timber and mineral stock management.

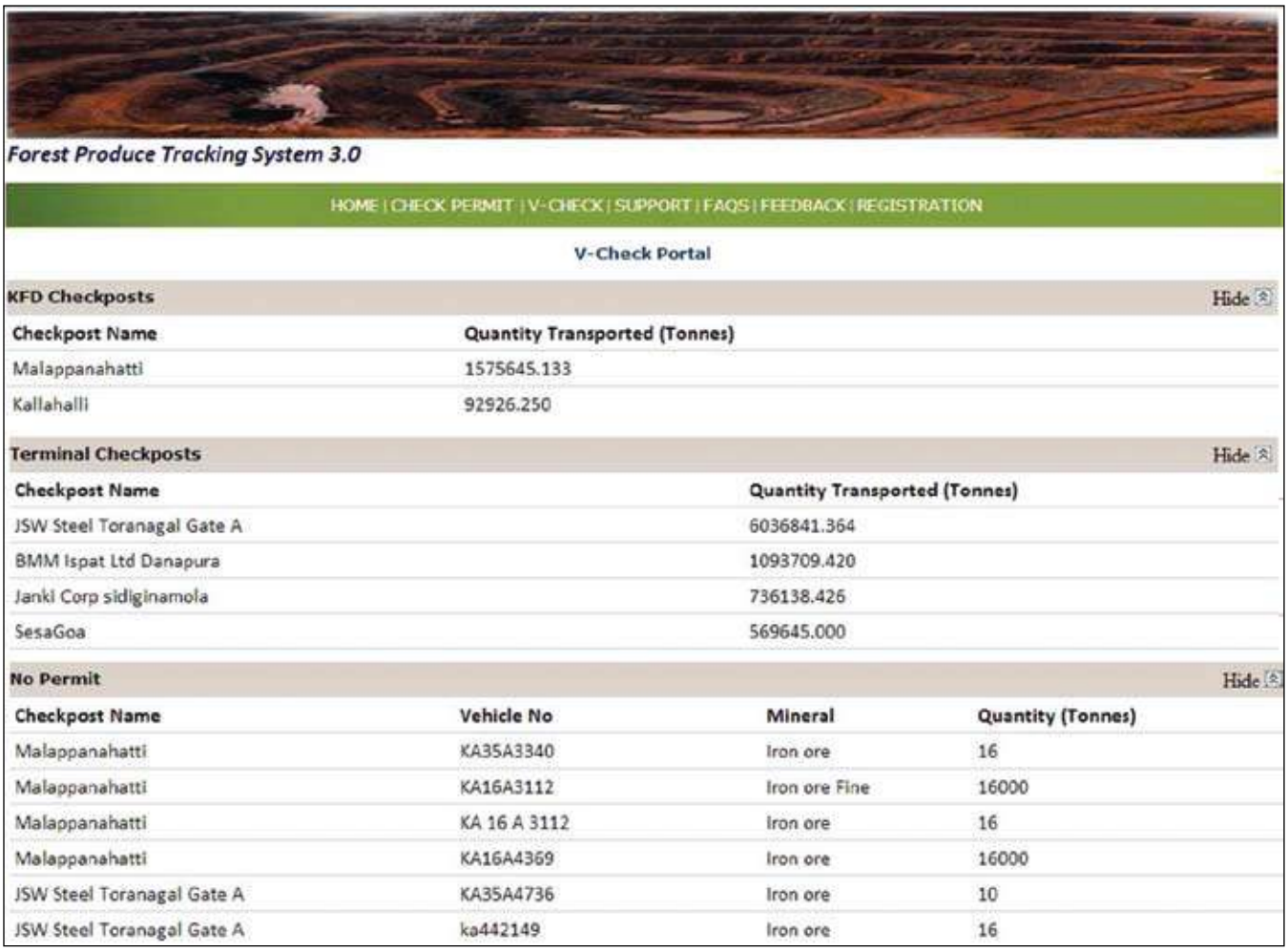
Decline in corrupt practices and increased accountability: Prior to the launch of FPTS, the inefficiencies of the manual system forced even honest businessmen, especially purchasers who had no reason

Table 2: Produce tracking details (April 1, 2011, to January 23, 2014)

Office Name	Total no. of TPs	Total Quantity Transported
Bellary Forest Division, Bellary	2201531	42893544.164
Chitradurga Forest Division, Chitradurga	421958	13326092.138
Koppal Forest Division, Koppal	2599	41481.540
Tumkur Forest Division, Tumkur	10570	172699.300
Total	**2636658**	**56433817.142**

Source: Karnataka Forest Department

[2] *ICT Centre, Karnataka Forest Department, FPTS*



Forest Produce Tracking System 3.0

HOME | CHECK PERMIT | V-CHECK | SUPPORT | FAQS | FEEDBACK | REGISTRATION

V-Check Portal

KFD Checkposts Hide

Checkpost Name	Quantity Transported (Tonnes)
Malappanahatti	1575645.133
Kallahalli	92926.250

Terminal Checkposts Hide

Checkpost Name	Quantity Transported (Tonnes)
JSW Steel Toranagal Gate A	6036841.364
BMM Ispat Ltd Danapura	1093709.420
Janki Corp sidliginamola	736138.426
SesaGoa	569645.000

No Permit Hide

Checkpost Name	Vehicle No	Mineral	Quantity (Tonnes)
Malappanahatti	KA35A3340	Iron ore	16
Malappanahatti	KA16A3112	Iron ore Fine	16000
Malappanahatti	KA 16 A 3112	Iron ore	16
Malappanahatti	KA16A4369	Iron ore	16000
JSW Steel Toranagal Gate A	KA35A4736	Iron ore	10
JSW Steel Toranagal Gate A	ka442149	Iron ore	16

Image 1: A screenshot of the FPTS tool

Source: Web Portal, FPTS

to prefer illegal produce, to indulge in corrupt activities. FPTS eliminated this systemic compulsion, making it easy to do fair business. The system has also enhanced accountability, as the discretion of TP issuing officers at the loading point has been completely removed. The new system undertakes authentication through digital signatures, making officers completely accountable. The number of TPs that can be printed is dynamically linked to payments (TP fee and taxes) made by buyers, minimising chances of illegal payments. End users of forest produce can also get details of the produce and determine whether it has been sourced legally.

FPTS also enables the use of information by rival social groups (such as competing firms or political parties) to keep watch on each other and thus ensures a strong system of checks and balances. The elimination of monotonous and repetitive tasks has also resulted in job enrichment for officers, who can now focus on the tasks of regulation and implementation. The overall success of the initiative has renewed faith in ICT solutions among the rank and file of KFD, creating openness and enthusiasm for further innovation and reform.

Key Challenges

Infrastructure gap was the key challenge that the KFD encountered. Besides IT connectivity and infrastructure, awareness levels of functionaries also varied across the state. This was tackled by prioritising resource allocation for infrastructure development and through training, which were facilitated by high-level support for the project.

The application initially met with lukewarm response from functionaries, as it took away their discretionary powers. This issue was dealt at the highest level through a strategy of 'indifference and firmness' till the change was imbibed on a deep and wide scale. Anti-corruption sentiments in the society also seem to have helped diminish potential resistance.

Replicability and Sustainability

FPTS is a robust application that can handle 10,000 TPs with around 200 concurrent users from 80 mine heads. It can be easily scaled up to handle an even larger workload. The system can also be easily extended to regulate other forest produce such as firewood, pulp, poles and billets.

As the process is the same in all forest departments across the country, FPTS can be easily replicated with minimum customisation required for master details like administrative structures and names of divisions and functionaries. The system is flexible and can also be modified to handle any new related processes, functionaries and divisions such as the trading of iron ore. It does, however, require a strong IT infrastructure and capacity building drive to be effective.

There is effort toward further enhancing FPTS by adding mining sketches that demarcate and designate the mining area for each buyer. This will increase accountability and enable checks on illegal mining. KFD has developed some other applications as well, including the following, for natural resource management:

E-timber: Tracks timber movement from source to sink

Huli: Carries out digital census of tigers using PDAs

Bhuvan: Acts as a geo-spatial natural resource database; developed in collaboration with ISRO

Image 2: A screenshot of the Bhuvan database.

Conclusion

The stakeholders involved in the management of forest produce – administrative officials, industry and the general public – now have access to precious real-time data made available by FPTS. This has made it easier to take policy decisions that are more realistic, sustainable and responsive to the needs of the public and the environment. The public has also been empowered to keep a check on malpractices, thereby ensuring much wider accountability.

Fact Sheet

Theme	**Environment**
Nodal Implementing Agency	**Karnataka Forest Department**
Geographical Coverage	**All districts of Karnataka State**
Target Groups	**Karnataka Forest Department officials and businesses involved in forest produce**
Years of Implementation	**2011 - 2012**

2.10 Integrated Basin Development and Livelihood Promotion Programme: Fostering a spirit of entrepreneurship in Meghalaya

The Integrated Basin Development and Livelihood Promotion Programme (IBDLP), a flagship programme, was launched by the Government of Meghalaya in 2012. It aims to develop sustainable and inclusive entrepreneurship through an extensive system of training and capacity building, credit linkage and supply chain development. The programme has brought about significant process re-engineering, facilitating convergent action and holistic development through inclusive growth, livelihood promotion and environmental conservation. An Enterprise Facilitation Centre located at the block level functions as a single window for partners to receive all services, saving them from running pillar to post, thereby increasing efficiency in stakeholder matchmaking. Departments also stand to benefit as the Centre filters non-serious applicants.

Rationale

Meghalaya is rich in important minerals such as coal, limestone, clay and silimanite.[1] It also has a large forest cover, rich biodiversity and numerous water bodies. However, despite such natural abundance, almost half the population of the state lives below poverty line (BPL).[2] The paradoxical existence of such high poverty amidst plenty led the Meghalaya government to rethink its development strategy, which had so far focussed on enactment of welfare schemes to provide various goods and services free of cost to target beneficiaries.

The effectiveness and reach of this approach was questionable, as the schemes were prone to errors in inclusion and exclusion of beneficiaries and were plagued by standard service delivery issues like corruption and inefficiency. Also, this approach made beneficiaries become dependent on government aid and lose their own initiative to develop livelihoods. The State government, therefore, felt it imperative to develop a new approach.

The decision to move to an entrepreneurial model of growth and development was taken at the highest levels of the State government. It was believed that transforming beneficiaries into entrepreneurs (undertaking production for the market) would help them generate their own livelihood and obviate the need for constant government aid and schemes. Over time, this approach came to be known as the partnership model of development. Significantly, the term 'beneficiary', with its intonations of hierarchy, passivity and dependence, was replaced by 'partnership', a model of equality between the state and the citizen. Central to this new approach were the two underlying concepts of sustainability and inclusion, aimed at protecting the region's fragile ecosystem and ensuring the development of the marginalised sections of the population.

In line with the new approach, it was decided that each family would be provided at least three livelihoods so as to reduce the risks to family incomes. Recognising that the culture of entrepreneurship cannot flourish without an enabling environment, the Government of Meghalaya launched the IBDLP in April 2012 to re-engineer governmental systems and processes to ensure an integrated approach to entrepreneur-led development.

Objectives

IBDLP's primary objective is to ensure 11% growth during 2012-2017 through an inclusive and sustainable entrepreneur-led model implemented in convergence mode. The programme also seeks to promote knowledge-centric development through capacity building, particularly in natural resource management and entrepreneurship. It seeks to promote the creation of the required physical infrastructure in a convergent and participatory manner and set up efficient, adaptive and responsive governance systems for facilitating the process.

[1] *Planning Department, Government of Meghalaya. 'Development and Management of Natural Resources'. http://megplanning.gov.in/MSDR/natural_resources.pdf*
[2] *Meghalaya State Planning Board, 2009*

Key Stakeholders

The key stakeholders of the programme are the Meghalaya Basin Development Council (MBDC), the Meghalaya Basin Development Authority (MBDA), the District Basin Development Unit, the Enterprise Facilitation Centre, entrepreneurs and other supporting and external partners.

Figure 1: Key stakeholders in IBDLP

Meghalaya Basin Development Council

- Provides policy planning, innovation, resource mobilisation and coordination of stakeholder efforts. Headed by Chief Minister and consists of Ministers, Chief Executive Members of Autonomous District Councils and distinguished experts.

Meghalaya Basin Development Authority

- Nodal implementing authority. Headed by Chief Secretary, Government of Meghalaya

District Basin Development Unit

- Implementing agency at district level for programme interventions and carries out convergence of departmental activities. Headed by the Deputy Commissioner.

Enterprise Facilitation Centre

- Block level citizen interface units where citizen applications for entrepreneurial assistance are processed and forwarded to the district level

Entrepreneurs

- Citizens who want to undertake production for the market are referred to as entrepreneurs or development partners. The term 'beneficiaries' is not used.

Supporting Institutions

- Meghalaya Institute of Entrepreneurship
- Meghalaya Institute of Governance
- Meghalaya Institute of Natural Resources

External Partners

- International Fund for Agricultural Development, Asian Development Bank, International Centre for Integrated Mountain Development, World Bank, National Institute for Rural Development, Gesellschaft für Internationale Zusammenarbeit, Small Farmers Agri Business Consortium, North East Space Application Centre, National botanical Research Institute, IDFC Foundation, BASIX, India Water Foundation, Non Governmental Organisations and Community Based Organisations.

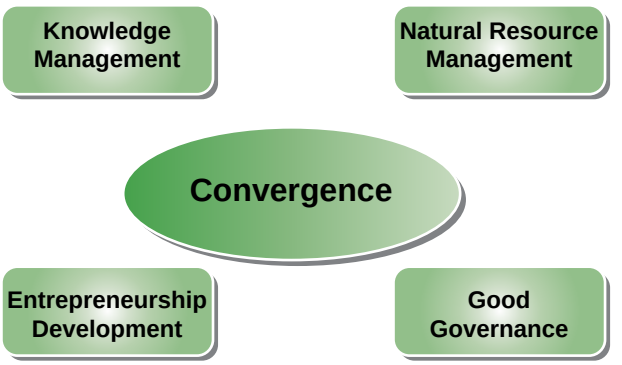
Implementation Strategy

The IBDLP is a large programme that involves every department in the Government of Meghalaya. To ensure unity of purpose and convergence, the programme is steered by the MBDC, which is headed by the Chief Minister and comprises all the Ministers and Heads of Departments. The implementation is steered by the MBDA, which is headed by the Chief Secretary. Involvement of the highest levels of the state Government gives the programme a single direction.

The programme has identified nine sectors for entrepreneur-led development. These are i) apiculture; ii) aquaculture; iii) forestry and plantation crops; iv) horticulture; v) livestock; vi) rural energy; vii) sericulture; viii) tourism; and ix) water. These nine focus sectors are approached in a mission mode, with specified, precise targets to be achieved within specified deadlines. Mission Green Meghalaya is another mission but is different from the rest as it is not sector-specific and its primary focus is on environment conservation, not livelihood generation. These nine missions, while dealing with different sectors, nevertheless had certain common, cross-cutting requirements. To address these, a series of 'accompanying measures' were devised and formed another major component of the programme. These were financial inclusion, market access and climate change adaptation.

Recognising the need for addressing the common requirements of the nine sectors, the IBDLP implementation is based on four pillars of knowledge management, natural resource management, entrepreneurship development and good governance, with convergence as the underlying strategy. Each of these is explained in *Figure 2*.

Figure 2: Four pillars of IBDLP



a. Convergence

The rationale behind a convergent strategy is two-fold – optimising resources by harnessing departmental synergies and improving planning and implementation

through coordinated action. MBDC and MBDA ensure this convergence at the state level. At the district level, the Government has created Basin Development Units (BDUs), headed by Deputy Commissioners, as the nodal implementation agencies.[3]

The main purpose of basin development authorities is to provide a framework to create links between departments and facilitate the exploitation of synergies. The same strategy is adopted at both the state and district levels, and there is full- and part-time deputation of members from different departments, leading to inter-connectedness between departments.

b. Entrepreneurship development

Enterprise Facilitation Centres (EFCs) have been set up at the block level. After self-assessment of an entrepreneurship idea, families or individuals ('partners') come to the EFC where they receive further counselling on their ideas and the assistance available to them. They are also provided access to documents and audio-visual material on successful enterprises to enhance their motivation.

The partners' socio-economic profile (including their livelihood profile, bank linkage details and educational qualifications) is recorded, and psychological mapping is undertaken to assess their seriousness. This data, along with their proposed idea, is used to assess their 'entrepreneurial value' and categorise them into three priority lists. Priority 1 partners receive immediate assistance. Priority 2 partners get assistance in two-three months. Priority 3 partners receive assistance in six months. Once the proposals of entrepreneurs have been approved, the next step generally involves providing them with the necessary support.

Two types of assistance – training and bank linkages – are provided. Training initiatives are aimed at upgrading skills to enable partners to undertake more valuable and profitable activities. Capacity building is primarily undertaken by the State Institute for Rural Development (SIRD), Bio-Resources Development Centre (BRDC), Meghalaya Institute for Entrepreneurship (MIE) and various other agencies that offer skill training programmes. Bank linkages, on the other hand, are aimed at assisting partners to obtain bank loans.

If necessary, the state also acts as a guarantor on their behalf. Additionally, departments provide various benefits under their respective programmes. For example, a farmer requesting livestock seed and feed could be provided those by the Department of Animal Husbandry and Veterinary under its livestock mission.

[3] *Equivalent of a District Magistrate*

Overcoming water scarcity

Ironically, Mawsynram, the place with the highest rainfall on earth, suffers from water shortage. The residents of Mawlyngbna village in Mawsynram block requested a solution to their woes. A novel solution was conceptualised through the power of convergent action. A small multipurpose reservoir was constructed through the joint effort of Meghalaya government's departments of soil and water conservation, rural development and water resources. Further, the stored water was developed into a fish-pond by the fisheries department, while the departments for tourism and forest and environment developed the reservoir as a tourist spot. The concerted effort galvanised the village community who had not only had their original problem solved but also obtained additional benefits. This motivated the construction of a road by the community under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme. Additional tourism promotion activities, including the development of a fossil park, are now being planned in the region.

To empower women, a special scheme known as 'Women's Economic Empowerment Entrepreneur Scheme' has been started to provide women entrepreneurs with margin money of Rs. 5,000. All women over 18 years of age are eligible for the scheme, provided they submit a sound business plan to the bank in the form of a project report.

The Meghalaya Trade Promotion Organisation (MTPO) is meant to handle the marketing of products by identifying markets; creating forward and backward linkages; and carrying out branding, packaging and promotion. It is also required to provide market intelligence inputs to producers and advertise their products outside the state.

Image 1: Counselling of potential entrepreneurs at Mawphlang, East Khasi Hills District

Mobile Multi-Facility Centre

Considering the remoteness and inaccessibility of many villages in the state and recognising the need for taking the programme's message and services as close to people as possible, the concept of Mobile Multi-Facility Centre (MMFC) has been introduced. An EFC on wheels, it provides all the services except counselling. This publicity van has computers, a public announcement system, LCD projector and screen, generator, camera and other audio-video equipment that is used to generate awareness on the various components of IBDLP. MMFCs have been deployed to cover remote areas and also cover marketplaces on market days to enable maximum outreach.

c. Knowledge management

The Knowledge Services Division (KSD) controls the knowledge management function, guided by the underlying philosophy of creating networks that encourage free flow of information and foster dialogue between all the IBDLP partners like government, citizens and traditional institutions.

A Partner Management Information System (PMIS) has been created to handle data related to partners who register at EFCs. This data is categorised by the mission and analysed at the macro level by BDUs and the MBDA before interventions are planned. Through a state-wide market study of trade data, value chain and infrastructure, Meghalaya has identified areas in which it has a comparative advantage and large-scale livelihoods can be created. These are livestock and livestock products, handicrafts and ecotourism services, and high-value agriculture and horticulture products. Six markets have also been identified for start-up interventions and infrastructure upgrade.

Image 2: Mobile Multi-Facility Centre

Source: Meghalaya Institute of Entrepreneurship

In order to generate awareness and motivate partners, the media team at KSD produces documentaries and creates documents on best practices and success stories. A publication titled *In Conversation with the People of Meghalaya* has been started to keep the government and the civil society informed about the programme. Newsletters are published in local languages to communicate the basic ideas of IBDLP.

With a view to organising indigenous knowledge resources, the programme is documenting Meghalaya's rich traditional knowledge in domains such as medicine, aromatic plants, livestock, agriculture, apiculture, sericulture and forestry. It is also working to organise, regulate and support practitioners of traditional knowledge such as medicinal doctors, livestock experts etc.

d. Natural resource management

Natural resource management (NRM) is essential to ensure the sustainability of livelihoods. To this end, IBDLP is creating a natural resource database. The North Eastern Space Application Centre is developing a Geographical Information System (GIS) database of Meghalaya, providing satellite-based data on variables such as soil type, elevation and ground-truthing. Alongside, the Centre for Adaptation to Climate Change, established in partnership with KfW Development Bank and Gesellschaft für Internationale Zusammenarbeit (GIZ), is managing climate change-related information. Establishment of Meghalaya State Natural Disaster Monitoring Centre (MSNDC) and block-level Automatic Weather Stations to capture real-time weather data is underway.

IBDLP recognises that behaviour change is critical for environmental conservation. Under Mission Green Meghalaya, which aims to rejuvenate the environment and stop further environmental degradation, a cadre of community-selected volunteers has been created at village and micro watershed levels to generate awareness of Natural Resource Management (NRM) and resource conservation. These are linked to the BDU and assist with the implementation of Mission Green Meghalaya and other NRM missions.

Additionally, an Integrated Village Development Plan (IVDP) has been initiated for community-based NRM. In all 1,100 villages have been selected for community-based micro-planning need assessment and mapping of demographics and natural resources. Social knowledge on climate change (such as people's recollection of the

Figure 3: Flow of information under IBDLP

reduction in number of oranges or bees) will also be documented. This will supplement the natural resource database by providing qualitative information in addition to the existing quantitative data; both sources will be available on a single platform. The comprehensive natural resource database will also be used to generate village advisories to assist in the planning process.

e. Good governance

Accountability, capacity building and responsiveness are the three main pillars of good governance under IBDLP. The Meghalaya Institute of Governance has been created as a nodal agency to monitor these aspects. Accountability is handled through external evaluation, peer review and activity reports placed before the state legislature. Partnership with several international development organisations has made it necessary to have deeper and more proactive measures for transparency. Capacity building, on the other hand, focusses on empowering stakeholders so that they can participate in a positive manner. Accordingly, training is given to government officials, NGO partners, district local bodies, village councils, village headmen and communities. Responsiveness focusses on strengthening institutions such that they are able to effectively meet emerging demands. Key institutions like the EFCs are monitored to ensure that they respond consistently.

Resources Utilised

The IBDLP does not require any separate financial resources and has no earmarked funds in the state budget. However Rs. 600 crore is used annually as a catalyst/development trigger. Activity funds have been mobilised from the Government of India and bilateral and multilateral financial institutions.

Impact

Attitudinal shift towards entrepreneurship: Bringing in change in people's mindset has been one of IBDLP's biggest achievements. As in many other parts of the country, the underprivileged in Meghalaya too were mainly involved in subsistence farming and look up to the state for doles and subsidies. IBDLP has been able to change the attitude to a great extent towards one of entrepreneurship, where citizens think of how they can undertake profitable activities and generate their own livelihoods. In terms of actual livelihood generation as well, the programme is making progress, as is presented in *Table 1*.

Greater access and efficiency for all stakeholders: The EFC functions as a single window through which partners receive all the services, which saves them from running pillar to post. Being conveniently located at the block level, it not only connects them to the relevant departments but also does all the necessary follow-ups, thereby increasing efficiency in stakeholder matchmaking. Departments also stand to benefit, as the EFC filters non-serious applicants and provides them with genuine and sincere candidates, thus eliminating the trouble of going to the field to hunt for partners. *Table 2* and *Table 3* present details on trainings and loans and infrastructure development, respectively.

Table 1: Livelihoods generated

Mission	Entrepreneurs Trained	Livelihood Activities Undertaken
Aquaculture	21,511	Initiation of fish production activities
	12	Creation of eco-hatcheries underway
	14	Creation of fabricated reinforced plastic hatcheries underway
	7	Creation of fish feed mills underway
Handicraft (under Bio-Resource Development Centre - Council for Scientific and Industrial Research. National Botanical Research Institute Shillong Centre, in collaboration with the IBDLP)	34	Production started, based on orders received

Source: Meghalaya Basin Development Authority

Key Challenges

The biggest challenge faced by IBDLP has come from the absence of entrepreneurship culture in the state. People's dependence on government doles and subsidies makes it difficult to orient them towards creating their own livelihoods.

Table 2: Skill development and bank linkage

Total entrepreneurs trained	8,041
Women provided margin money for receiving loans	29,103

Source: Meghalaya Basin Development Authority

The other major hurdle is related to securing and repaying loans. While partners are reluctant to access formal credit due to the intimidating procedures involved, banks also are reluctant to offer loan to some due to doubts over their credit worthiness. This requires the government to step in and act as guarantor for potential entrepreneurs.

The state's difficult topography and terrain make connectivity a challenge. Block-level EFCs do not always have internet connectivity and are unable to upload their partner data directly onto the PMIS. An SMS-based registration system was developed to address this issue, but it had limited functionality as it could only record basic categories such as sector details and services required and could not record the crucial partner assessment data. The strategy was subsequently changed, and partner data was stored offline on excel sheets, which were later uploaded from district headquarters.

Table 3: Infrastructure development

Infrastructure	Details
Suspension footbridge over the Simsang River at Kusimkolgre, South Garo Hills	18.5% of the total cost of the project was contributed by IBDLP under Viability Gap Funding and the remaining was funded through MGNREGA
Eco Park at Tura, West Garo Hills	Convergence approach involving Urban Affairs Department, Tourism Department and Soil and Water Conservation Department, with funding from IBDLP under the Viability Gap Funding scheme; partially funded through IBDLP
Other similar projects	Project on Ghasura Park, Ampati
	Rural tourism project, Chandigre
	Multipurpose Reservoir, Meghalaya

Source: Meghalaya Basin Development Authority

Image 3: (Left) Trainees in Mawphlang EFC and (right) margin loan from Women's Economic Empowerment Entrepreneur Scheme helps a partner upgrade her tailoring business

Replicability and Sustainability

The initiative receives support from the highest levels of the State government and has generated significant expectations among people as well, with grievances being related mainly to the pace of the programme and not its direction. Therefore, IBDLP has both generated demand and assured supply.

Financial considerations are not an issue as the programme itself does not require any money. The administration has put in place adequate systems to handle a large target audience. Solutions to supply bottlenecks have also been identified and planned for. A large number of young professionals, having experience in working outside the state, have been involved in the programme. Motivated and well trained, they have contributed a positive momentum to the programme and are seen as valuable assets for its sustainability.

IBDLP has received extensive support from several strategic national and international partners, which is a testimony to the acclaim the programme has received in a short time. International partners and funding agencies are drawn by the State government's commitment to good governance, which is evident from the establishment of strong grievance redressal, monitoring and evaluation systems and the focus on transparency. Combined with the stable law and order climate in the state, these factors provide favourable conditions to attract foreign aid.

In terms of replicability, IBDLP is best suited for replication in regions like Meghalaya that are rich in natural resources but have delicate ecosystems that limit the scope for industrialisation. Some such states/regions are Himachal Pradesh, Uttarakhand, Nagaland and the hill districts of Manipur. These areas can benefit immensely from IBDLP's strategy of sustainable livelihood generation driven by knowledge-based NRM. IBDLP's strong emphasis on creation and management of community knowledge, which partly drives the bottom-up planning process, is another strategy that can be profitably replicated at the level of Panchayati Raj Institutions.

It may be difficult to exactly replicate the model in mainland states that are larger, have bigger governments and higher population densities and a different natural resource ecosystem. However, the basic principles of IBDLP – convergence, extensive outreach and participation, knowledge management, involvement of the young professionals, and demand-driven partnership approach – can be customised and replicated in most regions.

Conclusion

The implementation of IBDLP has been unprecedented in so far as the entire government of a state has rallied around a programme and carried out the reforms necessary to achieve its goals. The IBDLP's aims are also extremely ambitious, as it attempts to change the mindset of an entire state in a mission-mode manner. The programme is still underway but has set a powerful precedent in livelihoods management for other states that seek to raise their citizens out of poverty in a manner that conserves the environment and is driven by the local community.

Fact Sheet

Theme	Environment
Nodal Implementing Agency	Meghalaya Basin Development Authority, Government of Meghalaya
Geographical Coverage	All districts of Meghalaya State
Target Groups	All citizens of Meghalaya
Years of Implementation	2012 - Present

Government initiatives in Karnataka and Rajasthan have successfully revived the lakes and the ecologies dependent on them through public private partnership or a multi-stakeholder, socially inclusive model.

2.11 Lake Restoration: Two successful models of lake restoration in Rajasthan (Mansagar) and Karnataka (Kaikondrahalli)

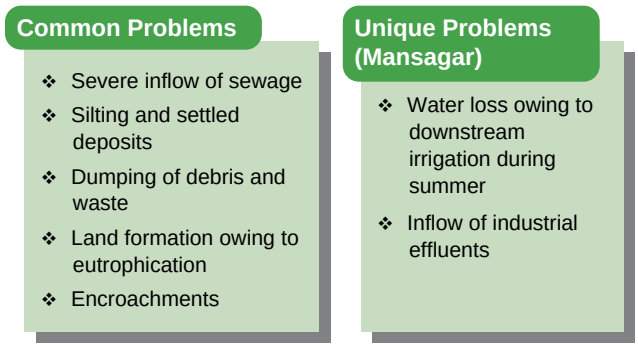
The Mansagar Lake in Jaipur, Rajasthan, and the Kaikondrahalli Lake in Bengaluru, Karnataka, have been successfully restored using two very different approaches. The restoration of Mansagar was achieved under a public private partnership (PPP) model while Kaikondrahalli was restored through a multi-stakeholder socially inclusive model. Both approaches have successfully revived the lakes and the ecologies dependent on them. They have also provided local communities with aesthetic and recreational spaces that are also sources of revenue.

Rationale

A large number of lakes in urban India are threatened and in dire need of conservation and restoration. The 300-acre Mansagar lake in Jaipur and the 48-acre Kaikondrahalli lake in Bengaluru, were among such lakes that were plagued by a host of issues, as presented in *Figure 1*. The severe problems these two lakes faced can be seen in *Image 1*. The biggest threat came from pollution, which destroyed the ecology of these lakes, contaminated the surrounding groundwater and caused a foul odour.

The impetus for the lake's restoration came with the recognition of its huge potential for tourism. Both the lake and the historic Jal Mahal Palace, which is situated at the centre of the lake, were in a state of decay and needed to be restored to their former pristine condition. The restoration strategy involved leasing out the lake and linking its health to revenues from tourism.[1] The road to redemption began with the creation of public-private partnership (PPP) between the Government of Rajasthan and the Jal Mahal Resorts Pvt Ltd (JMRPL). In

Figure 1: Problems faced by Kaikondrahalli and Mansagar lakes



Source: OneWorld Foundation India, 2014

2007, JMRPL took over the entire lake area on a 99-year lease from the Government of Rajasthan. Jaipur Development Authority (JDA) was appointed the nodal body for the restoration project.

In the case of Kaikondrahalli, the plan of its restoration began with administrative measures. The lake was earlier under the control of the Lake Development

Image 1: (Left) Pre-restoration status of Kaikondrahall; and (right) Mansagar

Source: Bruhat Bengaluru Mahanagara Palike and Jal Tarang Pvt Ltd, 2013

[1] *http://www.downtoearth.org.in/content/mansagar-lakes-fate-hangs-balance*

Authority, Karnataka Forest Department. In 2009, the Forest Department transferred the management of 17 lakes to the Bruhar Bengaluru Mahanagara Palike (BBMP). One of these lakes was Kaikondrahalli. The BBMP took upon itself the task of restoring the lake and decided to opt for a community driven approach in which the maintenance and monitoring would be done by the community.

Objective

Lake restoration and its sustainable maintenance were the primary objectives of the two projects focussed on Mansagar lake and Kaikondrahalli lake respectively.

Key Stakeholders

For Mansagar, the important stakeholders are JMRPL, JDA, the Forest Department and the Irritation Department. Whereas for Kaikondrahalli, the BBMP, Mahadevapura Parisara Samrakshane Mattu Abhivrudhi Samiti (MAPSAS), United Way and the Revenue Department are the key stakeholders.

Figure 2: Key stakeholders

Mansagar

Agency	Role
Jal Tarang	Restoration, tourism development and maintenance
JDA	Nodal authority
Forest Department	Treatment and afforestation of lake catchment area
Irrigation Department	Lowering of waste weir and development of link canal

Kaikondrahalli

Agency	Role
BBMP	Restoration, funding and maintenance
MAPSAS	Community maintenance
United Way	Maintenance funding
Revenue Department	Administrative and legal support

Image 2: Restoration work on Kaikondrahalli lake

Source: Bruhat Bengaluru Mahanagara Palike, 2014

Implementation Strategy

The implementation strategy for these two lake restoration projects is presented separately.

a. Mansagar

Stopping any further pollution was the first prerequisite for the restoration of Mansagar lake. This required diversion of highly polluted drain water from Brahmpuri and Nagtalainalas drains. A 1.5-km channel was constructed as part of the initiative to divert drain and storm water into a 7-metre-deep sedimentation basin constructed on the east side of the lake. Using boulders, sand and dredged mud, a natural filter was created for the incoming waste by building a bund at the end of the depression. The waste passes through this bund, leaving behind large-sized pollutants, then moving into two chambers, which have vegetation in them. This strategy significantly lowers the Biological Oxygen Demand (BOD)[2] of water and makes it clean enough to sustain flora and fauna.

[2] *Indicator of bacterial presence in water.*

Image 3: Mansagar lake after restoration

Source: Jal Tarang Pvt Ltd

Work was carried out simultaneously to dredge the Mansagar Lake. This increased the lake's depth from 1.5 mt to more than 3 mt. It was important to lower the lake depth significantly so as to increase its storage capacity. The dredged mud was used to build embankments within the lake. Two sewage treatment plants were also constructed to treat 7 million litres of waste daily and discharge the treated water into the lake. The Mansagar Lake, which used to dry up in the summer before the restoration effort, now remains perennially full. To attract flora and fauna, five nesting islands were created to attract migratory birds, fish were introduced and giant bubblers were installed to provide regular oxygen supply to the lake.

b. Kaikondrahalli

The BBMP used a phased approach for lake restoration, primarily because it did not have access to adequate funds to begin with. The phased approach ensured regular availability of funds for the project. Phase I, which lasted from December 2009 to March 2011, began with demarcation of the lake's boundaries. This was necessary to enable a precise mapping of the lake and to stop any encroachment. The mapping was done in coordination with the revenue department, which is the custodian of land records. Revenue surveyors conducted a survey, leading to the establishment of the lake's boundaries. Lake encroachers were then served eviction notices through the tehsildar. With the lake administratively secured and cleared of encroachments, the next step was to stop pollution. As the inflow of sewage was a major reason for the lake's degradation, the inflow was diverted through a pipeline.

These two steps effectively stopped further degradation of Kaikondrahalli. The next step was aimed at de-silting of the lake. The unruly vegetation growth in the lake was cleared before de-weeding and de-silting of the lakebed. These efforts increased the lake's depth by an additional metre and increased its storage capacity

Table 1: Restoration initiative's impact on Kaikondrahalli lake's storage capacity and depth

Indicator	Pre-restoration	Post-restoration
Storage Capacity (Cu.m)	1,85,000.00	2,85,000.00
Tank depth	1.50 mt.	2.50 mt.

Source: Bruhat Bengaluru Mahanagara Palike, 2014

Image 4: Kaikondrahalli lake after restoration

Source: Bruhat Bengaluru Mahanagara Palike

Image 5: New attractions at Kaikondrahalli lake

Source: Bruhat Bengaluru Mahanagara Palike

by 54%. The restoration drive also involved the development of inlets and outlets to improve the flow of water, embankments and revetments, and a pathway around the lake.

In Phase II (September 2011 to March 2012) a fence was constructed around the lake in line with its administratively and cartographically demarcated boundary. Thereafter, the lake periphery was afforested to improve water quality and prevent soil erosion. As the dumping of items such as flowers and idols during religious festivals was also a major source of pollution in the lake, separate ponds were constructed for these activities, enabling citizens to continue with their cultural and religious practices without harming the lake.

Kaikondrahalli was then developed into an aesthetic and recreational urban space, with facilities like walking/jogging pathway around the lake perimeter, a 2.5-km cycling track, an amphitheatre for cultural performances, and pergolas[3] and toilets.

The BBMP regularly engaged with the local community throughout the implementation of the restoration project. After project completion, the task of monitoring and maintenance was handed over to the local community. To this end, a tripartite agreement was signed between the following agencies:

1) Mahadevapura Parisara Samrakshane Mattu Abhivrudhi Samiti (MAPSAS), a society formed by local residents and concerned citizens with the objective of safeguarding Kaikondrahalli
2) United Way, a U.S.-based NGO that funds community action
3) BBMP

While MAPSAS was given the responsibility of maintaining the facilities at the lake, BBMP agreed to fund any major repair work. The maintenance responsibilities included security, gardening, cleanliness, maintenance of fences and lighting. All fishing activities in the lake were stopped. This gave the local community control over their common property and enabled more effective monitoring and maintenance of the lake.

Resources Utilised

The cost of restoration in terms of the financial resources utilised by these initiatives, an estimated amount of Rs. 20 crore has been spent on the restoration of Mansagar lake. The finances were provided by the BBMP and JMRPL respectively. An estimated amount of Rs. 7.5 crore has been spent on the restoration of Kaikondrahalli lake.

Impact

Development of recreational urban spots: Following the restoration drives, both Mansagar and Kaikondrahalli have gone from being eyesores and sources of pollution to charming recreational urban spaces. In the case of Kaikondrahalli, the local community is enjoying the new facilities, evident from the approximately 1,200 visitors the lake site receives every day. Even Nobel Laureate Elinor Ostrom visited the lake and planted a sapling in appreciation of the effort.

Revival of local ecosystems: A notable and successful strategy in the restoration of Mansagar Lake was the use of treated storm water as a primary water source for lake revival. The sedimentation basin in the lake is an inexpensive treatment system that costs far less than treating sewage. Both the lakes have also revived the local ecology and attract a large variety of birds including pelicans, ducks, black cormorants, shikhrajuvs, rufoustreepie and many others.

[3] *Shelter structures for protection from rain and sun.*

Key Challenges

Mansagar

The initiative to restore Mansagar Lake faced challenges from a different front. Public Interest Litigations (PILs) were filed against the project developer in 2010 and 2011, seeking to scrap the project and cancel the lease agreement. The argument was that a 99-year lease amounted to sale, and the lease agreement had undervalued the property. The matter is currently sub-judice at the level of the Supreme Court.

Kaikondrahalli

Prior to its restoration, Kaikondrahalli was being destroyed by real estate developers, who were systematically dumping debris into the lake to create land for profit. These illegal activities were checked through boundary demarcation and construction of a fence. However, Kaikondrahalli continues to be threatened by new sources of sewage coming from the recently urbanised parts of Bengaluru.

There are multiple administrative agencies involved in regulating the generation and management of sewage and solid waste, and effective coordination for concerted action remains a challenge. Also, the local community currently lacks funds to provide for adequate security personnel, owing to the high cost of human resources, thereby limiting the efficacy of security and site monitoring.

Replicability and Sustainability

Mansagar

Mansagar's sustainability is currently in question, as the private partner is embroiled in a legal case over the alleged purchase of public property at undervalued rates. The verdict is not out yet, but the case points to

Image 6: Birds at Mansagar lake

Source: Jal Mahal Resorts Pvt Ltd

the importance of framing a clear and socially acceptable tender that is not likely to be targeted in future. Thus, for effective replicability, the terms of the agreement in a public-private partnership must be precise and legally robust when public heritage monuments/spaces are involved. In such cases, the lease period could also be reduced to avoid controversies and ensure that historical and cultural public resources are not appropriated.

Kaikondrahalli

The lake has now been restored, but keeping it pristine requires urgent reduction and control of incoming pollutants like sewage, effluents and solid waste. This cannot be achieved without effective administrative coordination between various agencies like the Public Works Department and the Pollution Control Board. This is difficult to achieve as the lake is currently under the control of a municipality, which is a local government body with limited ability to effectively coordinate with these agencies/departments and take necessary actions.

The same concern emerges with regard to the financial sustainability of the model. Effective maintenance and monitoring of the lake require regular supply of funds. However, the municipality has a limited ability to generate resources. The maintenance and monitoring of the lake is now largely dependent on funding from an international NGO, which could stop at some point. Thus, it is imperative that a stable source of funding be developed, either through commercial activities in the lake or through budgetary allocation.

The replicability of the Kaikondrahalli restoration model will be enhanced if an active local community/civil society shows the willingness to legally undertake monitoring and maintenance of the water body. Institutional mechanisms are required to facilitate dialogue between various administrative agencies involved in keeping the lake clean. The nodal agency must also be sufficiently empowered to effectively coordinate with these bodies and take decisions.

Conclusion

The two different yet successful strategies for lake restoration offer replicable models that other states can learn from. However, there is a need to address the sustainability related challenges the two models face. In this regard, the Mansagar model could be strengthened through a robust PPP agreement in which the lease duration with the private partner is reduced and the valuation carefully done. The Kaikondrahalli model could be enhanced by putting a state-level nodal authority in charge of the lake and providing budgetry allocation for community-based monitoring.

Fact Sheet

Theme	Environment
Nodal Implementing Agency	Mansagar Lake, Jaipur, Development Authority and Kaikondrahalli Lake, Bruhat, Bengaluru Mahanagara Palike
Geographical Coverage	300 acres of Mansagar Lake in Jaipur and 48 acres of Kaikondrahalli Lake in Bengaluru, Karnataka
Target Groups	Local community/tourists in Jaipur and local community in Bengaluru
Years of Implementation	2006 - Present (Mansagar), 2009 - 2012 (Kaikondrahalli)

2.12 Mazhapolima: Ensuring water security through participatory well recharge in Kerala

Mazhapolima is a participatory climate change adaptation initiative which was launched by the Government of Kerala in Thrissur district in 2008. The project aims to alleviate the problem of water scarcity by harvesting rainwater from rooftops and feeding it into open dug wells, which traditionally form the water security mechanisms of the state. Active participation of Gram Panchayats, private agencies and beneficiaries led to the installation of over 10,300 Mazhapolima units with government subsidy. The effect of these units on groundwater levels has encouraged more than 10,000 households to adopt Mazhapolima open well recharging systems at their own cost.

Rationale

Kerala has a unique water resources management problem. The state has a large number of perennial springs, streams, rivers and other water bodies and receives an average of 3,000 mm of rainfall in a year. Paradoxically, the per capita availability of water in Kerala is substantially lower than the national average. This is a result of accelerated surface water runoff to sea, which leaves little water for consumption and causes cycles of water abundance and water poverty in the state.

Open wells form a critical part of water supply in the state, with more than 4.5 lakh open wells that contribute 70% of the domestic water supply in Thrissur district alone. Most of these wells run dry in summer. There is also the problem of groundwater exploitation. Thrissur district itself has one over-exploited block (Kodungallur) and four semi-critical blocks (Mala, Mathilakam, Ollukkara and Thalikulam). The district spends more than Rs. 100,000 every year on water tankers, as stated in the WASH-UNICEF Report on Mazhapolima. Further, poor households in rural areas spend on average approximately two hours every day on fetching water. Overall, despite heavy investments in water supply over the years, the outcomes in terms of water quantity, quality and source sustainability have not been commensurate. Successive droughts in Kerala between 2000 and 2004 raised serious concerns about the availability of water and placed conservation and rainwater harvesting high on agenda.

Seeking to tackle the acute water scarcity, the District Collectorate of Thrissur launched Mazhapolima (meaning, bountiful rainfall) in 2008 as a climate change adaptation initiative to augment groundwater resources through rainwater harvesting. Under this model, rainwater from rooftops is collected and filtered before being routed down to recharge open dug wells. This also leads to the formation of a fresh water zone at the source of the dug wells, as shown in *Image 1*. The initiative took into account the region's unique geo-hydrological factors: the area receives average annual rainfall of 3,000 mm; open dug wells form unconfined aquifers; there are 200 homestead open dug wells per sq km; the water table goes down in the summer when 75% of the 4.5 lakh wells dry up; and the coastal belt suffers from saline intrusion.

Image 1: Harvesting rain water from rooftops

Source: Mazhapolima: District Rainwater Harvesting Mission

Objectives

Mazhapolima was initiated to enhance the water table and increase water availability in open dug wells throughout the year; improve the quality of water in open dug wells; reduce public spending on water tankers, and reduce saline intrusion into open dug wells along the coastal line.

Image 2: Logo of the initiative

Source: Mazhapolima: District Rainwater Harvesting Mission

Key Stakeholders

There are many stakeholders involved in the project – households and institutions facing water scarcity, the District Collectorate, the District Rainwater Harvesting Mission, the Revenue Department, Arghyam, Panchayati Raj Institutions (PRIs), the Department of Education, the State Planning Board, the Department of Rural Development, the State Bank of Travancore, the Thrissur Pooram City Chamber, and the *Malayalam Manorama* Group.

Figure 1: Key stakeholders

- **Households, institutions with wells facing water scarcity**
- **District Collectorate, Thrissur (Provided administrative support)**
- **District Rainwater Harvesting Mission-*Mazhapolima* (Nodal Implementing Agency)**
- **Revenue Department, Government of Kerela, (Financial Assistance)**
- **Arghyam, Bengaluru (Financial Support)**
- **Panchayati Raj Institutions**
- **Departments of Education, Sanitation, Planning, Rural Development, (Facilitating roles)**
- **State Bank of Travancore**
- **Thrissur Pooram City Chamber (young mens' club)**
- ***Malyalam Manorama* (Media)**

Implementation strategy

Mazhapolima was conceptualised in May 2008 by a group of like-minded conservationists and water activists in and around Thrissur under the leadership of the then District Collector. The draft plan was submitted to the Government of Kerala, where after the Department of Disaster Management, under the Ministry of Revenue, Government of Kerala, sanctioned Rs. 1 crore for the programme. The programme was inaugurated on July 4, 2008 at Thiruvilwamala Grama Panchayath (GP). Demonstration models for the initiative were ready for use by August 2008. After a demonstration of the technique's effectiveness, Mazhapolima's implementation began with the constitution of the Mazhapolima Monitoring and Coordination Unit (MMCU) as a special purpose agency attached to the District Collectorate.

In implementation of the initiative, the process begins with the GP submitting a list of possible beneficiaries. Although priority is given to below poverty line (BPL) households and other deserving categories, the households above poverty line (APL) are not excluded, as this category has more roof area to harvest rainwater. The next step involves an agreement between the GP and a nominee of the District Collector. Thereafter, cheques are issued to the GP and work is undertaken by the Beneficiary Committee at the GP level or by workers directly arranged by the GP. The MMCU helps in making a technical team available for the installation of open well recharge units. A baseline survey is then conducted and a completion certificate obtained from the respective GP member. The MMCU staff conducts a valuation of the work done by technical teams and recommends issuance of funds if the installation is satisfactory.

Beneficiary contribution to installing Mazhapolima unit:

- Participation in the form of labour for cleaning the roof and well
- Participation in maintaining the pipe and gutter system for open well recharging

The initiative is being implemented in phases and improving over time. For example, in the first phase (July 2008-January 2013), the selection of wells for recharge was primarily handled by GPs and done at random. However, by the end of Phase I, when the impact of the initiative became visible and came to be appreciated, many more people came forward to adopt it. The second phase (February 2013–January 2016) has entailed scaling up of the initiative to other districts and the adoption of a cluster approach instead of the random approach adopted in Phase I.

Mazhapolima has clearly demonstrated the ability to respond to a common need with a simple but effective solution that covers four key components – innovation, awareness generation, grievance redressal and trainings.

Details of the pilot project

In Phase I, a pilot was conducted in Thrissur district's Kodungallur block, which was marked as a groundwater over-exploited block. The pilot was implemented in all 3 GPs of the block. More than Rs. 40 lakh were spent in installing approximately 2,300 units, resulting in an improvement in water level and helping the block move up from the 'over-exploited' to the 'critical' category.

a. Innovation

The concept of rainwater harvesting is not new. However, the participatory model of implementation under Mazhapolima and the convergence of the efforts of various agencies and actors are innovative. The major innovative strands under this initiative include its PRI-centric, participatory approach to rainwater harvesting; creation of a dedicated unit at the district level to assist GPs in technical implementation; extension of the initiative to various government and private institutions; convergence of existing government schemes such as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme, Integrated Watershed Management Programme (IWMP), and Western Ghat Development Programme; and encouragement of private investment in cash or kind to ensure ownership of the initiative by the beneficiary. Government assistance is provided only to Scheduled Caste (SC), Scheduled Tribe (ST) and BPL beneficiaries.

b. Awareness generation

The drought of 2004 was the immediate trigger that escalated the issue of water conservation and management to the top of the public agenda. While efforts were being made by the district management to meet this crisis, the vernacular media, especially *Malayalam Manorama*, launched a dedicated campaign on the issue of water conservation called Pala Thulli (many drops) in Thrissur district, which propagated various means of achieving a new water culture. For more than a year, the newspaper dedicated a page to the Pala Thulli campaign, organised seminars and workshops, held exhibitions and video shows, and distributed booklets. These efforts were especially targeted at the youth, and created an unprecedented awareness on the subject. The newspaper also announced a Pala Thulli Award for outstanding work by institutions in water conservation.

The awareness generated by the programme can be gauged by the fact that more than 300 entries competed for this award. Similar dedicated efforts were initiated by various civil society actors, including conservation efforts by the Thiruvananthapuram -based NGO Planet in 2006-2007. The Jalanidhi programme aided by the World Bank set the backdrop for Mazhapolima. The Jalanidhi programme was designed to assist the Government of Kerala in improving the quality of rural water supply and environmental sanitation service delivery to achieve sustainability. Jalanidhi made the administration more receptive to ideas of water conservation and sanitation, which helped Mazhapolima secure the requisite administrative support for implementation.

After the adoption of Mazhapolima by the District Planning Committee of Malappuram district, efforts were made to create awareness by involving GPs as well as Panchayat-level personnel such as anganwadi workers (AWWs), auxiliary nurse midwives (ANMs), accredited social health activists (ASHAs), religious and charitable agencies, clubs, schools, Kudumbasree, and the local resource team. The aim was to involve all these stakeholders in taking the message across to households that had open wells. The Information, Education and Communication (IEC) programme was well received in the community and many were motivated to adopt the initiative using their personal resources, without waiting for government subsidy. This enhanced the sustainability of the initiative.

The awareness generation methods used by the programme include:

- Seminars and classes to local governments and groups
- Distribution of leaflets and posters across schools and government institutions
- Exhibitions
- Teacher trainings
- Media coverage through newspapers, TV channels, local magazines
- Media workshop
- Workshop on Millennium Development Goal (MDG) 7 – ensuring environmental sustainability; water community workshop
- Training to local self governments by the Kerala Institute of Local Administration, Agriculture Extension Training Institutes (Thrissur) and Institute of Management (Trivandrum)
- Answering queries on open well recharging over telephone
- Filming documentary on Mazhapolima

c. Grievance redressal

The initiative does not currently have a separate complaint or grievance redressal mechanism, but since it is implemented through GPs, people take their grievances to the Panchayat representatives and members. Beneficiaries can also contact the Mazhapolima office with their technical complaints.

d. Trainings

Capacity building has been identified as a key component for the successful implementation of the Mazhapolima initiative. However, this has not fully taken off. For example, staff training has been held only once since the inception of the initiative.

Resources Utilised

As the GPs act as the nodal implementation agency for Mazhapolima, the existing resources of PRI institutions were utilised for it. The administrative cost of the MMCU was met with the funds provided by Arghyam to support the programme.

The Government of Kerala sanctioned Rs. 1 crore to the programme, while other agencies such as Kerala Water Authority, and National Bank of Agriculture and Rural Development (NABARD) provided some financial support. The funds available to Mazhapolima from all sources in Phase I totalled Rs. 2,10,32,000.

Setting up MMCU required some human and material resources. Infrastructure for the unit was borrowed from the Jalanidhi project aided by the World Bank. The unit had seven personnel – Director, Liaison Officer, Programme Officer, Field Coordinator, Community Organisers (2), and Accounts Assistant.

Mazhapolima - funds received so far

- Rs. 3 crore from Government of Kerala
- Rs. 1.3 crore from Arghyam Trust, Bengaluru
- Rs. 80 lakh from rural local governments
- Nearly Rs. 14 crore through MGNREGA, IWMP and other central schemes
- Rs. 1 lakh from banking institutions and the private sector
- Rs. 20 lakh under District Innovation Funds

Mazhapolima – costs incurred (10,000+ units installed

- Per unit cost (maximum possible) is Rs. 4,500
- (Rs. 3,375 + Rs. 1, 125 beneficiary contribution)

Techniques used in Mazhapolima

Mazhapolima units adopted two types of techniques. One technique is roof-top harvesting with sand filter, where PVC gutters are fixed to collect roof-top water, which is then diverted to the filter using a PVC pipe. The filter consists of sand, metal and charcoal. This technique costs Rs. 2,500-3,750 per unit. The second technique is roof-top harvesting with ordinary nylon filter, through which the roof-top water is harvested and diverted to the well through a nylon or cloth filter using a PVC pipe. This option reduces the cost to Rs. 1,250-2,500 per unit.

Impact

Strong public interest in setting up Mazhapolima units: The active participation of GPs, private agencies and beneficiaries led to the implementation of about 8,056 Mazhapolima units in 58 GPs by December 2012. By January 2014, more than 10,300 Mazhapolima units had been installed with government subsidy. The positive effect of these units on groundwater levels has encouraged more than 10,000 households to adopt Mazhapolima open well recharging system at their own cost.

Improvements in water quality: An impact assessment study by the Centre for Water Resources Development and Management, Kozhikode, revealed a decrease in pH levels in the water collected from the recharged area. Moreover, the salinity level of the water collected from recharged wells in the coastal region is relatively low compared to samples collected from non-recharged areas.

However, the recharged water showed a high level of bacteriological contamination, hinting towards leach pits near wells or non-functional filters. The assessment also showed that the draining of groundwater in steep slopes is much faster than in gentle and moderate slopes. This finding suggests that to retain the harvested rainwater for a longer duration, areas with gentle to moderate slopes should be selected for Mazhapolima units.

Key Challenges

There were several challenges in the implementation of the programme, especially from the beneficiaries. Low attendance at meetings, for instance, has been one

challenge. Likewise, beneficiaries have not taken care of the flush systems nor installed filter systems. There have been instances of mixing of wells with toilet leach pits that has reduced the effectiveness of the filters.

Another challenge has been with regard to generating agreements among family members on directing rainwater to open dug wells. There has also been resistance for perceived change in the taste of water after recharge. Likewise, removal of pipes or breakages have been reported in the case of 25% of the beneficiaries. Beneficiaries have also been complacent about water supply after abundant rain, coupled with low hydrogeological literacy among the new generation. It has been felt that the rapid pace of unit installation reduced scope for participatory learning.

Some other challenges related to the fact that the initiative was being implemented through PRIs, who preferred short-term solutions like tanker supply during summer. Panchayat members often sought equal shares for their respective wards, making it difficult to adopt a community cluster approach. This inadvertently reduced the scope for participatory approach, making the recharge units more like demonstration models in some target areas.

Replicability & Sustainability

As a water management model, Mazhapolima is suited to both the east areas and west coast of Kerala. The technique used is simple to adopt and the financial implications much lower than providing tanker supply to drought-hit areas each year. So far the effort has concentrated on Thrissur district, but the impact generated is beginning to attract other districts to this initiative. The Mazhapolima initiative has been scaled up in Malappuram, where Mazhapolima rainwater harvesting units are being installed in five block Panchayats. The conditions necessary for replication of the programme are good rainfall and a culture of open wells, as household-level wells have the additional advantage of working as micro-aquifers. Except in certain hydro-geological typologies, most of the

Monitoring of water quality

The project includes a component of action research in which water quality and quantity at source is being monitored regularly for the past two years. Water level monitoring is done every month, and water quality is checked in 67 cases from across the district and from the action research sites of the district, which includes coastal sandy area, mid lands and up lands.

People speak...

Baby, Manaloor Gram Panchayat

"Earlier the water was slightly yellowish in colour and turbidity was high - the water was *heavy*. We didn't have any salinity issues. This is the third year running. We didn't have to make any financial contributions for installation. Everything is done by the Panchayat. We clean the pipes and channels."

Surjit, President, Manaloor Gram Panchayat

"This is a very successful project – not 99 but 100%. In all houses, which have wells, this must be made compulsory by law. There are 600 households in this Panchayat. Panchayat plan funds have been used for the past 2-3 years. In 2013-14, MGNREGA funds were used for works in 380 units. Initially, we had to hunt and convince people of the advantages of this project but now there is sufficient demand after seeing the experience of others. People recognise the name Mazhapolima now."

Image 3: (Inset) well before the recharge and well after the recharge

Source: Mazhapolima Monitoring and Coordination Unit, Thrissur

coastal locations in India fulfill these conditions. Hence, Mazhapolima represents a low-cost, effective climate change adaptation strategy.

Conclusion

Mazhapolima has importance in the light of the drastic and dramatic global climate change scenario. One of the sustainable ways to deal with the threat is to embrace adaptation mechanisms that reverse or at least limit the adverse impact of climate change. Such initiatives are the need of the hour, even if the pace of change and adoption is slow initially. Seeing Mazhapolima's success, the Government of Kerala has recently sanctioned Rs. 2 crore to further strengthen the rainwater recharge programme. Of this, Rs. 1 crore will be used to construct 20 check dams in the drought prone blocks so that the harvested water can percolate down to recharge open wells in lower regions. The remaining Rs.1 crore will be sanctioned to 59 local self-governments to implement the Mazhapolima programme. The beginning of a new water culture in Kerala has indeed been made.

Fact Sheet

Theme	**Environment**
Nodal Implementing Agency	**District Rainwater Harvesting Mission - Mazhapolima, District Collectorate, Thrissur**
Geographical Coverage	**5 Block Panchayats in Thrissur district and Malappuram district of Kerala State**
Target Groups	**Households and institutions with wells**
Years of Implementation	**2008 - Present**

2.13 SAFAR: System of Air quality Forecasting And Research in metropolitan cities like Delhi

The Ministry of Earth Sciences (MoES), Government of India, has introduced the System of Air Quality Forecasting And Research (SAFAR) to provide location-specific information on air quality in near real time and its forecast 1-3 days in advance in major metropolitan cities such as Delhi and Pune. This system benefits the general population by increasing awareness on climate-related events and in forecasting adverse environment effects. The World Meteorological Organization has recognised SAFAR as a prototype activity on the basis of the high quality control and standards maintained in its implementation. Hospitals and medical colleges which have set up SAFAR stations have the data available for their own research and scientific usage and to identify, for instance, the rise of ailments like bronchitis cases in the area.

Rationale

Systems to scientifically assess the quality of air and collate information for the general public had not been adequately developed in India earlier. Private institutes and research organisations had conventional techniques, used in a sporadic manner, for monitoring air quality. On the other hand, for the government, this role was performed by the pollution control boards using analyses equipments. A high resolution atmospheric chemistry model was used in government institutions which, however, extended only up to monitoring and not forecasting, and required many input parameters to maintain accuracy.

Awareness about air quality – the level of air pollution and emission levels – is generally low. It has a direct impact on the life of the common man, primarily in the form of health and agricultural issues. Before the introduction of SAFAR, there was no way to know the status of air quality in a period of 48-72 hours. Prescient knowledge about air quality has a bearing on how the state can prepare for upcoming disasters, changes in transport availability and flight parameters.

Image 1: Display Board

The project initiated by the Ministry of Earth Sciences and Indian Institute of Tropical Meteorology (IITM), Pune, is the first of its kind in India, which has been developed primarily for the purpose of forecasting air quality. The project emerged from the need to assess air quality during the Commonwealth Games (CWG), New Delhi, in 2010. The target beneficiaries were sports persons (especially athletes, who breathe in ten times more air) for whom air quality information is useful in determining the effect it has on their physical capabilities.

Objectives

One of the main objectives of the project is to be able to provide forecasting information on air quality and not simply monitor the quality of air. SAFAR also allows translation of highly scientific air quality information in a simple format for easier understanding. It also increases awareness on the importance of knowing the air quality in one's area and using that information to understand its impact. In addition to the above services, it now also provides forecasts on weather, emissions and UV radiation in the region. Currently, SAFAR is active in two metropolitan regions of India – the National Capital Region of Delhi and the Pune Metropolitan Region.

Key Stakeholders

SAFAR is implemented under the MoES but is implemented by IITM, an autonomous institution of the MoES based in Pune, and the Indian Meteorological Department (IMD) in New Delhi.

Figure 1: Key stakeholders

Ministry of Earth Sciences

- Monitoring and evaluating agency
- Ensures quality control and quality assurance. Receives and acts upon reports and recommendations on AQ from IITM and IMD

Indian Institute of Tropical Meteorology (IITM)

- Autonomous institutions under MoES
- Develops and implements SAFAR in the first year of implementation. Main technology components for processing air quality information hosted here

Indian Meteorological Department (IMD)

- Implementing agency after the first year of implementation
- Operates and maintains SAFAR, collects requisite data and sends to IITM for processing

Beneficiaries

- Inhabitants who view and assess Air Quality Index (AQI)
- Institutions that collect data for sector/issue specific analysis e.g. Safdarjung Hospital in Delhi
- Research organisations that analyse and conduct research on the data collected e.g. Central Road Research Institute.

Implementation Strategy

The concept of an air quality monitoring and forecasting system was decided upon in the run up to the CWG Delhi 2010. Studies were conducted for two years to determine the exact locations for the monitoring stations. Primary data was collected for building the system, after which monitoring stations were placed at different stadia and the pilot test was run for a period of 15 days. Finally, SAFAR was inaugurated on September 23, 2010.

After the CWG, the stations were relocated from areas around the stadium and spread out across the capital. As of 2013, there are 10 air monitoring stations along with weather monitoring stations and 17 display boards at multiple locations in the city.

All the air monitoring stations were set up, operated and maintained by IITM for the first year. Thereafter, IMD took control of operations and maintenance. IITM now plays a supporting role in hosting servers and resolving any technical issues in Delhi, even as it continues to implement the project in other metropolitan regions.

Figure 2: Air monitoring stations at 10 locations in Delhi NCR

Source: SAFAR portal http://safar.tropmet.res.in/

a. Process

The SAFAR system integrates several complex components to provide four main products:

1. Air quality forecast, 1-3 days in advance
2. Weather forecast, 1-3 days in advance
3. Location-specific UV index information
4. Emission scenario

In the case of data on air quality, since SAFAR is meant to cater to the general public, it was decided that technical information must be symbolically represented. Hence, for the first time in the country, an Air Quality Index (AQI) was created to assess air quality on parameters like prevalence of carbon monoxide, oxygen and particulate matter. The AQI is formulated on a scale of 1-500 units, where each range of 100 units is colour coded in ascending order of pollution. As such, green indicates 'good', yellow indicates 'moderate', orange indicates 'poor', red indicates 'very poor' and lastly maroon indicates 'unhealthy' quality of air. Similarly, a UV radiation-index was also formulated on a scale of 1-10, where 3 has been marked as the permissible limit, beyond which skin ailments are likely. Both these easy-to-understand indices are now displayed on the electronic screens along with weather forecast information.

Another important component of SAFAR is the emission inventory. Initially, a large campaign was carried out with the help of local college students in Delhi and Pune to collect information through surveys and existing data.

Figure 3: Process flow of the initiative

Step 1

- Data is collected on an hourly basis at the 10 air quality and weather stations set up in Delhi.

Step 2

- The data on weather is sent to the server in IMD's control room in real time via GPRS network. Air quality data is sent directly to the File Transfer Protocol server in IITM via broadband connection. The data is continually checked by an expert team for quality control and assurance.

Step 3

- The supercomputer, housed at IITM, processes this data and provides 72+6 hours air quality information in the form of colour coded and simplified index.

Step 4

- From the FTP server, the data is transferred to the display server. The data is then sent to 17 display boards in the city, which are connected by SIM card, via GPRS. The same data is also uploaded and updated on the web portal and the IVRS facility.

Source: OneWorld Foundation India, 2014

This data was collated by IITM to understand the emission sources and amounts in certain areas of these cities, specifically different sources of air pollution from power generation, transport, cooking etc. On the basis of this exercise, SAFAR is now able to provide high resolution 1km x 1km data on the emission scenario in an area. The inventory is regularly updated based on the information received from traffic departments.

In 2013, IITM developed the Air Quality and Weather Assessment and Data on Hi-Tech-Digital India (AWADHI) which provides fast and detailed information on all the components related to SAFAR on one platform and with a single click. This may be used for accessing a variety of information components on quality control, hardware and communication issues, raw forecast, IVRS data, and others.

At the beneficiary level, therefore, there are four main channels of receiving information:

1. Dynamic web portal – http://safar.tropmet.res.in/
2. LED – Digital Display Board System (DDBS) for screening
3. Integrated Voice Response Service (IVRS) – Toll free No: 1800 180 1717
4. Alert Services – E-mail alerts from safar@tropmet.res.in and SMS alerts for extreme air pollution and weather events.

b. Dissemination

The initiative uses a number of modes of dissemination including digital display boards and a web portal. The portal's query form finds an audience ranging from school children to the elderly. These queries, around 350 queries per month, are usually responded to within 24 hours. Apart from this, roughly one lakh calls per month are received on the IVRS. Based on the response from the younger and older generations alike, IITM publishes reports in regional languages in Delhi and Pune. Initially, when SAFAR was launched, it received wide media coverage, which is being taken forward through yearly and periodic assessments of the project through press releases.

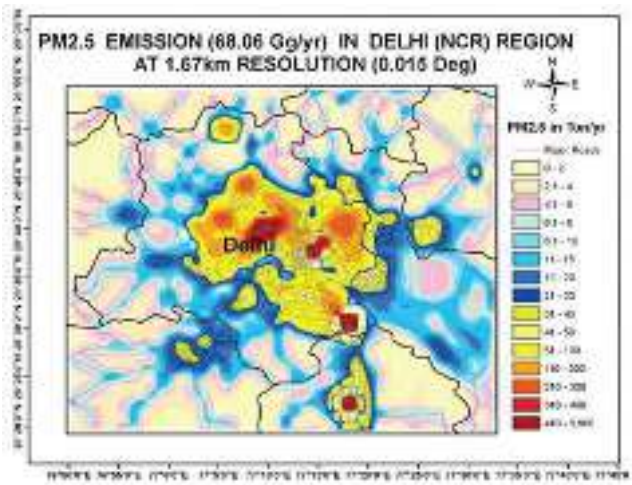
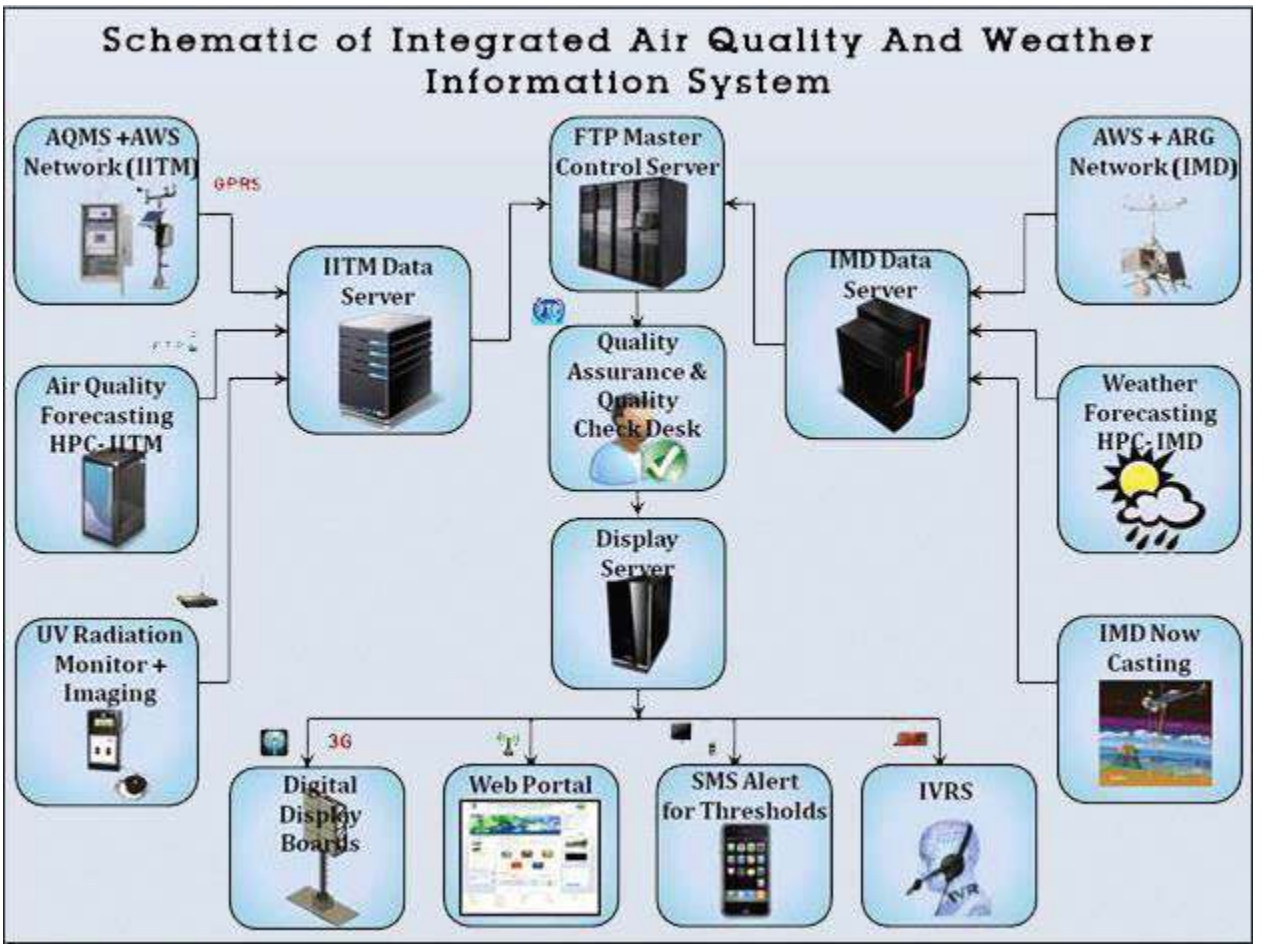


Image 2: Map of emission scenario in Delhi NCR

Source: SAFAR portal

A 15-minute documentary was prepared on SAFAR in Delhi describing its inception, implementation and outcomes, which included comments by athletes as well. Visits from schools are also encouraged to educate children about the facilities used and services provided. Scientific workshops or conferences are conducted annually to discuss SAFAR, its research and how similar technology is devised and used in other countries. A workshop along these lines held in May 2010 saw the participation of 300 scientists and 50 foreign delegates.

Figure 4: Technological components and process flow of SAFAR



Source: SAFAR portal http://pune.safar.tropmet.res.in/Introduction2Safar.aspx

c. Capacity Building

At implementation sites, there is a team of experts to supervise the work of the ground staff. This team is distributed across different parts of the city so as to be able to provide any form of advice/assistance.

The emission inventory development was preceded by a full-day orientation workshop given to a batch of 200 students to educate them on data collection and precautions to be taken while collecting data.

At sites where SAFAR can be used for an organisation's research interests such as hospitals, the staff undergoes an orientation workshop on instruments, limitations of the data collected, and the measurements and precautions to be taken.

Resources Utilised

At IITM, there is a team of 15 people comprising senior scientists, technical assistants and research scholars, headed by a Programme Director. At IMD, the team is led by the Deputy Director General of Meteorology and includes experts who supervise the ground staff as well.

The MoES is funding the institutions involved in the implementation of SAFAR at a total cost of Rs. 15 crore per city for Delhi and Pune. This is a one-time allocation. A major portion of the funds is spent on the purchase of instruments, display systems, setting up of the supercomputer, monitoring stations, creating the emission inventory and recurring expenses for communication and maintenance. The server rooms cost approximately Rs. 1 crore.

Impact

Availability of information relevant to improving public health: Awareness on air quality and weather is generated through three main channels that bring information on air quality and weather forecasts to the public regularly – web portal, digital display screens and IVRS. With this kind of information, one can identify

health risks associated with poor air quality and high pollution. Importantly, one can take measures to avoid such areas and form mitigation strategies for improving air quality and minimising risk. One of the biggest achievements of SAFAR has been the identification of wind-blown dust (suspended dust) as the major source of particle pollution in Delhi. Wind-blown dust from roads forms 50% of the pollution spectrum, exceeding pollution caused by the transport, biofuel and industrial sectors. This phenomenon is higher in places where there are unpaved roads and where dust gets easily unsettled. Based on this data, a recommendation was given to the authorities highlighting this as a causative factor and also mentioning that the probability could be higher in heavy traffic congestion areas where motorcycles and other vehicles tend to traverse through unpaved roads.

Timely intimation of impending disasters/weather extremities: Disaster management authorities and emergency response centres take advantage of the network and forecast weather and atmospheric risks. If such a risk assessment is made, alerts are sent out to registered users within an hour. For instance, if there is heavy rainfall (more than 30-40 mm) and it is likely to continue raining for several hours ahead, then preventive measures are advised to be taken against flooding. The technical report by the MoES also makes use of emission inventory details produced by SAFAR.

Input for studies on environment issues and health risks: It is not just the people, but also the Central government that has benefited. Domain experts can analyse the data collected so far and study the relation between cause and effect in air pollution and related events. Long term mitigation strategies and new technologies can be devised on the basis of such research. Hospitals and medical colleges which have set up SAFAR stations have the data available for their own research and scientific usage and may use it to identify, for instance, the rise of bronchitis cases in the area. Central Road Research Institute, New Delhi has also set up SAFAR on Mathura Road and uses it to complement its own research and data on air quality, monitoring and related environment measures.

Improvement of crop yields: The information has also been used for improving crop yields after studying the effects of ozone, sulphur dioxide and particulate matter on vegetation.

Health advisories have been released on the basis of SAFAR information: Delhi faced the worst winter pollution in the year 2012-13 in comparison to the previous three years wherein the particulate matter remained consistently at the 'Very Poor' and 'Very Unhealthy' levels for a month. On research it was discovered that it was due to a change in the wind pattern as well as crop burning activity in the surrounding states. Such long exposure to unhealthy air would have had a considerable impact on

Image 3: Display Board

the human immune system. Details of weather events that cause a rise in particulate pollution are intimated to the relevant government departments for action. For instance, in 2014, multiple advisories were disseminated to the public regarding bursting of fireworks with the knowledge of the effect that particulate matter has on air pollution in the city.

Measures for a better environment: Eco-friendly measures such as the switch to CNG, Bharat I and Bharat II compliance measures, moving industries to the outskirts are also based on the worsening of the air quality and scientific information passed on by IMD, which sources such information from SAFAR and other agencies.

The World Meteorological Organization has recognised SAFAR as a prototype activity on the basis of the high quality control and standards maintained in the implementation of SAFAR. It further states that the experience gained will serve as an example within India, in the region of South Asia and globally.

Key Challenges

The scientific and technical staff must be available throughout the initial phase of implementation. Each metropolitan region has unique air pollution and emission inventory parameters and, therefore, is resource-intensive at the time of setting up. The walkway shelters (that house the ozone, UV radiation and other air quality instruments) require round the clock security to ensure that they are not tampered with. The data on the basis of which locations are selected has to be carefully parsed to ensure that there is no bias that may come from a nearby polluting source, high rise buildings or trees. Also, the

display boards have to be strategically placed in prime locations where lots of people pass.

In the initial days it was difficult to convince partner organisations about the purpose and benefits of SAFAR. There were few organisations such as the Safdarjung Hospital which were willing to set up SAFAR stations with the knowledge that it would contribute to their own research interests on the health of the people in the vicinity.

Replicability and Sustainability

SAFAR, under the umbrella of the MoES and with its environment-friendly mandate, does well on financial and environmental sustainability. In terms of social sustainability, the initiative requires active participation by the general population. Consistent awareness generation efforts will be necessary for ensuring that SAFAR is relevant to the needs of the public.

SAFAR has high potential for replication in metropolitan regions. It has been successfully replicated in the Pune Metropolitan Region (May 2013). It has now been implemented in Mumbai (2013-14) and three other metropolitan regions. However, SAFAR's replicability in rural areas is yet to be explored. Further, the central government has envisaged a project on metro advisories for air quality and weather for city sports tourism. This is expected to be implemented in five different cities in India, in addition to New Delhi and will make use of the services provided by SAFAR.

Conclusion

SAFAR, the air quality and weather monitoring system, is a first-of-its-kind initiative in the country, which has already shown positive impact in the areas of public health and generating important data for the government. With such information, authorities can identify the health risks associated with poor air quality and high pollution. Importantly, it allows the government to take measures to avoid these areas and form mitigation strategies for improving air quality and minimising risk.

SAFAR has proven to be successful simply because it has allowed the government to get an insight into environmental issues needing solutions. In short, the SAFAR system is an innovation that has proven its efficacy in public health as well as in disaster management and mitigation strategies.

Fact Sheet

Theme	**Environment**
Nodal Implementing Agency	**Indian Institute of Tropical Meteorology and Indian Meteorological Department**
Geographical Coverage	**Delhi**
Target Groups	**General public**
Years of Implementation	**2010 - Present**

2.14 Sustainable Plastic Waste Management Plan: Defending the fragile ecosystem of Himachal Pradesh

The Sustainable Plastic Waste Management Plan was launched by the Government of Himachal Pradesh in 2009 to systematically and aggressively deal with the environmental threat emanating from non-biodegradable waste. The ban on the use of plastic in Himachal Pradesh has proven to be effective and successful in developing a systematic system of disposing off plastic and using it in construction of roads thus making state of Himachal Pradesh free from plastic. The plan has made a big impact in building awareness and securing people's cooperation and has encouraged people to take on the responsibility of cleaning their state and creating a plastic-free world.

Rationale

While indiscriminate use of plastics and plastic littering is harmful for the environment as a whole, its impact can be even more devastating for the fragile ecosystem of the Himalayas. The Government of Himachal Pradesh enacted the Himachal Pradesh Non-Biodegradable Garbage (Control) Act, 1995, to deal with the menace of plastic and other non-biodegradable waste.

This Act embodied a move towards scientific disposal of non-biodegradable waste and also imposed a ban on coloured plastic carry bags produced from recycled plastic. However, the Act only addressed these issues partially, and the use of plastic and plastic littering continued to be a challenge. Environmental problems thus persisted, including pollution of water bodies, lowering of soil quality, choking of drains and rivers and adverse impact on the health of the people.

Aiming for a systematic approach to the issue, the Government of Himachal Pradesh introduced the Sustainable Plastic Waste Management Plan in 2009. The Plan focusses on controlling the use of plastic and developing a systematic disposal mechanism.

In order to achieve the objectives of its Clean Himachal and Healthy Himachal drive, the Government also prohibited the use of plastic cups and plates in 2011; conducted Information, Education and Communication (IEC) activities to generate awareness about the harmful impact of plastic waste, and encouraged citizens to stop using plastic products.

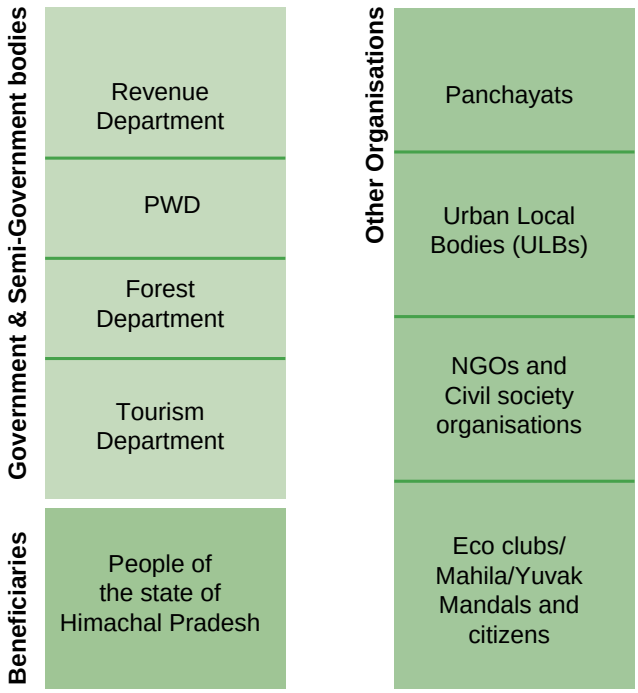
Objectives

The initiative aims to establish environment-friendly plastic waste disposal solutions. In the process it seeks to ban the use of plastic bags and plastic products, and reduce plastic littering across the state. Further, in order to ensure sustainability and continued community participation, the initiative seeks to spread environmental awareness among the local population.

Key Stakeholders

The Sustainable Plastic Waste Management Plan has been implemented by the Department of Environment, Science and Technology (DEST), Government of Himachal Pradesh.

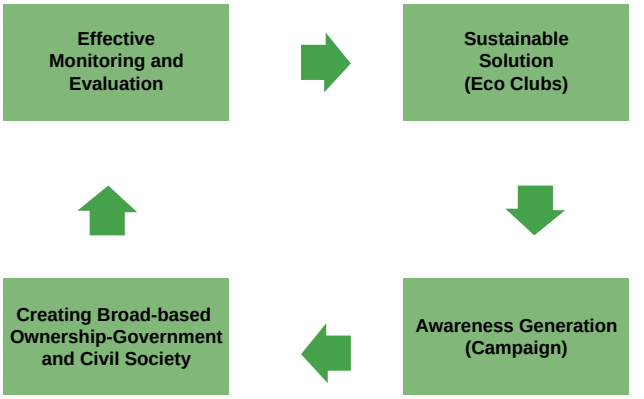
Figure 1: Key stakeholders in the sustainable plastic waste management plan



Source: Department of Environment, Science and Technology, Himachal Pradesh, and OneWorld Foundation India, 2014

Image 1: Waste menace in Himachal Pradesh

Figure 2: Components of the project



Source: Department of Environment, Science and Technology, Himachal Pradesh, OneWorld Foundation India, 2014

Implementation Strategy

The Sustainable Plastic Waste Management Plan has been implemented in three stages. Stage I aimed at creating an enabling framework, Stage II focussed on creating awareness through campaigns, and Stage III on consolidation and sustainability.

Stage I: Creating an enabling framework

The DEST began by establishing an environmentally sound solution for plastic littering and disposal. Its aim was to adopt replicable and sustainable solutions for the state. After much deliberation, the DEST took the decision of processing household waste in cement kilns and using plastic waste in road construction. As the Public Works Department (PWD) plays a major role in the construction of roads, the first step was to convince it to adopt the solution.

The DEST and PWD jointly conducted a pilot project in Shimla to test the technology. While DEST identified a supplier of plastic waste shredders, PWD procured and used the output in the construction of a road in Shimla

The pilot demonstrated that the technology was cost effective and replicable, and provided a solution to utilise plastic waste in an innovative and prudent manner. Thereafter, the DEST developed a comprehensive plan for the identification of roads, modalities for collection and storage of plastic waste at collection centres, and shredding for use in tarring.

The PWD was trained on a technology that involved shredding and mixing of various kinds of plastic food packets, aluminium foil etc., with bitumen for tarring roads. Typically, each kilometre of road consumes a ton of plastic, used directly without cleaning. This cost-effective technology allows savings of approximately Rs. 35,000–40,000 per kilometre through reduced bitumen use.

Along with the introduction of a technological solution for waste disposal, attempts were also made to establish a favourable regulatory framework. In 2009, riding a wave of strong political support, the government imposed a complete ban on the use of plastic/polythene carry bags.

Image 2: Plastic waste management campaign

Source: Department of Environment, Science and Technology, Himachal Pradesh

Image 3: Use of plastic waste in road construction

Source: Department of Environment, Science and Technology, Himachal Pradesh

Intensive checking was carried out to ensure implementation, and the district administration was given the responsibility of coordinating and monitoring all related activities.

Moreover, the government organised several awareness programmes aimed at the general public on the proper disposal of plastic and use of eco-friendly products. Initially implemented on a pilot level, all these activities were scaled up to cover the entire state of Himachal Pradesh.

Table 1 provides an overview of the achievements in Stage I of the project.

Table 1: Overview of achievements in Stage I

Number of locations cleaned	1,256
Number of collection centres opened	806
Polythene waste transported from hotspots to collection centres	30,912 kg
Polythene waste handed over to PWD authorities	21,688 kg
Number of road stretches identified	35
Polythene waste utilised in road construction	468 kg
Polythene/plastic waste collected from hotspots	66,528 kg

Source: Department of Environment, Science and Technology, Government of Himachal Pradesh

Stage II: Enhancing awareness through campaigns

In this stage of the project, the government launched the Polythene Hatao – Paryavaran Bachao campaign. The first phase of the campaign focussed on voluntary participation in schemes and actions aimed at cleaning the state and encouraged citizens to understand the problem of plastic waste and the need to keep the state clean. This campaign created awareness and encouraged the participation of mahila mandals, urban local bodies (ULBs), NGOs, associations of Panchayati Raj Institutions etc. Plastic waste was collected from hill slopes, forest areas, rivers, drains etc, and IEC activities, such as video clippings and documentary films, were used to sensitise the public. In this phase, 142 tons of polythene was collected from 10 districts for use in road construction. The *Table 2* provides an overview of the achievements in Stage II of the project.

Table 2: Overview of achievements in Stage II

Number of hotspots identified	750
Number of hotspots cleaned	494
Polythene waste collected from hotspots	27,008.3 kg
Number of collection centres opened	255
Polythene waste transported from hotspots to collection centres	8,940 kg
Polythene waste handed over to PWD authorities	23,432.3 kg
Number of road stretches identified	12
Polythene waste utilised in road construction	446 kg
Length of road constructed by using plastic waste	9.5 km
Amount released for purchase of plastic waste by PWD	NIL

Source: Department of Environment, Science and Technology, Government of Himachal Pradesh

Stage III: Ensuring consolidation and sustainability

Stage III of the campaign addressed the need for developing a sustainable mechanism for collection and disposal of plastic waste, and focussed on allocation of responsibilities and tasks to various departments. Role allocation and monitoring, constitution of teams to curb offences related to littering and use of plastic bags,

Image 4: Eco-monitoring scheme

Source: Department of Environment, Science and Technology, Himachal Pradesh

Image 5: Awareness generation campaign

Source: Department of Environment, Science and Technology, Himachal Pradesh

involvement of eco-clubs to educate the general public and imposition of *challans* (monetary fines/penalties) were the highlights of this stage.

An environment audit scheme was started in Stage III to monitor the environmental performance of the project as well as to facilitate training and capacity building among school students, teachers and citizens.

Other initiatives aimed at strengthening the effectiveness of the campaign included collection of used plastic packaging material to reduce littering by using it in the construction of roads, installation of water purifiers at tourist points to discourage purchase of plastic water bottles and indiscriminate disposal of the same, and replacement of plastic pouches by glass bottles. An advertising campaign was also held for awareness generation throughout the state and included aspects like road metalling through the use of plastic, collection of plastic and cleaning of hot spots.

Well thought out and efficient implementation across each stage of the plan, active multi-department involvement, and participation of citizens have helped Himachal Pradesh curb plastic use and create a positive impact on the environment.

Resources Utilised

The initiative of using plastic waste in road construction represents a highly innovative approach. After collection through various drives and campaigns, the waste was recycled and used in different parts of the state on road stretches totalling 200 km. About 36 roads across the state were identified for construction using plastic waste.

The involvement of multiple agencies and individual contributors make the initiative especially remarkable.

Table 3: Financial Resources for Operations

Bitumen required for 1.0 km of road lenght having 3 mtrs width	9,360 kg (approx.)
10% replacement of Bitumen saves	936 kg (approx.)
Cost of one drum	6,500/-
Cost incurred for purchase of 936 kg of plastic waste @ 4/- kg	3,744/-
Savings	35,256/-
Net saving per km to PWD	35,000/-
Bitumen required for 1.0 km of road length having 3 mtrs width	9,360 kg (approx.)

Source: Department of Environment, Science and Technology, Government of Himachal Pradesh

The different entities that contributed to its success include the government departments of education, tourism, health, transport, excise and taxation; the State Pollution Control Board; the State Council for Science; Panchayats; Urban Local Bodies (ULBs); Non-Governmental Organisations (NGOs); *mahila mandals; yuvak mandals;* eco-clubs; school children; and rag pickers.

The financial aspect of this initiative was handled by the DEST, Government of Himachal Pradesh. The amount received in the form of *challans* from individuals violating for the ban on using plastic bags is deposited in the Himachal Pradesh Environment Fund for environment sustenance and restoration. The total amount received from 1462 cases of violation is Rs. 11, 50,850/.

Impact

Cleaner environment and reuse of waste plastic for roads: The ban on plastics and the systematic waste recycling model have not only ensured cleaner surroundings and contributed to environmental conservation but also supported infrastructure development through road construction. The institutional mechanism for collection, transportation and utilisation of plastic waste has become functional and has been adopted across the state.

Public awareness and participation: The plan has made a significant impact in building awareness and securing people's cooperation. It is encouraging people to collect plastic waste to minimise its negative environmental impact, and assume responsibility for the maintenance of their local environment.

Image 6: Clean roads

Source: Department of Environment, Science and Technology, Himachal Pradesh

Key Challenges

Community interest and involvement is of paramount importance when it comes to successful implementation of any environmental initiative. Prior to the launch of the Sustainable Plastic Waste Management Plan, plastic carry bags and products were seen as convenient and had become part of everyday life. In fact, during the initial stage of the project, people did not show much interest in waste management and plastic disposal. Convincing them about the harmful environmental impact of plastic proved to be a challenging task. Many campaigns and IEC activities were undertaken to help create awareness and encouraged citizens to participate in the drive.

Under-performance at the lower level of administration was another key problem. It resulted in disruption of activities planned as part of the campaign. Poor coordination and monitoring at the district level (in terms of campaign-related events, performance monitoring, training, capacity building and awareness generation) also hindered the initiative in its initial stages. Moreover, the non-availability of shredding machines in many districts delayed implementation.

However, concerted efforts, teaming up of resources of different departments and agencies and motivation of the community brought success to the initiative. Accomplishments on this front have gone a long way in making Himachal Pradesh a cleaner, plastic-free state and reducing the health and environmental hazards that threatened the state before the implementation of the Sustainable Plastic Waste Management Plan.

Replicability and Sustainability

The strength of the Sustainable Plastic Waste Management Plan lies in its ability to effectively bring together government resources and community participation for long-term implementation and continuance. The environmentally sound technique of using plastic waste in road construction recommended and implemented under this Plan is sustainable and is worthy of replication in states across the country. Himachal Pradesh's success and the cost effectiveness of the model have inspired and attracted states such as Rajasthan, Jammu and Kashmir and Maharashtra to adopt the Plan. In Himachal Pradesh itself, the initiative has been gradually scaled up.

To further increase the effectiveness and sustainability of the initiative, the State government has put a ban on plastic cups/glasses and established institutional mechanisms to control the inflow of plastic from outside the state. In a move that could further improve the long-term sustainability of the initiative and secure greater participation from the general public, the Himachal Pradesh State Civil Supplies Corporation has offered

to supply refined vegetable oil in pouches if customers return the used pouches.

Conclusion

The Sustainable Plastic Waste Management Plan is an innovative and simple yet highly effective solution that has not only alerted the community about the menace of plastic and the need for sustained waste management practices but also set up a robust mechanism for its achievement. The project was implemented throughout Himachal Pradesh without any financial provisions, which is an indication of its financial viability and replicability. The convergence of various departments and utilisation of existing resources has helped shape a high-impact initiative with limited resources.

Fact Sheet

Theme	**Environment**
Nodal Implementing Agency	**Department of Environment, Science and Technology; Government of Himachal Pradesh**
Geographical Coverage	**All districts of Himachal Pradesh State**
Target Groups	**Citizens of Himachal Pradesh**
Years of Implementation	**2009 - 2011**

FINANCIAL INCLUSION

2.15 Panchayat Banks: Providing banking facilities at the village level in Jharkhand

The Panchayat Banks model of Jharkhand has provided rural citizens with improved access to a range of government schemes as well as financial services, allowing citizens to carry out basic financial transactions and also access benefits of government schemes such as pensions and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) payments. The initiative has also led to the creation of local entrepreneurs amongst community members and provided a source of livelihood to bank operators. It has reduced systemic leakages and increased transparency as well, as the new system, coupled with the Aadhaar-based direct transfer system, credits money directly into the account of MGNREGA workers who can withdraw the money through biometric authentication.

Rationale

The network of financial institutions in Jharkhand is weak with only 1,500 bank branches across the state, which are mostly concentrated in urban areas. Residents of rural and far flung areas face several difficulties in carrying out financial transactions. The problem becomes particularly acute when it comes to the disbursal of government benefits such as pensions, scholarships and MGNREGA wage payments. A large majority of these beneficiaries are residents of rural areas and they face difficulties in accessing their benefits. The difficulties include the need to travel long distances, entailing monetary expenditures and loss of time. Sometimes multiple visits are required for the same transaction. This often results in diminishing savings, as account holders prefer to withdraw money in bulk when they have to travel long distances to carry out every financial transaction.

In recognition of this, several initiatives have been taken to increase the reach of the financial network in Jharkhand. Postal savings schemes and regional rural banks have expanded their reach to some extent, although these are still confined to the block level. To further improve access and bring banking facilities closer to the village level, in 2010 the Government of Jharkhand decided to introduce financial services as part of the existing system of Common Service Centres , known as Pragya Kendras in Jharkhand.

The Pragya Kendra is a Gram Panchayat level centre, which is housed in the Panchayat office. These centres are spread extensively across Jharkhand, covering more than half of the total 4,562 Panchayats in the state. Citizens can visit the kendras to avail of e-Governance services such as applying for a birth certificate, death certificate, caste certificate etc. Locally residing Village Level Entrepreneurs (VLEs) build and operate these centres in return for a commission on each service provided. The objective was to make the Pragya Kendras into Panchayat Banks as well and bring financial services to the Panchayat level. The Kendras were selected for reasons of financial sustainability.

They offer a bouquet of services, ensuring that the service provider has several sources of revenue. Notably, from the very beginning, the Government of Jharkhand decided to integrate the Panchayat Banks into the Pragya Kendras, rather than create stand-alone centres.

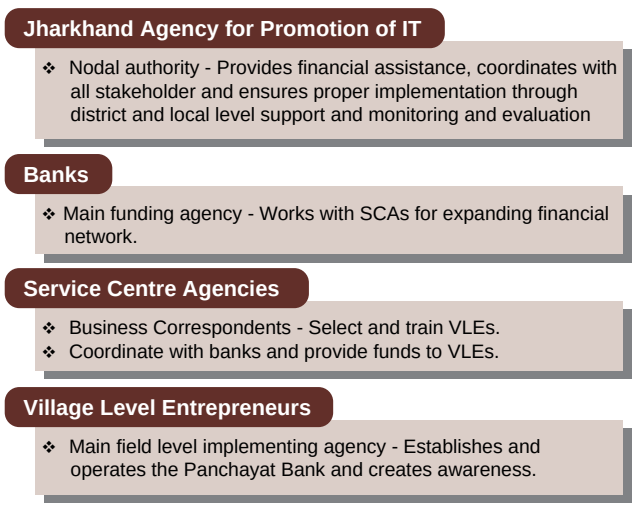
Objectives

The primary objective of this initiative was to provide banking and financial services at the Panchayat level. The idea was also to provide access to government schemes such as pensions and MGNREGA payments, which bring numerous benefits to people.

Key Stakeholders

The key stakeholders involved in the programme are Jharkhand Agency for Promotion of IT, banks, Service Centre Agencies (SCAs) and VLEs.

Figure 1: Key stakeholders



Implementation Strategy

The first step in implementation was to bring banks on board. This was done through regular engagements between the government and banks through the State Level Bankers Committee. Banks supported the initiative as the Aadhaar-based payments were already receiving a strong thrust from the Government of India, and this presented an additional opportunity for expansion. The first partner banks were the State Bank of India (SBI) and Bank of India (BoI).

The strategy was to use a 'one block, one bank' approach for streamlined payments, and 260 blocks were allocated to the partner banks. Initially, two service delivery models – smart card and kiosk banking – were used. However, over time the kiosk banking model based on online biometric authentication as used by SBI proved to be more successful than smart cards, which ran into a number of problems. In 2011, a decision was taken to standardise kiosk banking across the state and discontinue the smart card model. *Figure 2* shows a comparison between smart cards and kiosks.

Figure 2: Comparison between Smart cards and Kiosks

Smart cards

- Biometric details of individuals are stored on the card and therefore are device-bound and vulnerable to damage.
- Customers can draw funds only from a single location.
- Business Correspondents using smart cards were generally city based operators who had limited understanding of the rural context and would come for a limited time and with limited amounts of money.

Kiosks

- Biometric details stored online and comparatively more secure.
- Customers can draw funds from any location as biometrics are stored online.
- VLEs are local residents known to the community, be permanently stationed and would generally have surplus money as they would provide the additional services of Pragya Kendras, enhancing their operational efficiency.

Source: OneWorld Foundation India, 2014

The initial benefit delivered through the system was MGNREGA wage disbursals. Subsequently, different departments were directed to integrate their systems into the initiative. Scholarships, old age pensions and widow pension benefits were added to the list and are currently being disbursed through the Panchayat Banks.

Currently, financial transactions available at the Panchayat Banks are cash deposits, cash withdrawals, money transfers and account opening. For these transactions, there are two models of biometric authentication currently in operation. One is the SBI model where the biometric data of the account holder is stored with SBI itself. The other model is the Aadhaar-based system where the biometrics are stored with the Unique Identification Authority of India (UIDAI). Both models involve multiple procedures to authenticate identity.

Image 1: (Above) Panchayat banks at Badu, Kanke block, and (top) Tarup, Ratu block

a. Process Flow

Figure 3: Setting up a Panchayat Bank

b. Awareness generation

To ensure that people are aware about Panchayat Banks, the government held camps and fairs where citizens were mobilised and encouraged to open bank accounts. Mobilisation was undertaken at the block level, among Gram Panchayat members and the VLEs. Details about the services and the uses of Panchayat banking facilities were explained with clarity. Even the Block Development Officers (BDOs) mobilised MGNREGA workers to open accounts for receiving payments, and this contributed to large scale dissemination.

Additionally, the issuance of certain documents such as birth and death certificates from the block level was stopped and was devolved to the Panchayat level. The VLEs also disseminated information about the Panchayat Banks in their communities as they gain a direct benefit in doing so.

The Panchayat Banks are regularly monitored. The transaction details are updated daily on an online reporting system. For grievance redressal, citizens can contact the SCAs and banks which then take follow-up action.

Image 2: (Above) Biometric authentication through Aadhaar-enabled micro-ATM, and (top) Biometric authentication through SBI server

Resources Utilised

The government incurs no costs in establishing Panchayat Banks, as the costs are borne entirely by the VLE. The only additional technology required is a fingerprint scanner, which connects to the Aadhaar network or the bank's database, to enable financial transactions. The cost and commission details are provided in *Table 1*.

Table 1: Cost and commission detail

Establishing a Pragya Kendra/ Panchayat Bank	Rs. 40,000-50,000
Commission for financial transactions up to Rs. 10,000	Rs. 30
Commission for financial transactions up to Rs. 40,000	Rs. 120

Impact

The Panchayat Banks model of Jharkhand has been successful as it has achieved its main aim of providing access to a range of government schemes and financial services to rural citizens. It has also led to the creation of local entrepreneurs amongst community members who are able to connect better with the people.

Improved access to financial services: The initiative has significantly improved access to financial services in the rural areas. Prior to the introduction of Panchayat Banks, rural citizens had to travel long distances for conducting financial transactions, often spending up to Rs 100 per day. The expenditure is significantly higher if factors like loss of daily wages, the travel cost of an accompanying aide and the cost of multiple trips are also included. However citizens now have the convenience of banking from their Panchayat headquarters itself.

Reduction in corruption and leakages: The usage of biometric authentication and the direct transfer of payments to beneficiary accounts have significantly reduced corruption and leakages. In the de-duplication exercise for the National Social Assistance Programme, popularly known as the pension scheme, one lakh bogus identities were detected out of a total of 10 lakh beneficiaries. There has been a reduction of leakages in other ways as well. Prior to the Aadhaar-based direct transfer system, MGNREGA payments would take place partly through post office accounts. A large sum of money would often be appropriated by supervisors who would give a pittance to the beneficiary. In the new system, the money is credited directly into the account and can be withdrawn only through biometric authentication. Additionally the micro-ATM device has an audio component that reads out all details such as bank balance, amount being withdrawn, deposited and transferred. This provides transparency even to illiterate beneficiaries who know the exact details of the transaction taking place.

Increase in savings: Thrift and savings are becoming common as customers are now able to withdraw only as much as they need, since they can access the withdrawal services more easily. This is a significant improvement over the earlier scenario in which money would be withdrawn in bulk owing to the high cost and effort involved in each withdrawal.

Increased efficiency of banks: Banks have become more efficient, as the reduced load on bank branches has enabled them to devote more time to core operations such as deposit mobilisation and credit operations. This point assumes larger significance, given the low staffing of rural bank branches.

Livelihood generation: The Panchayat Bank model has become a source of livelihood and provides entrepreneurial opportunities to community members.

As of May 2013, there were approximately 600 Panchayat Banks in the state. The transaction and performance details are provided in *Table 2*.

People speak...

Manju Devi, Badu Panchayat, Kanke block

"I opened a bank account in 2010 after seeing an advertisement about the financial services available here. The account was opened within two days and I have been doing banking here ever since. It is extremely convenient and my savings have increased. Moreover, I get other documents such as certificates here itself."

Mahadev Oraon, Badu Panchayat, Kanke block

"I am a daily wage labourer and have come here to withdraw money under MGNREGA. This is much better than going to the previous bank which is at least 7 km away and we would lose our day's income, spend money in transport and waste time filling forms and standing in long queues. The process here is shorter and we get our money right away. It is a big relief to not just the labourers but everyone in general."

Table 2: Performance detail of Panchayat Banks functioning under SBI and BoI across Jharkhand as of January 2014

Total Accounts Created	1,41,964
Total Payments	Rs. 12,66,74,176
Total Receipts	Rs. 5,38,73,491
Total Transactions	Rs. 17,66,43,769

Source: United Telecoms e-Services Pvt. Ltd 2014

Key Challenges

Limited network connectivity is one of the key challenges faced. Panchayat Banks require electricity and internet to be able to carry out transactions, the availability of which is an issue in Jharkhand. Power shortages are handled by installing generators, but unreliable internet connectivity becomes a critical supply bottleneck. Efforts are currently underway to connect Panchayats to the National Optical Fibre Network through which 100 MBPS connectivity will be available to the Panchayat headquarters where Common Service Centres (CSCs) are located.

There are delays in processing VLE applications. Local level bank managers tend to treat VLE applications as a low priority matter, leading to delays in approvals. This slows down the spread of the Panchayat Bank network. To counter this, the importance of the initiative has to be effectively communicated to the local level bank managers.

Another challenge faced is limited data sharing between agencies. SCAs require transaction data from banks for preparing their financial claims. The revenue raised is then passed on to the VLEs. However, there are frequent delays in providing transaction data to SCAs that affect service delivery as the VLEs become cash-strapped and face difficulties in continuing operations.

Image 3: Children of MGNREGA workers inside an anganwadi near the Panchayat Bank along with their teacher/anganwadi staff.

Limited inter-operability is also a major hurdle faced by the initiative. There is limited synchronisation between bank switches due to which if the customers of one bank go to a Pragya Kendra that is affiliated to another bank, they are unable to conduct transactions. This is a severe limitation as a key feature of the Aadhaar-based direct benefit transfer system is inter-operability. Despite clear guidelines from the Reserve Bank of India and the Department of Financial Services mandating inter-operability, there is still a long way to go.

Replicability and Sustainibility

One of the main strengths of the Panchayat Bank model is its sustainability, which is both financial and social in nature.

From the perspective of the government, the Panchayat Banks are sustainable as the state incurs no cost whatsoever, barring revenue support which is provided in exceptional cases. For the banks too, it is a profitable venture as they do not have to incur the costs of operating bank branches. The banks only incur the cost of paying the VLEs a commission on every transaction done. They also receive a 2% incentive from the government for Aadhaar-enabled transactions.

For the VLEs it is an additional service, which has perennial demand and is thus a low-risk venture. There is also a revenue support option where VLEs who find it difficult to sustain are given support by the government to the tune of Rs 3,200/CSC/month. As mentioned earlier, people too make substantial savings in terms of time and money. Therefore, the model is financially sound and robust.

Panchayat Banks provide essential services to the public and have brought a huge convenience to their doorstep. Further, the VLE model ensures that locals get a sustainable livelihood by providing these services to their communities. Thus, the model has sustainable demand and social support.

As far as replicability of the model is concerned, this requires certain preconditions. One of the preconditions is willingness and support from banks. Banks stand to gain significantly from the Panchayat Bank model and this should be effectively communicated to all partner banks so that they support the initiative and do not see it as an additional responsibility. It is also critical that they train personnel, especially grassroots functionaries who directly interface with SCAs and VLEs. Banks should also

provide training to VLEs to enhance their efficiency and smoothen operations.

The banks will also have to ensure interoperability by seeing that their servers and switches are integrated in such a way that citizens holding a bank account in any bank can carry out transactions at any Panchayat Bank. Also, as the entire system is a financial transaction model, fast flow of funds is of prime importance. Therefore, systems to make quick payments to SCAs and VLEs have to be established.

Image 4: Banner of a Pragya Kendra

Additionally, it needs to be ensured that IT providers share data. As the model involves various agencies, maximum efficiency in monitoring and evaluation can be attained only if information is effectively shared. All stakeholders need to integrate their IT systems in such a way that relevant information is always and immediately available. The onus of this responsibility lies particularly on IT providers as they are the backbone of this system.

Thirdly, adequate and appropriate infrastructure is necessary for effective functioning of the Panchayat Banks. This includes the prerequisites of regular supply of electricity and internet connectivity.

Conclusion

Panchayat Banks are an innovative effort to enhance access to financial services in rural areas. Given the stress on livelihoods through the National Rural Livelihood Mission and employment guarantee through MGNREGS, the provision of banking facilities at the doorstep is only a logical step. Though there are some gaps and this initiative is at a nascent stage, it has served a felt need for financial services in rural areas. Plans are underway to synchronise transaction details of Panchayat Banks with governmental servers. This will help in getting real time updates. Efforts are underway to further improve this banking model, and the goal of one bank per Panchayat is yet to be achieved.

Fact Sheet

Theme	**Financial Inclusion**
Nodal Implementing Agency	**Jharkhand Agency for Promotion of IT, Government of Jharkhand**
Geographical Coverage	**All districts of Jharkhand State**
Target Groups	**Rural citizens**
Years of Implementation	**2010 - Present**

FOOD SECURITY AND PUBLIC DISTRIBUTION

2.16 Arun ePDS: ICTs and process re-engineering for an efficient Public Distribution System in Arunachal Pradesh

The practical challenges of implementing the Public Distribution System (PDS) in Arunachal Pradesh led to the conceptualisation of the Arun ePDS initiative to improve delivery through process re-engineering and use of Information and Communication Technologies (ICTs). The first phase, currently under implementation, is already showing significant impact in reducing the pilferage of food rations. The initiative has resulted in rapid redressal of grievances, detection of ghost ration cards and issuance of cards to people hitherto excluded from the system.

Rationale

The Justice Wadhwa's Report and the order of the Supreme Court of India in September 2010 raised a number of issues, including problems in accurate targeting and segmentation of APL / BPL beneficiaries; the pilferage of PDS commodities, including pilferage at every node of supply chain; wastage of food grain and the issue of inaccessibility of foodgrains for many people in the country and the problems of bogus ration cards.

Arunachal Pradesh's unique set of problems impinge on the implementation of the public distribution system in the state. Most significantly, many regions in the hill state are hard to access. Further, the state does not have a civil supplies corporation to manage the movement of foodgrains from the Food Corporation of India (FCI) godowns to Fair Price Shops (FPS). The FCI does not have its own godowns in the state either. In the prevailing situation, the task of procuring and transporting PDS grains from neighbouring Assam is left to wholesalers, who belong to Large-sized Multi-purpose Co-operative Society (LAMPS) like the Arunachal Pradesh Civil Consumer Welfare Society (APCCWS). The procured PDS foodgrain is then delivered to FPSs through vans or head-load.

One solution recommended by the Supreme Court was the computerization of the Public Distribution System and four States and Union Territories, namely Chhattisgarh, Gujarat, Assam and Chandigarh were chosen for piloting e-PDS initiatives, all with varied degrees of success.

Arun e-PDS was conceptualised as a pilot project in 2008 as a simple, accountable and efficient intervention of technology for streamlining the public distribution system in Arunachal Pradesh after optimising the existing process with the help of various stakeholders and domain experts.

After piloting for two years, the initiative was replicated in the remaining 17 districts of the state.

Image 1 & 2: Challenges faced in transporting food to Fair Price Shops

Source: Department of Food and Civil Supplies, Arunachal Pradesh

Objectives

The prime objective of the initiative is to improve the PDS in Arunachal Pradesh; arrest issuance of bogus ration cards; and to create a mechanism to achieve accuracy in projecting requirements. Arun ePDS aims to facilitate citizen-centric functioning and rapid grievance redressal, have centralised reporting and monitoring, create efficient allocation of commodities, and track supply chain from FCI godowns to FPS.

Key Stakeholders

The key stakeholders of Arun ePDS include the Department of Food and Civil Supplies (DFCS), Indian Institute of Management - Ahmedabad, Beacon Analytics, National Informatics Centre, Department of Information and Technology and beneficiaries availing PDS ration from FPSs.

Figure 1: Key stakeholders

Implementation Strategy

In 2008, the effort to formulate a plan for streamlining PDS was undertaken by the District Commissioner, Tirap, and DFCS. Institutions like the Indian Institute of Management-Ahmedabad, Indian Institute of Technology-Delhi, and Beacon Analytics were involved in the process.

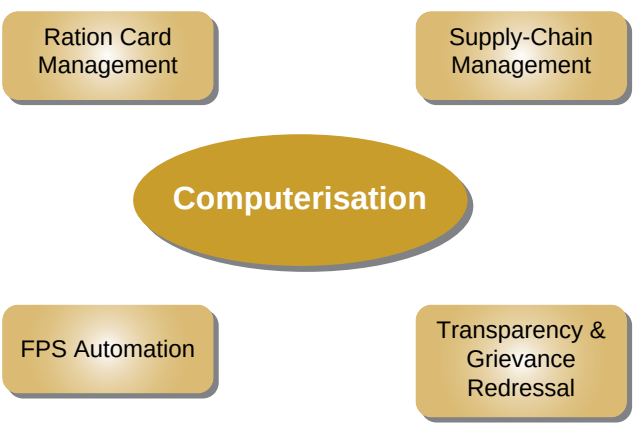
The Tirap ePDS model was conceptualised after a study was undertaken by a group of researchers from IIM Ahmedabad in 2008. Based on the findings and suggestions of this study, Beacon Analytics created new processes and software under the guidance of DFCS. The initiative was formally launched in Tirap District by the Arunachal Assembly Speaker on 31st May 2010. The cost of the Tirap ePDS pilot was Rs 7 lakh under the financial head of border area development funding. Key aspects like ration card management, supply chain management, and FPS automation were implemented during this pilot.

Once the Tirap pilot started showing positive results, the State government decided to replicate this ePDS system in 17 districts in Arunachal under the name Arun ePDS. Arun ePDS had two phases. The first phase involved digitising of ration cards and coupons, along with setting up of a department website www.arunfcs.gov.in. The first phase is being rolled out in 9 locations in 17 districts of the state.

The second phase aims at achieving intra-state connectivity and monitoring the entire system from the headquarters through a transparency portal. This initiative has two key features through which PDS is sought to be streamlined: process re-engineering and ICTs. The process re-engineering aspect saw an innovative system generated coupon system with the following features:

1. The ePDS system operates on a novel, non replicable coupon system
2. 12 coupons are issued (one for each month) to the beneficiaries at the time of issuance/renewal of ration cards
3. These have to be submitted to the FPS by the beneficiary, one for each month, at the time of purchasing his/her ration quota

Figure 2: ICT components of Arun ePDS



Source: Department of Food and Civil Supplies, Itanagar

4. FPS owners, in turn, will submit the collected coupons to the ePDS counter (DFCS office) to get allocation for the next month

5. The system will automatically generate monthly sub-allocation order on the basis of the coupons submitted by the FPS dealer

The ICT component of the scheme has four aspects. The first step is the Ration Card Management that includes both the Issuance & Modification processes. It has two aspects:

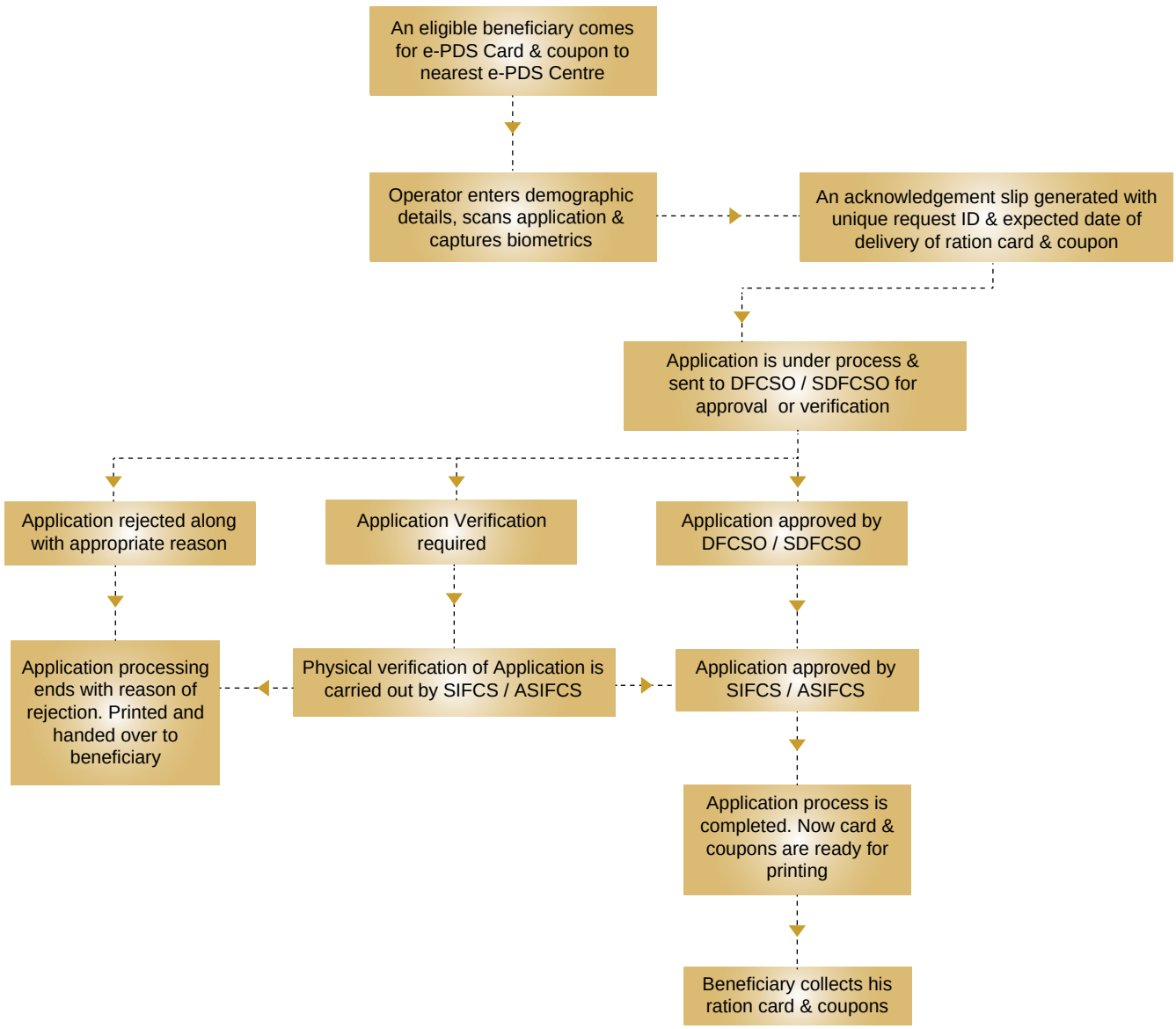
1. Central database, which is accessible to relevant officials to review pending requests

2. Automatic printing of cards, which reduces manual intervention

This is followed by supply chain management, which is achieved through the issuance of system generated coupons which are non-replicable. An automatic requirement generation system based on the coupons brought back to the department by FPS owners has been set up, which helps in automatically generating the required allocation of ration to send to the FPS.

Further, due to digitisation of information, key data and reports are accessible instantly, which help in providing real-time information to all stakeholders over the internet. In order to streamline information according to relevance, customised user screens are created so that each person gets only the access that he/she is authorised to get. Finally the mechanism of grievance redressal is set in place through a toll-free number. All information is digitised, which ensures traceability of all actions taken by the department officers. *Figure 3* depicts the process flow.

Figure 3: Process flow of Arun ePDS



Source: Department of Food and Civil Supplies, Itanagar

a. Innovation

The initiative involves two aspects of innovation, process re-engineering and use of Information and Communication Technologies (ICT). It is a collection of interlinked and interdependent processes, software solutions, technology and efficient implementation methodologies, which include digitised ration cards and a unique system generated non-replicable coupon to be given to beneficiaries for availing their ration quota.

b. Awareness generation

The Tirap pilot involved intensive engagement with the community. The process started by the department officials contacting the Gram Panchayats, Gaon Muras or village elders as well as the beneficiaries at the village level. They explained to the village elders and the beneficiaries about discrepancies wherein the beneficiaries were not getting the allotted quota of 35 kg because of bogus ration cards and non-eligible candidates. As a result of the public meetings, the Panchayat members and village elders were convinced about the merits of the new digitised ration cards and took upon themselves to convince the community. These interactions showed results as beneficiaries agreed to surrender their old ration cards in favour of the new digitised ones.

The Gaon Muras, representatives of women self-help groups and representatives from the department, formed a vigilance committee which was empowered to classify families under different schemes through which ration was to be given to them. The creation of this committee also helped in generating awareness and worked as in-built mechanism to weed out ineligible ration card seekers.

The success of the Tirap pilot created a positive response statewide and generated demand for the initiative to be carried out in the rest of the state.

c. Grievance redressal

Grievance redressal is an integral part of the system and the toll free number 1967 has been provided to people to list out their grievances and register complaints. As the entire process is digitized, actions taken to address grievances could be tracked. This has deterred malpractices and enforced efficiency by enabling swift action to be taken on complaints and discrepancies.

Resources Utilised

The existing resources of the department were used and no additional personnel were hired specifically for this project. The hardware was bought from the existing budget of the department. The training for the staff utilised the funds made available for Arun ePDS. Community participation was leveraged to aid identification of eligible families under different ration schemes. A total of Rs. 200 crore was sanctioned to the Department by the state for rolling out ePDS in 2010-11.

Impact

Efficiency and elimination of errors: The initiative has shown positive impact and a substantial portion of the existing data has been digitised. A significant impact was that more than 2,000 ghost ration cards were eliminated in the Itanagar Capital Complex alone. One of the other achievements was the reduction in the workload due to digitisation. Additionally, digitisation of ration cards provides security to beneficiaries and also works as an identity proof, which is important in border areas. The food coupon system ensures pre-calculated allocation, leaving no room for modification. This eliminates time and resource wastage and does away with blanket allocations.

Facilitation of tracking through stages: Through ePDS system, facilities like scanning the transportation *challan*[1] are possible. The system enables tracking and authentication of the ration supply chain from FCI to the district office and then to the FPS. Everything is recorded online and the data is easily accessible.

Rapid grievance redressal, transparency and accountability: The initiative enhances proper implementation of department hierarchy and division of work. Every detail is recorded and saved in the database. This makes the system transparent and ensures that discrepancies are immediately identified and corrected. This also ensures complete accountability, rapid grievance redressal and traceability of all actions taken by the department and officials. Concerned officers cannot bypass the system as everything is digitised.

Key Challenges

The biggest challenge is the prevalence of multiple ration cards in a single household. In absence of the biometric system, more than one card was provided to a single household due to lack of updated records. With the

[1] *Challans are authentication letters issued by the department allocating specific quantity of ration for each district to be released from the FCI godowns.*

introduction of the biometric system, the number of issued ration cards got reduced.

Technologically, ePDS is based on satellite-based communication because of the non-negotiable terrain. As Arunachal Pradesh is covered by thick clouds most of the time, the working of the satellite-based Very Small Aperture Terminal (VSAT) becomes problematic at times. This is compounded by the fact that there is no provision of funds for expansion of internet connectivity. This remains a big challenge before the launch of the second phase. While basic digitisation is taking place in each district, the system still needs to get online.

As the state is undergoing infrastructural development with highways and hydel projects, there is an influx of labourers from neighboring states. To address this issue, more advanced smart cards with a positioning device are being devised for distribution amongst the beneficiaries, which would help in monitoring changes in the supply chain. Another issue is the non-viability of FPS due to minimal profit margin and the existence of disproportionate number of such shops in the region. To overcome this, the state has requested the Union Government to enhance the profit margins of FPS.

Initially, the beneficiaries were not keen to accept the changes since there was lack of awareness. But workshops and campaigns were conducted to spread awareness about this initiative and community involvement through Gaon Muras also helped secure people's participation. Later, as people experienced the benefits from the Tirap pilot, there were demands from other regions to replicate the initiative. The upscaling of the initiative was a result of these demands.

Another challenge that the state has to overcome is the issue of the Hill Transport Subsidy between the State government and the Government of India. As a temporary solution, the State government has introduced the transportation of food by mule tracts and human head load to meet transportation costs.

There is acute shortage of new land and funds for the construction of new godowns, which are restricting the expansion of the system.

Replicability and Sustainability

This system ranks high on sustainability as it does not require heavy additional resources. With small additional inputs, the system can be put in place in any state that wants to streamline its PDS. The entire financial cost for the Tirap Pilot was only Rs 7 lakh. Further, this cost is primarily a one-time cost at the time of digitisation and the maintenance cost is not high. Many states in the North-East have shown an interest in studying this initiative after the Supreme Court issued a directive to digitise the PDS.

Conclusion

Arun ePDS is a dynamic scheme and tackles extreme challenges of connectivity, both physical as well as virtual. It plans to implement a fool-proof system for PDS in Arunachal Pradesh. After the successful completion of activities under Phase-I of Arun ePDS, the outlines of a comprehensive Phase-2 have been planned.

Phase-2 includes aspects like establishing connectivity and related infrastructure, expansion in all blocks of the 17 districts, establishing real-time/near real time linkage to the transparency portal, track and trace supply chain through point of sale (PoS) device and strengthening grievance redressal at the ePDS cell.

Fact Sheet

Theme	Food Security and Public Distribution System
Nodal Implementing Agency	Department of Food and Civil Supplies, Government of Arunachal Pradesh
Geographical Coverage	All districts of Arunachal Pradesh State
Target Groups	Families availing ration quotas under APL, BPL, AAY, Annapurna schemes
Years of Implementation	2010 - Present

Dilli Annashree Yojna has covered more than 1,00,000 since its implementation and has served the dual purpose of food security and social security to vulnerable families.

2.17 Dilli Annashree Yojna: Food security for the vulnerable in Delhi

Dilli Annashree Yojna (DAY) is a pioneering initiative using the Direct Benefit Transfer (DBT) mechanism to provide food security to households in Delhi which were left uncovered by existing food security schemes. The eldest woman of a vulnerable household is made the beneficiary, thus providing this scheme a gender-sensitive edge. Since its implementation, the scheme has covered more than 1,00,000 families in Delhi. Women beneficiaries felt that cash served the dual purpose of food security along with social security in case of illness, especially in occupationally vulnerable families.

Rationale

The National Capital Territory of Delhi has many vulnerable households due to a large migratory population who are not able to avail benefits under existing food security schemes like Targeted Public Distribution System (TPDS), Annapoorna Yojana or Antyodaya Anna Yojana.[1] There is a cap on the number of Below Poverty Line (BPL) families that can access benefits in a state, as per the directives of the Planning Commission. In Delhi there are a total of 4.09 lakh BPL families availing the benefit of subsidised food grains through the Public Distribution System (PDS) but there are many households that are not covered by other government schemes. Existing food security schemes, like BPL ration cards or the Annapoorna Yojana/Antyodaya Anna Yojana, focus on benefits in kind as they provide food grains and sugar.

The other significant aspect is that most of the vulnerable sections of population do not have the required documents or literacy levels to make use of the existing facilities, which hamper their inclusion in the existing social security programmes. Keeping the above mentioned problems in mind, DAY was conceptualised to bring these vulnerable and neglected sections within the fold of the PDS. DAY therefore fills the gaps in the existing food security policy and has become the first such scheme to adopt the DBT mechanism in the PDS.

Objectives

DAY aims at bringing the vulnerable and the most vulnerable families into the PDS by transferring the amount of food subsidy directly to the Aadhaar-linked account of the beneficiary. The long-term objective is to cover about 2,00,000 vulnerable households under this initiative.

Key Stakeholders

The main stakeholders in the scheme include the Department of Food Supplies and Consumer Affairs (DFSCA), Mission Convergence, Gender Resource Centres (GRC), Unique Identification Authority of India (UIDAI), National Payments Corporation of India (NPCI), partner banks, and old women, transgenders and widows.

Figure 1: Key stakeholders in DAY

Department of Food Supplies and Consumer Affairs
- Prime stakeholder
- Ascertained that the identified households were not availing the benefit of food security through any other scheme
- Sanctioned subsidy to the bank accounts of beneficiaries

Mission Convergence
- Facilitated the process
- Laid down the parameters that defined vulnerability
- Selected the GRCs, conducted the trainings
- Sent of complete forms to the DFSCA

Gender Resource Centres
- Conducted the identification survey of vulnerable and most vulnerable households in 2008, 2009 and 2010
- Conducted verfication of identified households in 2012
- Facilitated the eligible households throughout the process

Unique Identification Authority of India
- Processed the Aadhaar forms for DAY on a priority basis

Partner Banks
- Opened up no-frills accounts for the beneficiaries
- Linked the bank accounts to Aadhaar Number

National Payments Corporation of India
- Mapped the bank acounts linked to Aadhaar Number and mapped the accounts completing the Unique Payment Bridge

Beneficiary
- Eldest woman of the identified vulnerable family, widows and transgenders identified as vulnerable

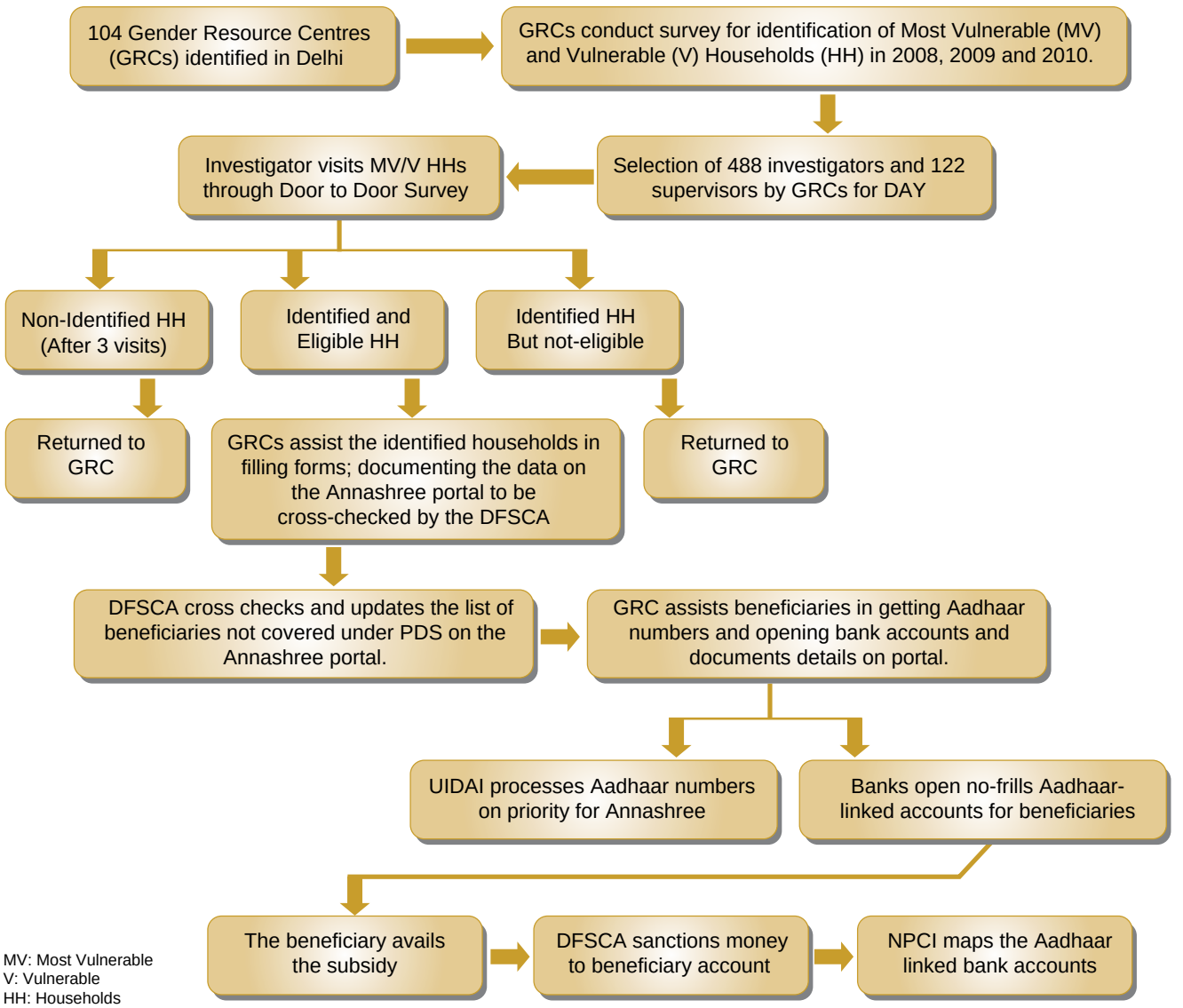
1 Vulnerability has been defined by UNISDR as "the conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazard". For the purpose of Dilli Annashree scheme it was measured in terms of criteria identified by the Mission Convergence team. Based on data provided by Mission Convergence, Government of NCT of Delhi.

Implementation Strategy

The idea of vulnerability as a criterion for extending social sector services in Delhi has been used in DAY. The Mission Convergence of the Government of the National Capital Territory of Delhi (GNCTD) had in 2008-2009 defined the yardstick of measuring vulnerability. A door to door survey for identifying vulnerable households in Delhi was conducted in partnership with local NGOs, which were called GRCs, whose functionaries were trained to be the interface between the government and the beneficiaries. This study, conducted during 2008-2010, surveyed 12 lakh families and identified 5,85,000 families as vulnerable or most vulnerable. Vulnerability was assessed on the basis of three criteria. The first criterion was location vulnerability for families which were shelterless, precariously housed, living in notified slums, non-clusters and resettlement colonies. The second criterion was social vulnerability that took into account factors such as old age, physical disability, destabilising and stigmatising ailments, single women, single unprotected children or child headed households. Thirdly, occupational vulnerability was a criterion that included rag-pickers, casual daily wage labourers, unskilled construction worker, porters, casual domestic workers, street vendors and hawkers.

Households suffering from multiple vulnerabilities were classified as most vulnerable households (MVH). The vulnerable households identified in this survey were then cross-checked in BPL card-holders' list. After cross-checking, 4,85,275 of the earlier identified 5,85,000

Figure 2: Process flow chart of Dilli Annashree Yojna



MV: Most Vulnerable
V: Vulnerable
HH: Households

Source: OneWorld Foundation India, 2014

families were recognised as most vulnerable and not covered by any of the food security schemes of the DFCSA. Out of these, 75,000 families were identified for whom the Aadhaar card and opening of no-frills bank accounts was started by GRCs. These Aadhaar-linked bank accounts were then mapped by the NPCI to create a Unique Payment Bridge to enable processing of transactions into the beneficiary accounts.

An amount of Rs. 600 was calculated as the amount of benefit that the government gives in subsidy through PDS, when it allocates wheat or rice or sugar to the ration card holders. This amount was marked as the sum that would be transferred directly to the beneficiaries. The data was entered into the governance portal created for the scheme, to strengthen monitoring and evaluation at each level, beginning from the stage of filling of forms to the money transfer into accounts. Any bottlenecks in the process were easily located, problems identified and effectively solved.

As a measure of caution, the value of the first transaction to the new bank accounts was only Rs. 1. Only after ascertaining that the transaction was successfully made to the beneficiary's account, was the rest of the money transferred. As of today, the food subsidy is being transferred directly to the Aadhaar-linked bank account of more than 1,00,000 beneficiaries. The target group consists of the senior-most female member of the household. This was later relaxed to include widows availing the Widow Pension Scheme of the Delhi Government. As the scheme advanced, Vigilance Committees headed by MLAs were authorised to identify vulnerable families and forward their forms to the DFSCA. Later, it was expanded to include any resident of the National Capital Territory, who has an annual income that is less than Rs. 1 lakh and has been residing in Delhi for the last three years.

a. Innovation

Vulnerability as a benchmark in selecting beneficiaries is a novel method that covers multiple factors of social deprivation. Vulnerability is more comprehensive than the yardstick of poverty that is traditionally used in determining the BPL status.

Besides this, another salient innovation of DAY was to effectively process the DBT in PDS to vulnerable households. Further, the scheme used Aadhaar Unique Identification (UID) card as an identifying mechanism for a social sector service. Use of the Aadhaar card resolved the issues of lack of documents of vulnerable families. A web portal was created to connect various stakeholders by developing a database for all those surveyed and selected. The database shows the sanctioned number of beneficiaries and also tracks transactions. Another innovative measure was the convergence of the Aadhaar numbers and bank accounts of the beneficiaries along with the mapping of the data by the NPCI to create an Aadhaar Unique Payment Bridge (UPB). This digitisation led to easy identification of bottlenecks and their effective resolution. The task of coordination between the major stakeholders was achieved through weekly meetings on fixed days and times.

b. Awareness generation

Awareness campaigns for this scheme started well before its launch through radio jingles, display of hoardings, advertisements at bus shelters, distribution of pamphlets, promotion through loudspeakers in the target colonies and promotions on television channels. Even the launch event served as a mechanism for generating awareness as it was a well-advertised public affair at the Thyagaraj Stadium.

According to Azra Jamal, project coordinator, Sur Nirman, a GRC, awareness was so high that people would queue before her office from 8 a.m. onwards. The scheme was not piloted but was rolled out in a phased manner as the formalities involved in sanctioning the subsidy to the beneficiaries took time. While the scheme was launched with a target of 15,000 families on 15th December 2012, 13,298 cases were actually sanctioned that very day.

c. Grievance redressal

A strong and effective grievance redressal mechanism was put in place by setting up a toll-free call centre to register complaints. The beneficiaries could also approach the Food Security Office (FSO) of their area to lodge complaints. Further, the GRCs who link the government to the community under the scheme can be approached by the beneficiaries in case of any grievance. The GRCs followed up on the complaints till redressal by tracing the problem on the governance portal and contacting the concerned authority.

Resources Utilised

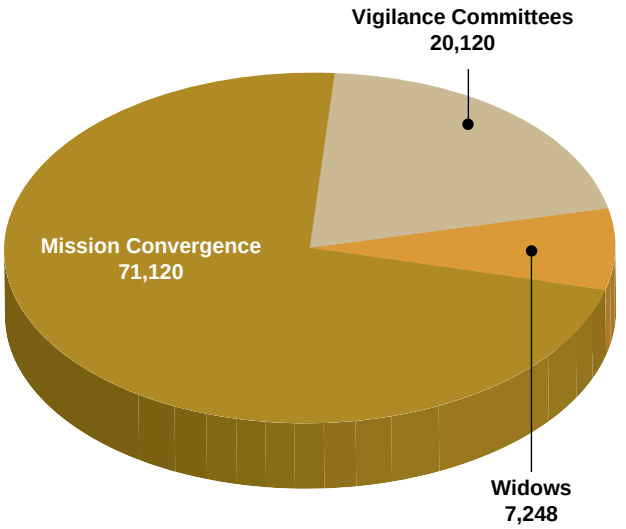
The scheme heavily depended on existing resources in terms of human resource and infrastructure. Existing institutional mechanisms of all the involved agencies such as DFCSA, Mission Convergence, GRCs, UIDAI and the banks were used. While DFSCA recruited personnel for data entry from the existing budget of the department, the GRCs temporarily recruited surveyors for the initial period of filling up forms and for verification, for which they were paid according to the number of forms completed.

The rest of the work was done by the existing staff of the DFSCA. The use of UIDAI technology was used as identification mechanism without any new recruitment or investment. Similarly, the existing apparatus of partner banks as well as NCPI was utilised to open bank accounts, link these to Aadhaar and map them. Mission Convergence received a grant amounting to Rs. 1.80 crore from the United Nations Development Programme (UNDP) to facilitate data entry. In terms of infrastructure, Mission Convergence provided computers to the identified GRCs to facilitate data entry and to access information from the web portal developed for DAY.

Impact

Food security and social security: This scheme has been in operation only for a short time, so it is too early to assess its long-term impacts. In the short term, the scheme has assisted more than 1,00,000 most vulnerable and vulnerable households in attaining food security. It has also had indirect effect on the dignity and social security of the women beneficiaries. Women beneficiaries felt that monetary benefits served the dual purpose of food security along with social security in case of illness, especially in occupationally vulnerable families. *Figure 3* shows the number of beneficiaries categorised by the agency through which they have come to avail of the subsidy.

Figure 3: Total cases sanctioned (as on September 2013)



Source: OneWorld Foundation India, 2014 based on the data provided by the DFSCA

Integrating the element of choice: Since the dietary patterns of each household were different, the provision of having ready cash gave them the freedom to spend on food items other than cereals. Women, being the beneficiaries, could chose to spend on milk and vegetables leading to a healthier diet for families, especially children.

Proof of identity and eligibility for other schemes: The prospect of having a card was in itself an asset for most of the vulnerable households, whose vulnerability deprived them from having any such proof of identification. Being able to obtain a proof of identity in terms of the Aadhaar card accentuated the attraction to DAY in such families. As a ripple effect, when women beneficiaries came to GRCs for their Aadhaar card and bank accounts, the GRCs got the opportunity to engage with them on other issues such as health and education and enlarged the people's scope of securing benefits from other schemes.

Key Challenges

The biggest challenge was the verification of beneficiaries after conducting the surveys. Since the target group mainly comprised migrants or the homeless, and came from JJ clusters and resettlement colonies, the data collected in the initial survey became redundant. It was difficult to locate the families using the addresses they had provided. The GRCs had to locate the target families, fill up the forms and verify their addresses many times over before they could send the forms for further processing.

Since many of the identified vulnerable families did not have bank accounts or the experience of operating them, they were apprehensive and not forthcoming to take up the scheme. This scepticism was overcome by the proactive role played by the GRC in assisting the beneficiaries right from opening the accounts to helping them operate these.

The scheme involved many stakeholders and coordination was a challenge. Coordination between the major stakeholders was achieved through weekly meetings on fixed days and times.

Since the scheme was novel in using the DBT, there were queries from all the agencies involved. For example, a system of weekly meetings was devised between the DFSCA, Mission Convergence, partner banks, UIDAI and NPCI, wherein the ongoing challenges that were being faced were addressed and solutions arrived through dialogue. Even within the department, there were weekly meetings with all the 70 FSOs of the state, through open house discussions. This continuous engagement helped in overcoming the challenges at every stage as well as fine tuning the scheme.

Initially the scheme could only be availed by the women heads of the identified families, but later it was enlarged to include households that had no women.

Also, transgenders and widows who met the vulnerability criteria were included. As of today, the scheme is open to all those who can prove that they have been residing in Delhi for the last three years and their annual income is less than Rs. 1 lakh.

Replicability and Sustainability

Since the scheme targets vulnerable people in metropolitan cities with a high migrant population, its replicability is contextual. The scheme targets vulnerable people in metropolitan cities with a high migrant population and therefore its replicability is contextual. A critical factor that enabled the scheme to take-off was high penetration of banking facilities even in demarcated rural areas. This again might be applicable to big metropolitan cities alone. Digitisation and creation of a database also helped in better monitoring and easy implementation.

The DFSCA is already making use of the connectivity with vigilance committees for dispersal of information regarding the supply of food grains to PDS shops to check the diversion of food grains to regular shops. The use of Aadhaar as a single identification document has simplified the process of identification of the target population and can be replicated in other social sector services. Since the scheme does not require a separate institutional mechanism and utilises the existing institutional set up, it becomes easier to implement and sustain.

Conclusion

The Dilli Annashree Yojna is unique in making vulnerability a criterion for providing food security. The practice of providing targeted social services to the identified vulnerable sections of the population can be replicated in sectors like education and health. While the financial implications of DBT for PDS can be debated, the fact that this scheme addresses the vulnerability of people in securing the benefits of social sector service delivery transcends this limitation.

Fact Sheet

Theme	**Food Security and Public Distribution System**
Nodal Implementing Agency	**Department of Food, Supplies and Consumer Affairs, Delhi Government**
Geographical Coverage	**All districts of the National Capital Territory**
Target Groups	**Identified vulnerable families in Delhi**
Years of Implementation	**2012 - Present**

Madhya Pradesh's e-Uparjan initiative has helped streamline operations and strengthen procurement operations, thus encouraging farmers to sell their produce at the government procurement centres.

2.18 e-Uparjan: Re-inventing the procurement system through digitisation in Madhya Pradesh

The e-Uparjan initiative uses versatile technological innovations in implementation and shows considerable impact in streamlining operations for the speedy and transparent transfer of Minimum Support Price (MSP) dues into the accounts of farmers directly. This initiative strengthens procurement operations, develops a near real-time reporting mechanism and a decision support system for enhancing the forecasting, monitoring and tracking capabilities of the Madhya Pradesh Government. Many farmers are now willing to sell their produce at the procurement centres created by the government.

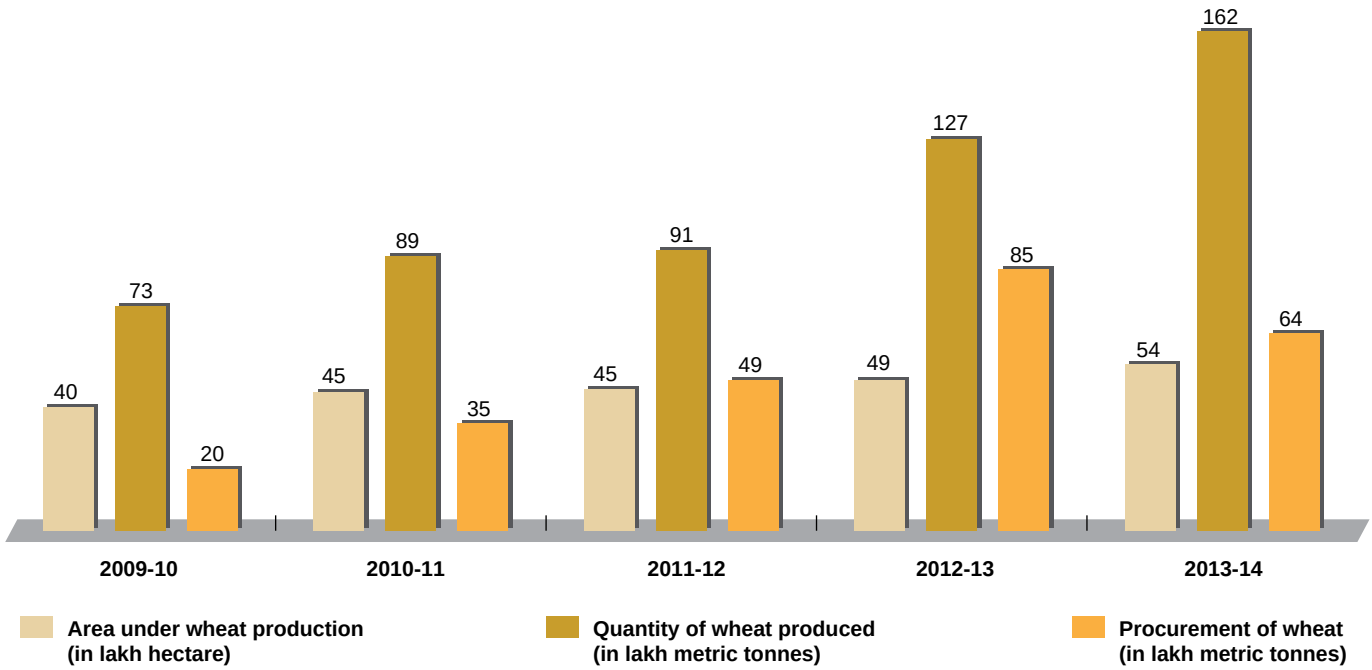
Rationale

Madhya Pradesh has seen significant improvement in the production of wheat and paddy since 2009. This has had a direct impact on the procurement mechanism in the state. *Figure 1* and *Figure 2* show that the area of cultivation and the production of wheat and rice has gone up since 2009.

The increase in production also led to an increase in the number of farmers who want to sell their produce at the MSP offered by the Government of Madhya Pradesh (GoMP). This increase in service seekers has adversely impacted the quality of service delivery of the Department of Food, Civil Supplies & Consumer Protection (DFCS & CP).

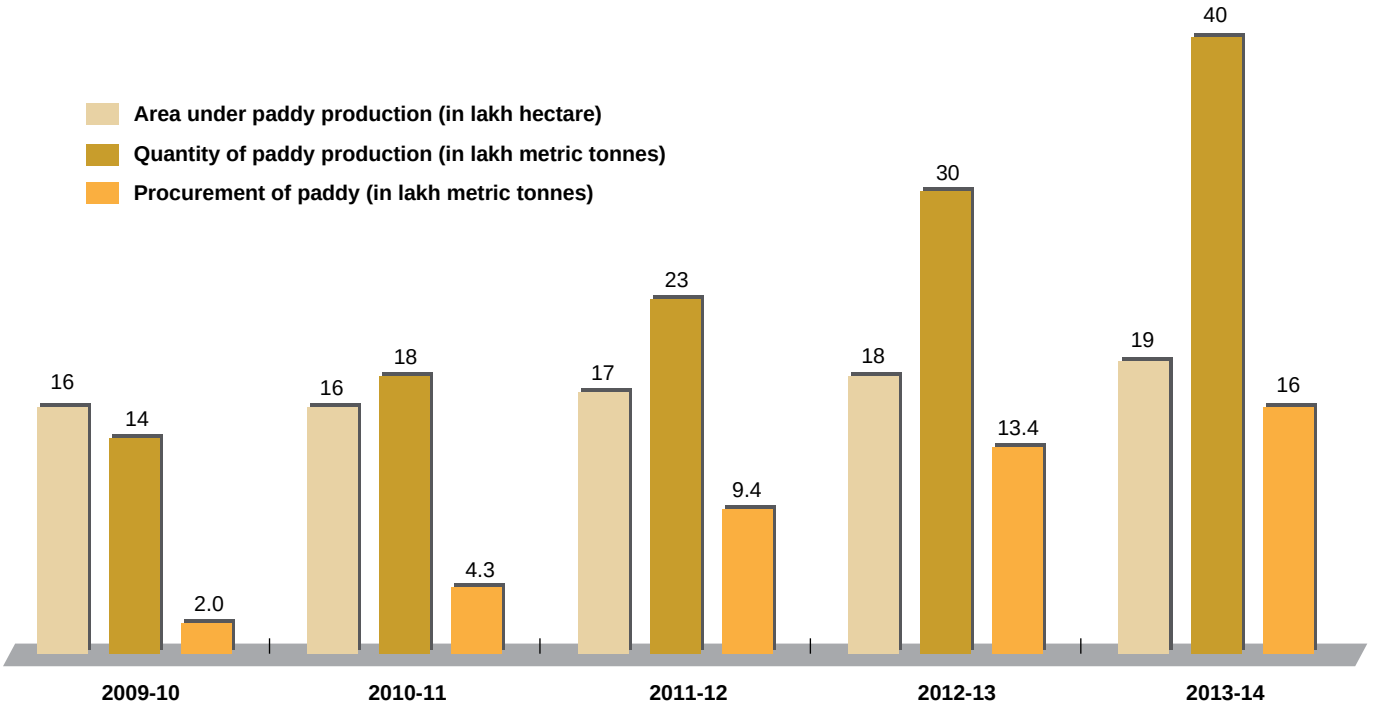
The *mandis* had poor decision support systems and made irregular or incorrect forecast of the produce and expected procurement. Once procurement started, *mandis* were crowded with long queues of farmers wanting to sell their produce. This adversely impacted the functioning of the procurement centres as these were not equipped with facilities to deal with large quantities of procurement. The overcrowding led to choking of roads leading to *mandis* and caused transport bottlenecks. At times, the chaos turned into a law and order problem. The problem was further aggravated due to the absence of transparency and lack of citizen interface. All of this resulted in procurement centres performing below their capacity. An inefficient monitoring and management of procurement processes made it difficult for the authorities to check and curb malpractices. Finally, manual payments to farmers through cheques led to delay, losses and corruption.

Figure 1: Increase in area under wheat production in Madhya Pradesh



Source: Department of Food, Civil Supplies and Consumer Affairs

Figure 2: Increase in area under paddy production in Madhya Pradesh



Source: Department of Food, Civil Supplies and Consumer Affairs

The e-Uparjan initiative was essentially a response to the law and order situation that arose in Harda District of Madhya Pradesh that got acclaim for having the highest produce per hectare in the country in 2010 (46 quintal per hectare).

The District Collector conceptualised the idea of regulating the number of farmers bringing their produce by maintaining records of farmers willing to sell at MSP and allocating a date to each farmer. This date was conveyed to the farmer through an SMS. The success of this initiative led to a visit by the Chief Minister to the *mandi* in 2010 where he announced upscaling of this initiative in the rest of the state. The upscaling was done in time for the procurement of the 2011 *rabi* crop.

Objectives

The primary objective was to enable a smooth, regulated and efficient process of procurement at the centres. This essentially required simplification of procedures, ushering in transparency of operations from purchase to payment, weeding out malpractices and developing a near real-time reporting mechanism for field-level operations such as forecasting, purchase, transportation, storage and payment. This could be achieved by improving the cost and resource efficiency of the procurement process. The initiative also sought to enable better planning, monitoring and management. A significant objective of this initiative was to protect small and vulnerable farmers from being shortchanged by middlemen.

Image 1: Traffic jam due to trolleys

Image 2: Procurement before innovation

Image 3: Procurement after innovation

Key Stakeholders

The main stakeholders of the programme include DFCS & CP, Madhya Pradesh State Civil Supply Corporation (MPSCSC), Madhya Pradesh Warehouse and Logistics Corporation (MPWLC), Madhya Pradesh State Cooperative Marketing Federation Limited (MARKFED), Mandi Board, District Central Co-operative Banks, Food Corporation of India (FCI), National Informatics Centre (NIC), cooperative societies and farmers.

Figure 3: Key stakeholders

- Farmers
- Department of Food, Civil Supplies and Consumer Protection (DoFCS & CP)
- Madhya Pradesh State Civil Supply Corporation (MPSCSC)
- Madhya Pradesh Warehouse & Logistics Corporation (MPWLC)
- Madhya Pradesh State Cooperative Marketing Federation Limited (MARKFED)
- Mandi Board
- District Central Cooperative Banks
- Co-Operative Societies
- Food Corporation of India (FCI)
- National Informatics Centre (NIC)

Implementation Strategy

e-Uparjan digitises the entire process of procurement. Upscaling of e-Uparjan in the first Phase (2011-12) was through a simple SMS system initiated in Harda district for wheat procurement, but by the second phase many more aspects were added to make e-Uparjan more nuanced.

NIC conceptualised, designed and developed applications, both online and offline, in Hindi for MPSCSC. The offline application included eight features:

1. Processes related to the buying and selling of crops
2. Corrections in the farmer's registration details
3. SMS scheduling according to the daily storage capacity and daily wheat procurement status
4. Payment report generation for direct money transfer to the farmer's account
5. Gunny bag management
6. Transport management
7. Storage management
8. Agriculture loans recovery option

Image 4: Rabi procurement centre

Similarly, an online application was developed to register farmers, and subsequent MIS reports fed into the offline module. This included information that was critical to planning, monitoring and developing a near real-time reporting mechanism such as complete details of godowns, complete details on bardana (jute gunny bags) management, updated status of transportation and data on farmers' loans. Apart from the above mentioned features, the second phase included verification of details provided by farmers, making online changes after verification, SMS scheduling for procurement date area-wise, approving new procurement centres, entering farmer data for crop loss due to natural disasters such as hail and frost, sending SMSes after payment to farmers, internet connectivity for procurement centres and also electronic transfer to warehouse application.

There are various fronts on which the initiative enhances administration as well as monitoring of the procurement process. Feeding in information related to storage space in godowns helps in advance planning for transportation

facilities for each procurement centre. Accordingly, the number of farmers to be called on a single day is decided. Further, this MIS also helps in tracking and monitoring the grains from the centre to the godowns, mitigating the chances of malpractices considerably. The whole initiative revolves around the farmer.

In Phase-I, online kiosks were used for registering farmers, but in Phase-II this task was performed by cooperative societies, which also acted as procurement centres. The effort of the DFCS & CP is to bring the facilities closer to farmers so that cooperative societies are identified and provided hardware by the MPSCSC. The data entry operators and runners are hired and trained by these societies. Farmers are registered with centres in proximity to reduce the cost of transportation. The entire process of procurement is planned well in advance for both *Rabi* and *Kharif*.

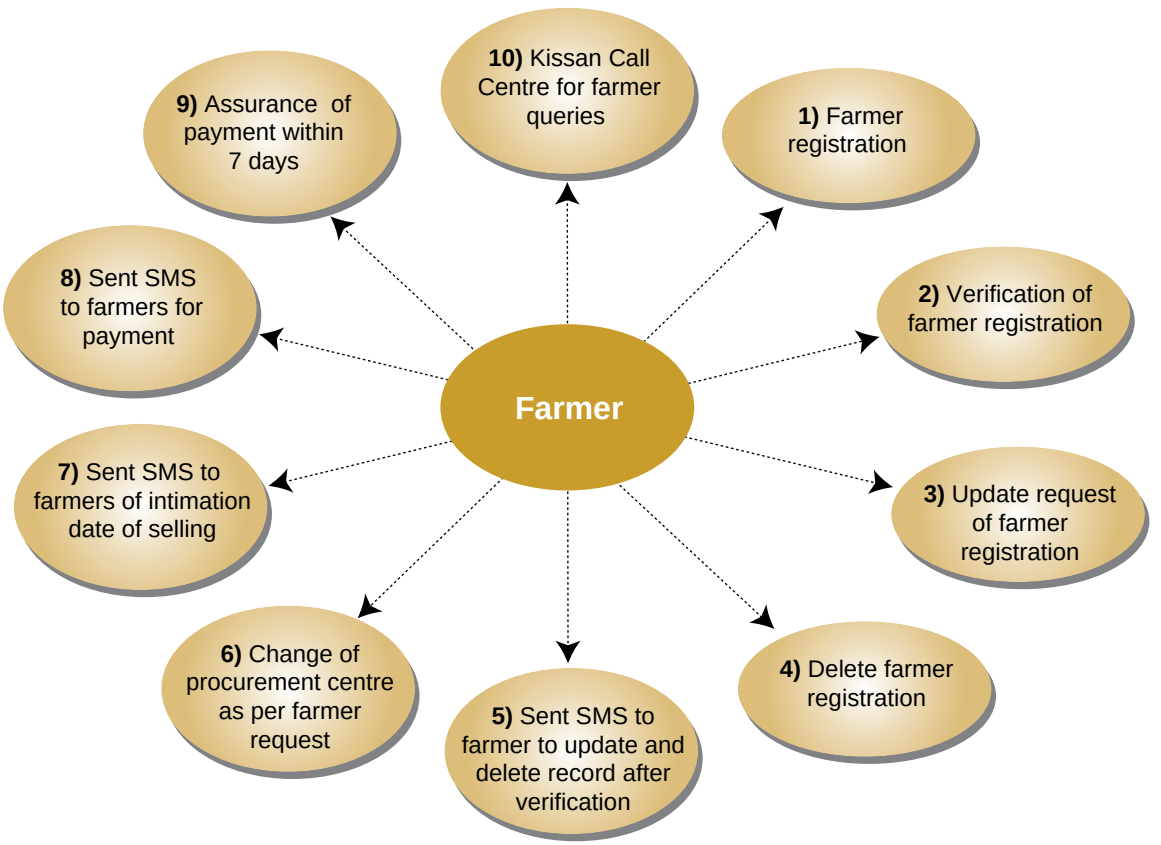
a. Innovation

This initiative ranks high on innovation as this is the first digitisation effort in MSP procurement in the country. e-Uparjan presents a tailor-made bouquet of technologies. Initially, SMSes are used to intimate farmers about their procurement date and send them payment details. Each SMS sent also generates a delivery report for official records. Then a mobile team consisting of officials is deployed in all districts to take care of computer peripherals or application-related problems. The team works 24x7 to trouble-shoot technical problems that may arise during the procurement period. The first module was the offline module at the field level at e-Uparjan Kendras where crops were procured from farmers, and detailed entry was done. Through the second online module all the reporting, MIS and forecasting were done. For synchronisation between the offline and online modules, runners were deployed at centres without internet connectivity to take daily data backup from the offline module in digital data storage devices such as pendrives and upload it on the online module every day. Contextualised solutions such as using solar chargers in procurement centres, where electricity is an issue, have been also devised.

b. Awareness generation

The initiative required intensive Information, Education and Communication (IEC) strategies to generate awareness about the process especially at its inception. The pilot conducted at Harda district got good media coverage

Figure 4: Process flow from farmer's perspective



Source: Department of Food, Civil Supplies and Consumer Affairs, and OneWorld Foundation India, 2014

Table 1: Procurement calendar for Rabi

Component	Dec.	Jan.	Feb.	Mar.
Hardware procurement and deployment at Uparjan Kendras	up to 5th			
Recruitment of the data entry operators and runners	up to 5th			
Training at Bhopal for registration	10th			
Farmer registrations	15th to 31st			
Data verification		1st to 15th		
Training at district level			25th to 10th	
Field testing				11th to 14th
Procurement start				15th onwards

Source: Department of Food, Civil Supplies and Consumer Affairs, and OneWorld Foundation India, 2014

Table 2: Procurement calendar for Kharif

Component	Aug.	Sep.	Oct.	Nov.
Hardware procurement and deployment at Uparjan Kendras	up to 6th			
Recruitment of the data entry operators and runners	up to 5th			
Training at Bhopal for registraion	12th to 10th			
Farmer registrations	22nd to 14th			
Data verification	26th to 20th			
Training at district level	14th onwards			
Field testing			10th	
Procurement starts for coarse grain			14th	
Procurement starts for paddy			28th	

Source: Department of Food, Civil Supplies and Consumer Affairs, and OneWorld Foundation India, 2014

Image 5: e-Uparjan Centre, Adampur Chavani

following the visit by the Chief Minister in 2010. The pilot has already created a demand from farmers in other districts. The announcement by the Chief Minister for upscaling it in the entire state also created publicity. Awareness was generated through advertisements for registration of farmers and, at the village level, this was done through announcements. Further, dissemination of the details of registration and benefits accruing from it were publicised through television, radio jingles and newspapers. IEC remains pertinent even today and the dates for registration are advertised and SMS is used to intimate the farmers already registered from previous years.

c. Trainings

Trainings are an in-built part of the procurement calendar for both *Kharif* and *Rabi*. The trainings are organised by MPSCSC in collaboration with NIC. The training module

starts with explaining the objectives and scope of the e-Uparjan application and covers both hardware and software aspects. The salient components of the training module are:

1. Explaining the use of e-Uparjan MIS
2. Sending SMS to farmers
3. Entering details of daily procurement
4. Printing of receipts
5. Issue/receipt of bags
6. Modification of farmers' details

d. Grievance redressal

A 24x7 call centre with toll free number 155343 registers grievances. This centre receives complaints and forwards these to the Department, which takes the necessary steps to address grievances.

Members of the NIC's quick response team, whose names and numbers are provided to runners and data entry operators, are deployed to troubleshoot technical problems. The call centre has been functional since Phase-I. Since then more than 1,00,000 complaints have been registered.

People speak...

Sitaram Maran, Gram Semri Kalan, Bhopal

"Earlier, local traders used to pay lower prices even for good quality produce, so farmers used to suffer losses. The fact that we would bring the produce to the *mandi* would go against us. We were forced to sell the produce at whatever price was offered to us in the open market rather than wait for *mandi*. We would not get any receipts nor would be know how much produce had we sold. Now the produce is sold in a transparent manner and we get our money on time. The system is checked by the highest officials and there is no way in which corruption can happen. We are very happy with this system."

Resources Utilised

Various departments DFCS & CP, MPSCSC, MPWLC, MARKFED, and NIC have utilised existing budget resources in developing this initiative.

Hardware such as laptops, printers and inverters of defined configuration were bought by procurement centres with the amount sanctioned to them by MPSCSC.

Operators and runners were appointed by the cooperative societies and their salary is to be provided by MARKFED or MPSCSC for the few months of their engagement. The data entry operator is paid approximately Rs. 6,000 per month, while the runner is given Rs. 2,000 for conveyance.

The number of personnel engaged in the procurement process is less than that of the previous system that depended heavily on human resources including the police department.

The total cost including application design, development, implementation, trainings, support and maintenance, hardware and temporary manpower has been estimated to be approximately Rs. 19.58 crore.

Impact

Creation of a decision support system: By creating a database of genuine farmers and their land details, e-Uparjan has placed the DFCS & CP in a better position to accurately forecast the next procurement, based on which preparations for transportation and storage can be made well in advance. It also provides the Department with real time information regarding the availability of storage space in warehouses.

Thus, it has impacted the forecast, preparation, implementation, monitoring and feedback so as to make the system efficient and transparent.

Better monitoring and transparency: The digitisation of transportation and storage makes monitoring effective as the grains cannot be accepted at the warehouse without details being entered into the system and generating an acceptance note. Only after this note is produced, the transporter gets the amount due to him, making the system foolproof.

Convenience of loan repayment: The initiative has created a better system for farmers interested in repaying their loans by making the loan repayment facility an option. It creates a citizen-government interface that is critical for effective governance.

Awards

The MP e-Uparjan Project has been awarded

- Best IT initiative in Madhya Pradesh for the year 2011-2012.
- CSI-Nihilent eGovernance Award 2011-2012 in the Projects Category-G2B by the Computer Society of India-Nihilent.
- Best Government Project in Social Inclusion in the Horizontal Category in the IT Innovation Awards presented by Lenovo and powered by NASSCOM and CNBC-TV18

Key Challenges

The initiative faced many challenges as it was being upscaled in all the 50 districts in Madhya Pradesh. The fact that GoMP provides a bonus to its farmers attracted farmers from neighbouring states also. A system of verification was started in Phase-II to ensure that wrong entries were not made. To make verification foolproof, 10% of patwari-verified areas were randomly crosschecked by officials from the DoCS & CP. The sheer extent of the operation was a major challenge with *Rabi* procurement undertaken in 40 districts and *Kharif* procurement undertaken in all the 50 districts of the state. There are 2,900 procurement centres for *Rabi* procurement and 1,130 centres for *Kharif* procurement.

Apart from this, the implementation was hampered by challenges such as difficult terrain in some regions, limited train connectivity, limited internet connectivity, deployment of IT operators in interior areas, and limited power supply in many areas.

Replicability and Sustainability

Even though this initiative was resource intensive in the initial phase, it also depends extensively upon the existing infrastructure, which makes the system cost effective in the long term. The farmers' database that is created remains a one-time exercise and this information may be used for other farmers' schemes as well. Technologically, the MIS, SMS and database systems used are simple and also account for offline use. The large number of beneficiaries involved has to be taken into account for continued sustainability. According to DFCS & CP, the non-recurring expenditure of the initiative is Rs. 3.33 crore and the recurring expenditure is Rs. 16.25 crore, which when computed against the amount procured makes the cost of e-Uparjan less than Re. 1 per quintal.

As digitisation of the PDS system has been made mandatory, it is but a natural corollary that even the procurement process be digitised so that the entire chain is made efficient, transparent and easy to monitor. Replication would eventually also depend on sourcing necessary technology for implementation. Since e-Uparjan is the first initiative of its kind, it has become a reference case for other states. The success of e-Uparjan has attracted many other states to this initiative. Officials from Uttar Pradesh and Bihar have visited Madhya Pradesh to have

Table 3: Increased procurement since 2012 in Madhya Pradesh

Year	Procurement Season	Total Centres	Farmers registered (in lakhs)	Procured from Farmers (in lakhs)	Total Transaction (in lakhs)	Procurement (in lakh MT)	Amount paid to farmers (in crores)
2012-13	*Rabi*	2313	15.62	10.26	52.56	85.07	11,637
2012-13	*Kharif*	981	3.92	2.53	3.46	13.50	1,793
2013-14	*Rabi*	2852	14.21	8.96	13 .00	63.50	9,530
2013-14	*Kharif*	1113	4.11	2.87	3.95	15.65	19,582
2014-15	*Rabi*	2893	17.13	-	-	-	-

Source: Department of Food, Civil Supplies and Consumer Affairs

an understanding of this initiative while Rajasthan has already started the process of implementation.

Conclusion

Government policies put emphasis on increasing productivity through a second green revolution that goes beyond cash crops to include pulses, indigenous food grains, poultry and milk production. Any policy that looks at means to increase productivity would be incomplete if it does not take into account mechanisms of effective procurements. Responding to the need of the hour, e-Uparjan has initiated the process of digitisation in procurement.

The impact of real time data that it has generated has helped in making more informed decisions. With an efficient database of information on procurement, the DFCS & CP is now able to plan for silo storage bags and for steel silos in advance. Robust planning and the mechanism for real-time data reporting enhances the forecasting, monitoring and tracking capabilities of the Madhya Pradesh Government and these are the qualities that make this initiative unique and significant.

Fact Sheet

Theme	Food Security and Public Distribution System
Nodal Implementing Agency	Department of Food, Civil Supplies and Consumer Protection, Madhya Pradesh
Geographical Coverage	All districts of Madhya Pradesh State
Target Groups	Farmers
Years of Implementation	2010 - Present

HEALTH

2.19 Arogyakeralam Palliative Care Project: Ensuring care and support for the chronically ill & infirm in Kerala

The Arogyakeralam project is based on a unique policy issue by the Government of Kerala in 2008 with the aim of providing medical care and support to every citizen in need of palliative care. Arogyakeralam emphasises a community-based approach to healthcare and considers home-based medical care to be the cornerstone of palliative care services. As of March 2014, the project had provided primary-level palliative care to an average of 48,339 and secondary-level care to an average of 2,419 beneficiaries each month since 2008.

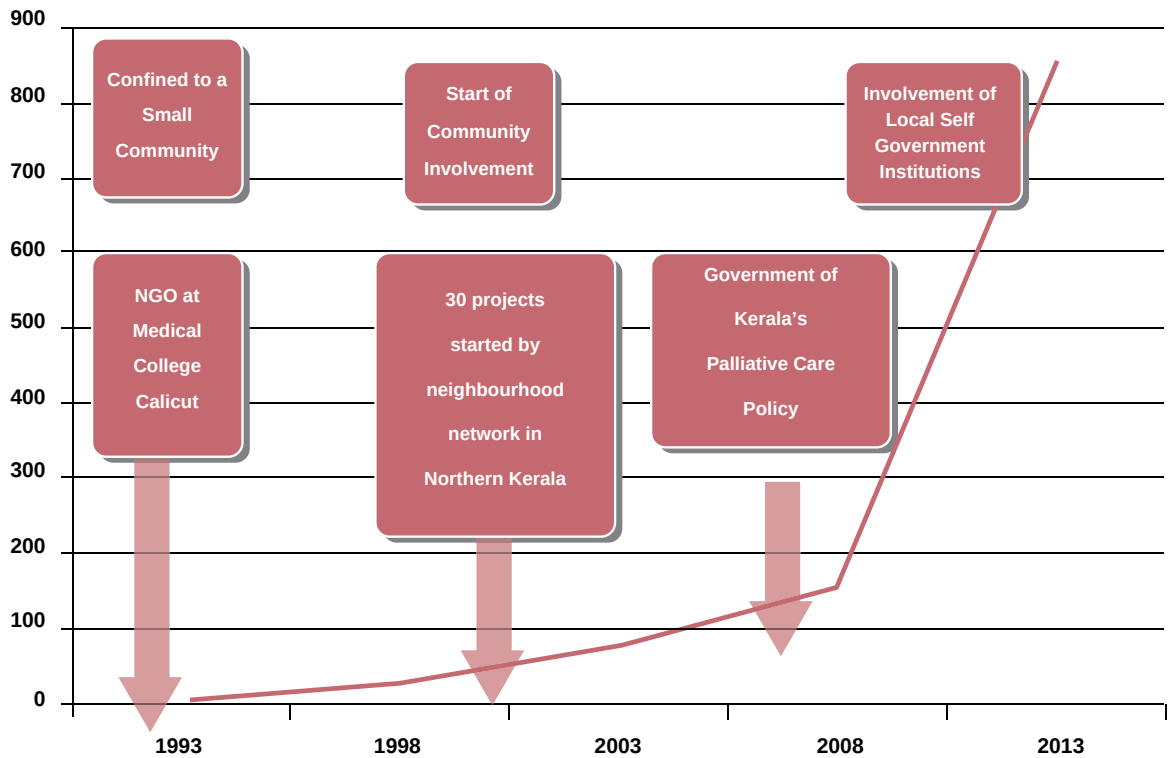
Rationale

Palliative care refers to healthcare for patients who are undergoing intense suffering as a result of their chronic medical conditions. It is a holistic approach to medical care, focussing not only on health concerns but also on the social, economic and psychological condition of a patient. Palliative care is required by cancer patients, HIV/AIDS patients, bedridden patients, paraplegics, geriatric cases, accident cases, cerebral palsy patients etc. In India, an estimated 59 lakh people are in need of such care but less than 2% are currently being catered to.[1]

The first palliative care initiative in Kerala was started by an NGO in Calicut in 1993. Subsequently, four other NGOs, working in the districts of Malappuram, Wayanad and Kannur collaborated to form the Neighbourhood Network in Palliative Care (NNPC) in 1999. They provided palliative care through a network of volunteers, with the active support of the community.

Noticing the success of palliative care services supported actively by local communities, the State government instituted an official policy - Pain and Palliative Care Policy - in 2008, declaring palliative care as part of primary healthcare and facilitating the development

Figure 1: Timeline of the development of palliative care services in Kerala



Source: OneWorld Foundation India, 2014

[1] *The Institute of Palliative Medicine (IPM): 'Models of Delivering Palliative and End-of-Life Care in India'. Current Opinion Support Palliative Care. 2013. 7:216-222.*

Foundational awareness campaigns on palliative care by *Malayalam Manorama* and the Institute of Palliative Medicine (prior to 2008)

- The initiative was kicked off with a pro-active campaign by *Malayalam Manorama,* a popular daily newspaper in Kerala and was later upscaled by the State government as a result of unprecedented People's support that it generated.
- A five-part series text campaign comprising print advertisements was launched in the newspaper. The campaign touched on what palliative care is, success stories in the northern districts where this initiative was carried out by various community based organisations and how the public can participate in providing palliative care.
- Four helplines were established at the Institute of Palliative Medicine (IPM), Calicut; these were serviced by student volunteers who worked to channelise the vast response from the community.

Thereafter, experts from IPM and *Malayalam Manorama* arranged and conducted training sessions in all 14 districts of the state.

- A campaign website aimed at establishing an online presence was maintained by *Malayalam Manorama*.
- A 15-minute documentary was created to promote volunteering among community members, especially among those unaware of the project.
- Campus campaigns were conducted with the help of IPM.
- Stories of community volunteers, such as that of an auto driver or a teacher helping in this programme, were showcased by the newspaper to elicit more participation from the community. As a result, a lot of motivated citizens from different walks of life, including women and retired officials, came forward as volunteers. Being a large and well-known media vehicle, *Malayalam Manorama* had a huge impact on people and institutions and garnered tremendous support. The newspaper invested about Rs. 55 lakh in conducting the awareness campaign and training programmes. The conclusion of *Malayalam Manorama's* role came with the handover of the list of all volunteers to the LSGI Minister in 2008. NRHM's presence in palliative care, therefore, came about in an atmosphere of general awareness and support for the cause.

Image 1: Lymphoedema care at Nedumangadu district hospital

Source: District Hospital, Nedumangadu

of community-based homecare initiatives under the leadership of local self governments.

The policy has received high-level support from all political parties in the state and is implemented by the state National Rural Health Mission (NRHM). The Arogyakeralam palliative care project has been formulated in consonance with this policy.

Objectives

The primary objective of the Arogyakeralam project is to provide palliative care to all the patients who are in need of this service. Its larger objective under NRHM is to ensure that palliative care becomes entirely self-subsistent and community-based.

The other major objective of the project is to ensure that palliative care becomes an integral part of the state's public health system.

Key Stakeholders

The key stakeholders for the project include NRHM and the Institute of Palliative Medicine (IPM) at the State level, District Project Managers and medical personnel at district level, Panchayat ward members, community nurses, medical personnel and patients and their families at the village level.

Figure 2: Key stakeholders in the Arogyakeralam Palliative Care Project

State

- **NRHM, Kerala:** Monitoring and evaluation of the project
- **Institute of Palliative Medicine:** State Resource and Coordinating Centre that plans the implementation of the project

District

- **District Project Managers:** Coordinating and monitoring implementation of the project
- **Medical personnel:** Handle patients in palliative care units in district and general hospitals

Village

- **Nodal implementing stakeholders:** Panchayat ward members, community nurses and other medical personnel, other NGO partners
- **Beneficiaries:** Patients and their families

Implementation Strategy

After the institution of the Pain and Palliative Care Policy, even Gram Panchayats where palliative care was unknown were institutionally brought into the fold. As per the policy, Local Self Government Institutions (LSGIs) in all 14 districts of the state are required to plan and implement palliative care projects.

When the project was launched in 2008, it focussed on primary level care, involving nurse-led homecare. At least 5% of the Panchayat Plan Fund had to be allocated to this project. On their part, LSGIs took additional steps to procure external contributions to expand the project and elicit greater community participation. For example, families in Chemmarudi Panchayat (Thiruvananthapuram) decided not to consume fish for a day and instead donated the money to 11 palliative care patients. In 2013, the implementation mandate was expanded to cover the introduction of palliative care units in block (taluk), district and general hospitals.

The project provides for the delivery of free palliative care at different levels. At the primary level, homecare

Image 2: Palliative care team going to visit a patient

is given by community nurses with support from LSGIs. A homecare team, comprising trained palliative care nurses selected by LSGI, a medical officer-in-charge, local Accredited Social Health Activists (ASHAs), Junior Public Health Nurses and elected representative, visits the home of the patient at least once on fixed homecare days. The team assesses the medical, emotional and financial situation of the patient. Accordingly, medicines are given and visits, including for emotional counseling, are scheduled. Family members are also given advice on the basic care of bedridden patients.

In special cases, for example, as in the case of lymphoedema (a condition of localised fluid retention as in the case of cancer patients) or need for physiotherapy support, the homecare team refers patients for secondary-level care, which is provided at taluk, district and general hospitals. Palliative Care Units (PCUs) run an Out-Patient Department (OPD) at health facilities, where the assigned doctors and nurses support and monitor the condition of the patient.

At the tertiary level, training is given to healthcare workers such as Junior Public Health Nurses, ASHAs and Auxiliary Nurse Midwives (ANMs) at the district level. The training is given by a palliative care doctor, district-level palliative care coordinator, staff nurses and a physiotherapist. The training programmes include six-week courses for doctors and nurses; three-month courses for community nurses; 10-day foundation courses for doctors; foundation courses in palliative care for Ayurveda doctors; one month's basic course in community-based interventions in palliative care and long-term care for ASHAs; and short courses for healthcare workers.

Monitoring and evaluation of the project is undertaken and regular review meetings are conducted by NRHM and the State Resource and Coordinating Centre at the state level. At the district level, registers on the following components are documented and maintained by the

People speak...

Chandran, homecare patient, Kilimanoor, Thiruvananthapuram

"My medical problem is the lack of strength in my hands and the inability to walk without support. However, I can stand and move to a certain extent with the help of the walker provided by the PHC. The Palliative Care team has been visiting me once a month for the past two to two-and-half years. The nurse changes the catheter each time I call when I have any difficulty. Medicines that would have otherwise cost approximately Rs. 1,900-2,000 are given to me free of cost."

Aliyar Kunhu, homecare patient, Kilimanoor, Thiruvananthapuram

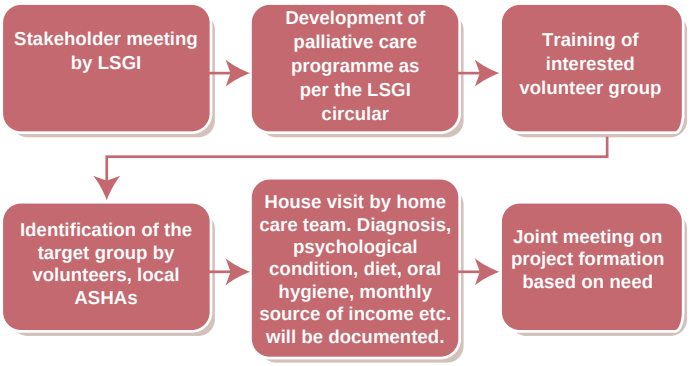
"I was diagnosed with multiple myeloma four years ago, and began to receive palliative care in 2011 after treatment at Trivandrum Medical College. The medicines provided by the team cost approximately Rs. 3,000 per month. Since we have financial difficulties, we would have been unable to continue the appropriate medical care without support. My wife is the main person in the house who helps me throughout the day. She has been given advice on my treatment by the homecare nurses."

Vellarada Panchayat members, Thiruvananthapuram

"We began palliative care in June 2012 and have 59 patients under the programme. A hired vehicle has been made available for homecare visits. We have distributed wheelchairs, waterbeds and walkers. On special occasions such as Christmas and Onam, we give care packages of rice/oats to the needy families."

staff at PCUs[2]: monthly review meetings, appliances, stock and sub-stock, follow-up, homecare report, special outpatient (OP) attendance and OP registers.

Figure 3: Process flow for delivering Palliative Care in Kerala



Source: The Institute of Palliative Medicine (IPM)

Resources Utilised

Basic implementation of the Arogyakeralam palliative care project is done using the existing healthcare infrastructure. Additional infrastructure, in the form of OPDs, has been set up for secondary-level care, where existing facilities are not sufficient. At both primary and secondary levels, a medical kit is assembled by the healthcare staff for use during patient visits. In some cases, LSGIs also arrange a vehicle exclusively for palliative care services. The cost of monitoring and training is borne by the State government.

Funds for expenditure, primarily on medicines, nurses salaries, transport and additional provisions like walkers and waterbeds, are allocated from every Panchayat's Plan Fund and from external contributions by community members. The collection of funds and their use depends upon the enterprising nature and strategy adopted by the respective Panchayats. For example, the Kilimanoor Panchayat collected Rs. 50,000 in its first year, Rs. 5 lakh in the second year and Rs. 7 lakh in the third year. Given the availability of funds, this Panchayat is now considering expansion of the project to include an SMS feature in services.

The local ASHAs, who identify patients for palliative care in a Panchayat, are incentivised by being given Rs. 100 for every first visit to a patient's home. Also, the Junior Public Health Nurse (JPHN)/community nurses who are part of the homecare team receive approximately Rs. 6,000 per month as honorarium. Government doctors are first inducted into the project by the LSGI and later called upon for palliative care services based on patients' needs.

[2] *About 97% units maintained nominal register, follow-up register and homecare register. State Resource Centre in Palliative Care, Institute of Palliative Medicine, WHO Collaborating Center for Community Participation in Palliative Care and Long Term Care. 'Evaluation of Local Self Government Institutions based Home Care in Kerala'. September 2013.*

Impact

Healthcare to those with chronic illnesses: The Arogyakeralam project is making a big difference in the lives of many bedridden people with chronic illness or old age infirmity. As of March 2014, the project had provided primary-level palliative care to an average of 48,339 beneficiaries each month and secondary-level care to an average of 2,419 beneficiaries each month. Details of state-wide coverage are presented in *Table 1*. Findings from an evaluation study[3] of the project offer evidence of the positive impact it has had, which are highlighted in *Table 2*.

Table 1: State-wide coverage (as of March 2014)

Indicators	Numbers
Average number of patients under primary care every month	48,339
Average number of patients under secondary care every month	2,419
Number of LSGIs currently implementing PC in Kerala	875 (out of 1,000)
Number of Palliative Care Units in selected major hospitals in each district	74
Number of Training Centres (adopted from one of the above PCUs in each district)	15

Source: OneWorld Foundation India, 2014

Table 2: Evaluation Study Findings (September 2013)[4]

Indicators	Response (in %)
Reduction in treatment-related expenses	86% reported reduction
Patients' opinion about palliative care	51.9% very satisfied, 46.6% satisfied, 0.1% dissatisfied and 1.3% no comments
Carer's ability to cope	93% reported better ability to cope
Change in overall quality of life of patient	93% responded little better/ much better

Source: OneWorld Foundation India, 2014

Additional services: Following the success of the palliative care project, additional services and programmes have been launched for this beneficiary segment. Vocational rehabilitation programmes were started in 2013 in all the districts to engage them in simple activities like making paper bags and umbrellas. The purpose is to offer a way out of emotional distress, enable them to earn some money and become meaningfully engaged. The programmes, still being firmed up, are run by local Panchayats. In 2013, the State government started another initiative – the DISHA helpline (toll-free # 1056) – to complement the emotional counselling services offered by the palliative care project.

Key Challenges

Awareness about palliative care is critical to the success of such a project. This posed a challenge as palliative care was almost unknown in the southern districts of Kerala as compared to the northern districts where the project was started by various community-based organisations. The awareness campaign by *Malayalam Manorama* and IPM, which was carried out in 2006-08, played an important role in garnering community attention and support for palliative care. At least two-three training sessions were also conducted for healthcare staff in every district to attend to the immense demand from communities and in shaping up the project across the state.

The retention of doctors continues to pose a challenge. Doctors in PHCs are subject to transfers and postings, which requires LSGIs to induct new doctors into the project. The nature of the project is such that the motivation of the doctors and their conviction in its utility is critical in ensuring the quality of services provided. The induction of the doctors in the philosophy and functioning of the project may take time. At times, such situations cause differences between the LSGIs and the Directorate of Health Services, affecting the smooth functioning of the project.

Addressing the issues arising out of integration and coordination between public sector facilities and NGOs poses more challenges. Additionally, sometimes there are differences between government entities and NGOs who run a number of palliative care services, which take time to resolve.

The availability of quality kits and other services are also issues that need attention. Only 36% of the patients have homecare kits that meet the guidelines, and only 6% have been offered rehabilitation services.[5]

[3] *Ibid.*
[4] *State Resource Centre in Palliative Care, Institute of Palliative Medicine, WHO Collaborating Centre for Community Participation in Palliative Care and Long Term Care. 'Evaluation of Local Self Government Institutions based Home Care in Kerala'. September 2013.*
[5] *Ibid.*

Replicability and Sustainability

Sustainability of the palliative care project is high because of the support it has received from both higher echelons of power as well as the grassroots. Government policy has facilitated scaling up of the project and the participation of the community in delivering palliative care. However, reliance on community participation also means that there may be pockets that are not as active/ participative as expected. This is where facilitation by the government becomes essential. Financially, the communities have been able to access sufficient funds from the Plan Fund and from external contributions.

Factors for replication that must be focussed upon and strengthened include active community participation; smooth integration into the government healthcare system and continuous follow ups; adequate medical infrastructure comprising well-functioning PHCs and well-equipped staff of community nurses; capacity building of medical staff at primary, secondary and tertiary levels; high level of commitment, especially among health workers like ASHAs; coordinated effort at the government level; and efficient streamlining of drug procurement.

While palliative care is practised in different forms across the world, the Kerala model is being replicated on a smaller scale in Tamil Nadu and Pondicherry, and internationally in Bangladesh, Thailand and Sri Lanka by IPM. Based on their knowledge, a few Keralites have also set up the Delhi Institute of Palliative Medicine in New Delhi. The Kerala Police has also supported the project by training one police officer from each station under the Janamaithri programme for providing palliative care services.

Conclusion

Palliative care is an important area that remains to be integrated into the Indian healthcare system. The National Palliative Care Policy that is currently being drafted must take into consideration the lessons learnt so far in the state of Kerala. The Arogyakeralam project has been widely appreciated and represents a viable model for providing palliative care. As Richard Smith, Editor, *British Medical Journal* (June 2011), put it: "The Kerala model does provide a feasible way of achieving the vision of palliative care covering all patients, all diseases, all nations, all settings, and all dimensions. It's hard to see how it will be achieved in another way."

Fact Sheet

Theme	**Health**
Nodal Implementing Agency	**National Rural Health Mission, Kerala, and Local Self-Government Institutions**
Geographical Coverage	**All districts of Kerala State**
Target Groups	**General population**
Years of Implementation	**2008 - Present**

2.20 CATCH: Ensuring quality healthcare for all in Sikkim

The Comprehensive Annual and Total Health Check-up for Healthy Sikkim (CATCH) is a flagship programme, which was launched by the Government of Sikkim to provide basic healthcare services at the doorstep of the state's rural population and push up Sikkim above all other Indian states in terms of health indicators by 2015. The programme focusses on community-based comprehensive healthcare by conducting annual and periodic health check-ups free of cost for all the citizens of Sikkim and providing referrals as required. Since its launch in 2010, CATCH has benefited 5,52,767 people in the state, conducted 3,685 health camps, and distributed 1,30723 health cards to citizens.

Rationale

The CATCH programme was developed in response to the issues challenging Sikkim's public health problem. Heart and blood-related diseases, alcohol consumption, accidents and suicides, respiratory ailments, cancer and tuberculosis had developed into major causes of death in the state. However, these diseases and ailments were often going undetected and untreated, as access to basic health services remained almost unattainable in rural areas. Though Sikkim boasts of a good primary health care system, the focus of health care prioritises reproductive, maternal, neonatal, child and adolescent health. Therefore, the CATCH was envisaged as a comprehensive primary health care programme with a view to address the major health problems. The absence of such a comprehensive approach meant that people were forced to travel out of the state.

Launched by the Government of Sikkim, CATCH seeks to address the acute need for health promotion and disease prevention in the state. This unique programme aims to provide the state's rural population with both preventive care (access to basic healthcare) and curative care (access to diagnostics, doctors and modern health services). It is an effort to make comprehensive and affordable healthcare accessible across the state.

Objectives

By creating access to routine check-ups, preventive and remedial measures and primary healthcare services, CATCH aims to shift focus from cure to prevention and make Sikkim the healthiest state in India. The programme's specific objectives are to track the health profile of all the people from the Gram Panchayat to the state level on yearly/periodical basis; address the key obstacles to promoting good health and prevention of risk factors for major public health problems and non-communicable diseases which are the main health problems in the state; work towards a long-term policy change for positive health; bring down the cost of healthcare, especially for chronic diseases, in the long run; and undertake early diagnosis of diseases and risk factors.

Key Stakeholders

The key stakeholders for the programme are Health and Family Welfare Department, Village Health Sanitation and

Figure 1: Key stakeholders

- **Health and Family Welfare Department,** Government of Sikkim supports the programme financially.
- **Village Health Sanitation and Nutrition Committee (VHSNC)** are involved at village level, and NGOs, health teams, concerned units and departments, community organisations are involved at sub-centre level.
- **District Health Society** manages the operation and administration work of health camps at various locations.
- **CATCH programme team** comprising medical officers, doctors, nurses, lab technicians, pharmacists delivers the services.
- **District Hospitals and Primary Health Centres (PHCs),** Rogi Kalyan Samiti and Gram Vikas Adhikari.
- **Rural health workers** like Accredited Social Health Workers (ASHAs), Auxilliary Nurse Midwives (ANMs) and Anganwadi Workers (AWs) who provide ground-level medical assistance to beneficiaries.
- **Beneficiaries include** pregnant women, sick infants, old people, and patients from BPL families and communities.
- **National Informatics centre (NIC),** Sikkim designed CATCH software.

Nutrition Committees (VHSNCs), District Health Society (DHS), CATCH programme team, district hospitals and Primary Health Centres (PHCs), rural health workers, National Informatics Centre (NIC) and beneficiaries of the programme.

The Health and Family Welfare Department provides financial support to the programme and is the nodal implementing agency. VHNCs are involved in community mobilisation at the village level. NGOs, health teams, concerned units and departments and community-based organisations are involved in generating awareness on health issues at the sub-centre level.

The DHC, manages the operations and administrative work of health camps at various locations. The CATCH programme team, comprising medical officers, doctors, nurses, lab technicians and pharmacists, delivers the services. District hospitals and PHCs, the Rogi Kalyan Samiti and the Gram Vikas Adhikari are actively engaged in organisation of health camps. Rural health workers like Accredited Social Health Activists (ASHAs), Auxiliary Nurse Midwives (ANMs) and Anganwadi Workers (AWWs) provide ground-level medical assistance to the needy. Beneficiaries, including pregnant women, sick infants, old people and patients from below poverty line (BPL) households and under-served communities, benefit from the programme. NIC, Sikkim, has designed the CATCH software.

Implementation Strategy

In its bid to progressively introduce changes in healthcare delivery and given the continuing difficulties in access to health services, the health team conducted a pilot project in 20 wards before scaling up the programme across the State. At present, the AYUSH hospital, one state referral hospital, four district hospitals, 26 PHCs and 147 sub centers in the state are involved in the implementation of the programme.

The Government of Sikkim, working through the Health Department, is responsible for conducting a free health check-up for each citizen annually at the designated centres across the state. The programme engages people of all ages, including senior citizens and BPL households, who are not able to access basic healthcare services. The health check-up camp is set up by doctors, technicians and other staff from the health department at a nearby locality. VHC members and local NGOs assist in informing the villagers about the health camp. Health camps are set up in PHCs in remote villages as the elderly find it difficult to travel outside the village for treatment. After a physical check-up, patients suffering from more complex ailments are sent for free consultation to the concerned doctors, followed by laboratory investigation and other procedures as required. Patients are also counseled on how they can maintain a healthy lifestyle and prevent further problems.

CATCH uses proprietary software to create a universal database containing the medical history of the State's citizens. This database is updated after each annual health check-up, and the citizens included in it are graded as per their health status. Information is recorded in family folders, and individual case sheets and data entry into CATCH software is done to develop each individual's health card, which is a bar-coded smart card that provides the detailed health profile of the card holder. This real-time CATCH database provides an overview of the health situation in the state and helps the state Government in allocating resources to the sector. The available records indicate that the major causes of death in Sikkim are heart and blood vessel diseases, alcohol-related complications, respiratory diseases, cancer and tuberculosis.

Beneficiaries, who are now aware of the free service, are increasingly using the healthcare services provided to them under CATCH. This awareness was largely

Image 1: Participation of community members

Source: National Rural Health Mission, Sikkim

Image 2: ASHAs engaged in training

Source: National Rural Health Mission, Sikkim

Figure 2: Illustration of the CATCH Programme Cycle

Source: National Rural Health Mission, Sikkim

Image 3: Health Card

generated by rural health workers, who are in direct contact with beneficiaries, and have educated villagers on the importance of CATCH and how it addresses the health needs of the deprived sections of the population, especially women and the elderly who maynot be in a position to access health services. Several Information, Education and Communication (IEC) tools have also been used to familiarise beneficiaries and create awareness about the programme. The following ABCDEFG mnemonics was adopted by the programme planners to make people understand the relation between diseases and risk factors: A – no to alcohol, B – control blood pressure, C – no to cigarettes and tobacco, D – healthy diet, E – regular exercise, F- control fatness, G – control blood glucose.

Resources Utilised

The Government of Sikkim provides the funds required to implement CATCH programme.

Trainings are an important component of the CATCH programme. About 6,000 health workers and

Image 4: Blood pressure being measured

stakeholders, including Government officials, paramedics and nursing personnel, Panchayat members, members of NGOs and community-based organisations, ASHAs and AWWs have been trained to handle patients and deal with emergencies. Training has also been provided on how to record important information about a patient. Periodic reviews and monitoring are undertaken to scrutinise the events organised under CATCH.

The programme relies heavily on the proprietary software developed for it by NIC, Sikkim. The purpose of the software is to eliminate the need for manual recording of information. It allows fast and easy recording of details such as name and address of the beneficiaries and their health-related information and uploading of beneficiary photographs to generate individual health cards.

Impact

Improved health and access to healthcare: CATCH has improved the health status of people in Sikkim and provided them with better access to healthcare services. The number of patients who come to PHCs and health camps organised by CATCH has increased several times since the programme's inception. Regular conduct of the CATCH programme has resulted in an increase in health coverage, with preventive interventions focusing on pregnant women, children, elderly and adolescents and an increase in awareness about the important determinants of health such as nutrition and sanitation. The CATCH programme has been particularly beneficial to the people of remote and hilly regions in Sikkim, enabling timely delivery of services in remote villages where bad roads often discourage villagers from getting to a hospital. Since its launch in 2010, CATCH has benefited 5,52,767 people in the state; conducted 3685 health camps, and distributed 1,30,723 health

cards to citizens. By providing the underserved rural and urban communities with greater access to high-quality healthcare, CATCH has demonstrated its ability to create direct social impact in the form of better health and well-being and has enhanced the productivity of people as they don't fall illas often as before.

Reduction in adverse health conditions and harmful practices: Effective implementation of CATCH has led to an increase in the number of detected cases of diseases such as anemia, hypertension, substance abuse, obesity, malnutrition etc. The second round of CATCH, in 2012, observed a decline in anemia by 6.8%, hypertension by 16.2%, mean diastolic BP by 3 mm Hg, reporting of suicidal tendencies from five people to none, tobacco use on a daily basis by 11.4% and alcohol use on a daily basis by 10.02%. Prior to the implementation of CATCH, three stroke cases were reported within three years in a sample population of 250. The implementation of CATCH took this number down to 0. A total of 12,32,466 laboratory tests have been done so far under the programme.

Based on the findings of CATCH Programme in North District line listing of all the major public health problems of each and every ward was done. The list of the people having chronic diseases such as hypertension, diabetes etc diagnosed during the camp has been circulated to the VHSNC members to motivate for further follow up and modification of life style.

Public awareness regarding health: The quality of service delivery in CATCH camps is high, and the number of services available has also increased. CATCH has been instrumental in increasing public health awareness through various health-related discussions and programmes. CATCH has been a great success among the rural population, especially the poor who cannot afford to spend on travelling to away from their locations for treatment.

Reduction in adverse health conditions and harmful practices

1. In one of the case study of Middle Sumin village of East District in second round of CTACH programme (2012), observed a decline in anemia by 6.8%, hypertension by 16.2% mean diastolic BP by 3mm Hg, reporting of suicidal tendencies from five to none, tobacco use on a daily basis dropped by 11.4% and alcohol used by 10.2%.

2. Prior to implementation of CATCH in Middle Sumin, 3 stroke cases were reported within three years in a sample population of 250. The implementation of CATCH brought this number down to 0. A total of 12,32,466 laboratory tests have been done so far under the programme.

3. Based on the findings of CATCH programme, the alcohol elated death in Hee-Gyathang village of North District which was found to be major public health problem. However, the buying and selling of alcohol product was prohibited once the local stakeholders decided to make the village alcohol free in the year 2013; Hee Gyathang village is now a model for the state.

Beneficiary experience

When CATCH organised a health camp at Middle Summin, an 80-year-old lady, suffering from joint pain and congestion, visited the health camp for a routine check-up. Her condition improved dramatically after she began taking the medicines prescribed by the doctor at the health camp. She can now walk properly without suffering any join pain or other discomfort.

CATCH has benefited many other elderly like this lady, who find it difficult to travel far for treatment. It has almost become an integral part of the lives of many citizens of the state. By providing the people greater access to high-quality healthcare, creating awareness about the importance of detecting problems at an early stage and preventing long-term illness through timely diagnosis and treatment, CATCH has improved people's health and well-being and revolutionised healthcare in Sikkim.

Source: National Rural Health Mission, Sikkim

Key Challenges

CATCH has faced several challenges. These include a culturally sensitive context, which is reflected in the hesitation of rural folk to discuss their medical conditions

with doctors because they are largely unfamiliar with formal healthcare services, and lack awareness about modern forms of medicine. They also have general preference for traditional and Ayurvedic treatment. Besides, if need be they have a deep-rooted preference for reaching out to urban facilities.

According to government norms, the focus is only on opportunistic screening in institutional setting. However, the CATCH programme attempts to achieve this through community based screening. This raises issues regarding hesitation on VIA test at the start of the programme, which of course, has been overcome over the years thanks to behavior change obtained through a good IEC component.

A key challenge lies in continuous follow up and uninterrupted supply of medicines to people diagnosed with non-communicable diseases. This is also important because the number of people diagnosed for different non-communicable diseases is quite high.

The shortage of doctors poses a challenge, especially since CATCH aims to have comprehensive approach for early detection and follow up and continuous care, including provision of uninterrupted supply of medicine, updating and maintenance of CATCH software, fund constraints and sustainability of the programme is a major challenge.

Other challenges faced by the CATCH programme include doctors' unwillingness to serve in remote villages, which is a persistent problem for CATCH; lack of robust primary healthcare facilities due to the absence of well-trained staff and necessary medical equipment and infrastructure, and inadequate appreciation of the importance of comprehensive healthcare by rural health workers and the community at large.

These problems are being dealt with through the use of IEC tools and by generating support for the objective of making Sikkim the healthiest state in India. Rural health workers are now more aware of their roles and responsibilities and work actively to mobilise the community for participation in the CATCH programme.

Replicability and Sustainability

Where most Indian States fall short on providing efficient rural healthcare, the CATCH programme is sustainable in the long run because it is designed to tackle the shortcomings of traditional systems through innovation and adaptation. The strength of the programme lies in its ability to adopt an indigenous approach and combine it with effective convergence of government resources and adequate participation of the community, with focus on services like health camps, effective implementation of health programmes, provision of free medicine and health check-ups etc.

Various states like Gujarat and Himachal Pradesh have expressed interest in replicating the programme in their own specific contexts. Looking at the relevance of the programme, the Planning Commission has urged other states to follow this good practice of providing healthcare services. An effort can be made for inter-state learning and including components that are missing in other states' health programmes. The CATCH programme can go a long way in establishing a new health policy for the underprivileged in a country where quality and superior healthcare facilities are concentrated in the hands of select few.

Conclusion

The CATCH programme's comprehensive community healthcare model has introduced positive changes in Sikkim's healthcare system. The programme is not only creating informed citizens and community healthcare professionals and taking healthcare to the people's doorstep, but also driving the state closer to its goal of becoming the healthiest state in the country by 2015.

Fact Sheet

Theme	**Health**
Nodal Implementing Agency	**Department of Health and Family Welfare, Government of Sikkim**
Geographical Coverage	**All districts of Sikkim State**
Target Groups	**Citizens of Sikkim**
Years of Implementation	**2010 - Present**

Odisha's Department of Women and Child Development has involved Women Self-Help Groups in the Integrated Child Development Services supplementary nutrition programme to ensure 'universalisation with quality' by reaching a standard weekly menu and meeting the protein and calorie norms.

2.21 Decentralisation of ICDS Supplementary Nutrition Programme: Ensuring timely and quality nutrition to all beneficiaries in Odisha

The Department of Women and Child Development (WCD), Government of Odisha, has undertaken decentralisation of the Integrated Child Development Services (ICDS) supplementary nutrition programme in the state to streamline and strengthen the programme and ensure 'universalisation with quality' in a time-bound manner. The initiative reaches out to all beneficiaries with a standard weekly menu, meeting the protein and calorie norms within the allocated ration cost, removing contractors and encouraging women Self-Help Groups (SHGs) in adherence with the Supreme Court directive. Results from a social audit indicate that 71% of the respondents felt that the menu chart was being followed.

Rationale

ICDS has six main components: Supplementary Nutrition, Immunisation, Health Check-up, Referral Services, Non-formal Pre-school Education, and Nutrition and Health Education. The first component, Supplementary Nutrition Programme (SNP), involves the supply of food materials to Anganwadi Centres (AWCs) across the country to ensure adequate nutrition for children aged 0-6 years, pregnant and lactating mothers and senior citizens. However, the implementation of this programme suffered due to pilferage, corruption and inordinate delays in supply. Further, under this centralised system, Anganwadi Workers (AWWs) did not have any control over the quantity and quality of food supply. Poor quality of grains was a frequent concern and the supply of rice stock for three months at one go created problems of storage.

The Supreme Court issued orders with regard to ICDS in 2001 and 2004, followed by a landmark judgment in 2006 to ensure 'universalisation with quality' in a time-bound manner. The Supreme Court prescribed the minimum nutrition provision that must be guaranteed under ICDS. It further envisaged decentralisation of procurement by eliminating the involvement of contractors and encouraging the engagement of local SHGs and *mahila mandals* in supply and distribution.

In recognition of this issue and heeding the Supreme Court order, the Government of Odisha took the necessary steps in April 2011 to reform and revitalise the ICDS system through decentralisation. In the new system, all materials except rice and wheat would be procured locally by AWWs to reduce chances of pilferage during transmission. In addition, the system was devised in a manner that allowed greater involvement of the community in actual implementation.

Objective

The primary objective of the initiative is to decentralise the procurement method under ICDS in order to eradicate problems of corruption and non-supply.

Image 1: Storing of Take-Home-Rations (THR) by Sanjeevani SHG, Bhubaneswar

Key Stakeholders

The key stakeholders of the project are: WCD Department at the State level; Collector, District Administration, Child Development Programme Officer (CDPO) and District Social Welfare Officer at the district level; Supervisor, *Jaanch* Committee, Mother's Committee, AWWs and women SHGs at the village level; and the beneficiaries including children aged 0-6 years, pregnant and lactating mothers and adolescent girls and senior citizens.

Table 1: Key stakeholders in the ICDS decentralisation initiative

Administrative Level	Stakeholder	Roles and Responsibilities
State	Department of Women and Child Development, Government of Odisha	Conceptualisation and implementation of the scheme Monitoring and evaluation Financial facilitation Training and capacity building
District	Collector, District Administration	Monitoring and evaluation Financial facilitation Implementation support
	Child Development Programme Officer (CDPO)	
	District Social Welfare Officer	
Village	Supervisor	Coordination of the work of 20–25 AWCs Effective implementation at the grassroots level and monitoring of the work of AWWs
	Jaanch Committee	Based on population and number of AWCs, each village has 2-3 Jaanch Committees Members usually include a well-educated person like a headmaster, a disabled person, members of a local SHG and the president or secretary of a school management committee Grassroots-level monitoring and approval of expenses related to the scheme
	Mothers' Committee	Grassroots-level monitoring
	Anganwadi Workers (AWWs)	Planning and implementation of the scheme at respective AWCs Local procurement of food materials Maintenance and handling of funds
	Women SHGs	Take-home ration (THR) production and supply and morning snacks (MS) supply
Beneficiaries	Children at AWCs aged 0–6 years	
	Pregnant and lactating mothers	
	Adolescent girls in nine districts	
	Senior citizens	

Source: OneWorld Foundation India, 2014

Implementation strategy

In early 2011, before undertaking the decentralisation of ICDS, the Government of Odisha held consultations with the primary stakeholders, including AWWs, Panchayati Raj Institutions (PRIs) and officials from WCD and other related departments. Thereafter, it took a series of steps, as is presented in *Table 2*.

The two main components of SNP are Morning Snack (MS) and Hot Cooked Meal (HCM) provided to 3-6 year olds in AWCs and Take-Home Rations (THR) provided to the remaining beneficiaries. The revised norms and entitlements under both these components are described in detail in *Table 3*.

Both these components are highlighted and showcased at every AWC with the help of pictorial charts. In most cases, MS and HCM are prepared and provided to the children at the site; in some cases, MS is supplied by SHGs. In the case of THR, chhatua (a form of fortified dry food) has been prescribed as a high-protein, high-calorie provision, in addition to eggs. The guidelines also prescribe regular supply of THR every 15 days, as well as a standardised weight and colour of the food packet for each beneficiary. For example, the yellow packet is prescribed for mothers and the red packet is for children falling under the severe acute malnutrition (SAM) category. SHGs that meet quality and infrastructure requirements are given the opportunity to produce, distribute and supply THR in line with the above mentioned prescriptions.

Table 2: Steps undertaken for decentralisation of ICDS in Odisha

Reform	Rationale
All procurement, except for rice and wheat, are carried out locally at the village level. Rice and wheat will be procured from the Food Corporation of India (FCI), as per the Centre's guidelines.	To prevent transmission loss and eliminate the existing contractor system To address the problem of inadequate checks on quality and quantity To avoid spoilage of food materials resulting from storage of supplies for 1-3 months
Joint accounts will be opened for each AWC in the names of the AWW and a ward member. In furtherance of this, approximately 1.5 lakh accounts were opened within a month.	To enable higher accountability wherein beneficiaries and interested parties have direct access to the key implementing stakeholders
A pre-decided menu chart will be provided, indicating the type of morning snack and hot cooked meal served on each day of the week.	To address the problem of existing guidelines for the meals served (such as the use of 5gm of oil in the preparation of a meal) not being properly followed due to the intention of satisfying fixed nutritional requirements To enable easier monitoring by officials, as they can cross-check the meals/ snacks being served according to the day on which they make the visit
Only e-transfers will be permitted for all fund transactions under the system.	To prevent pilferage of funds To streamline the fund flow system
A new grassroots body called Jaanch Committee will be formed.	To engage active participation of the community in monitoring the programme To assess the needs of each AWC and support procurement strategies
Renewed and rigorous efforts will be undertaken to train all the community stakeholders in accordance with the new guidelines.	To make people fully aware of the entitlements of children for adequate nutrition under ICDS To save time, the cascading training of trainers (ToT) model was not selected, and instead video guides were used continuously for a period of six months, followed by refresher and person-to-person trainings as needed.

Source: OneWorld Foundation India, 2014

Table 3: Revised feeding norms as of 2013

Beneficiary	THR type	Hot Cooked Meal (3-6 yrs children)		Morning Snacks (3-6 yrs children)	
6 months to 3 Years	Two boiled eggs per week + Chhatua one packet (Net 1.700 kg) every 15 days	Monday & Thursday	Rice and dalma (dal cooked with vegetables)	Monday & Thursday	Sprouted gram (moong and sugar)
Pregnant women and lactating mother	Two boiled eggs per week + Chhatua one packet (Net 2.125 kg) every 15 days	Tuesday	Rice and soya chunk curry	Tuesday	Chuda ladoo (chuda + sugar / jaggery)
Severely malnourished children (6 months-3 yrs.)	Two boiled eggs per week + One packet of Rasi ladoo of 100 gms once in a month + Chhatua one packet (Net 2.550 kg) every 15 days	Wednesday Friday & Saturday	Rice and egg curry	Wednesday Friday & Saturday	Chuda ladoo (chuda + sugar / jaggery)
Severely malnourished children (3-6 years.)	One packet of Rasi ladoo of 100 gms once in a month + Chhatua one packet (Net 1.700kg) every 15 days + HCM + MS	The revised ration cost is applicable to the entire State. The additional cost for 15 districts borne from the State Plan.			

Source: 'Tackling under nutrition – issues and strategies – case study from Odisha' by Secretary, Women and Child Development Department, Government of Odisha

Funds for procurement of food materials are transferred directly into the joint accounts of AWWs. For all remaining expenses, (such as expenses of hygiene kits), the funds flow from the state to the CDPO at the district level and then finally to AWWs. This system helps procurement of food material by the AWWs locally in consonance with the new model, while other materials can be procured at the district level. There is a state-level management information system (MIS), which can be accessed by users at each administrative level. E-transactions for transfer of funds are carried out by banks via e-FMS (Electronic Fund Management System). In addition, the state department has a Treasury Management System for management of funds.

Training and capacity building of community stakeholders have been crucial elements of effective decentralisation. Video recordings of all the guidelines with detailed explanations were prepared on CDs and circulated. These also included recipe demonstrations, as in cookery shows. The CDs were played on fixed dates of the month before key implementation stakeholders at all Gram Panchayat headquarters and at the CDPO's office. This exercise was repeated every 7-10 days and consistently pursued for a period of six months. The CDs are now played as required for refresher training. One-on-one trainings have been undertaken for Jaanch

Image 2: THR – Yellow packets for mothers and Blue packets for children (0-3 years)

Committees and Mothers' Committees. A participatory learning appraisal has also been conducted for SHGs and community members.

To increase awareness about the initiative, the Government of Odisha published relevant information in newspapers and pamphlets. As part of its Information, Education and Communication (IEC) campaign, *kala jathas* (repertoire

of folk arts) were roped in with a fixed script about ICDS provisions. These were then interpreted and enacted for villagers in their local language and chosen art form.

Resources Utilised

Funds for the ICDS programme are shared by the Central government and the State government as per ICDS norms. Post-decentralisation, there has been no extra cost for start-up or maintenance, and it has been running on existing budgets.

Infrastructure is the key requirement for the ICDS programme as it is needed for conducting classes and activities for anganwadi children, preparing meals and storing two to four weeks' worth of food materials for HCM, MS and THR. However, this requirement has not been completely met yet. Findings of an audit by the Voice for Child Rights Odisha (VCRO)[1] found out that only 52% of the surveyed AWCs had their own buildings.

District level offices, led by the CDPO, also require adequate facilities such as computers and operators to avoid any delay in processing procurement and fund plans. They have also been given vehicles to facilitate their work.

Image 3: Entitlement chart displayed at AWC in Jagannath leprosy colony, Bhubaneswar

Impact

Improved functioning of the ICDS in Odisha: The decentralisation initiative is seen to be serving its objective of streamlining and strengthening the ICDS programme. A social audit carried out in late 2011 indicated that 71% of the respondents felt that the menu chart was being followed. During village-level discussions, 57% said that their children were getting cooked food on

Figure 1: Process flow for planning and distribution under SNP

1. Meetings

- AWW, PRI member, Jaanch Committee and Mothers' Committee meet between the 28-30 of every month
- Number of beneficiaries under each category are identified for the month
- Expenditure estimation and procurement plan for the month is decided, including items to be bought and shops that it will be bought from

2. Procurement

In the case of MS and HCM:

- AWW makes the purchase as per the resolution
- After purchase, the vouchers are cross-checked with the resolution and approved by the supervisor between the 28-30 of the month
- Reimbursement is withdrawn from the joint account

In the case of THR:

- SHGs supply THR twice between 12-14 and 27-30 of the month.
- AWWs, who have a list of identified pregnant women, will distribute it to mothers on the 1st and 15th of every month at the AWC. In some cases, the AWW goes to the house of the mother to supply the THR.

Source: OneWorld Foundation India, 2014

[1] *Voice for Child Rights Odisha (VCRO). 'A Study on Status of Service Delivery of SNP & Pre-Schooling Education under Integrated Child Development Scheme (ICDS)'. 2011.*

a regular basis; 36% beneficiaries said that they were getting THR regularly as per norms; and 6% were getting it regularly but not as per norm. On the functionaries' front, 37% of the respondents said that they were getting funds regularly; 54% said that it was not regular; and 45% of the AWW respondents had a good opinion of the decentralisation of procurement. The elimination of contractors and middlemen to a great extent has also contributed to greater transparency and efficiency.

Empowerment of SHGs: The social audit also showed that the decentralisation had empowered women SHGs and given a new source of income to 917 SHGs in Odisha (as of March 2014). The revised menu and supply of chhatua instead of rice and dal has ensured that nutrition was provided to the targeted beneficiary, i.e., pregnant and lactating mothers and their children up to three years of age, and not taken away for consumption by the entire family.

Table 4: Number of beneficiaries as of March 2014 in Odisha

Beneficiary	Number
Pregnant Women & Lactating Mothers	7,84,474
Senior Citizens	27, 96,211
Emergency Feeding Programme (including senior citizens, physically challenged and others)	2,00,000
Children (6 months to 6 years)	38,43, 906

Source: Department of Women and Child Development, Government of Odisha

Table 5: Number of AWCs and number of districts/projects covered year-wise in Odisha

Year		Number
March'11	Districts / Projects*	30 / 338
	No. of AWCs	71,134
March'12	Districts / Projects*	30 / 338
	No. of AWCs	71,134
March'13	Districts / Projects*	30 / 338
	No. of AWCs	71,306
December '13	Districts / Projects*	30 / 338
	No. of AWCs**	71,306

** includes 20 urban projects ** includes 10,216 mini AWCs*
Source: Department of Women and Child Development Department, Government of Odisha

Key Challenges

Some of the main challenges faced in effective decentralisation of the ICDS programme relate to capacity building at the ground level. There was apprehension and resistance on the part of AWWs and PRIs for opening bank accounts as they were unfamiliar and unsure of such a system. Also, AWWs were initially concerned about being overburdened by the responsibility of procurement. These perceptions have, however, changed after seeing the benefits and efficiency of the system in ensuring timely and good quality procurement. Also, identifying SHGs and assuring them of the advantages of investing in the production of THR was not an easy task. Consistent efforts by district administrators in selecting suitable SHGs, based on the fixed criteria given in the guidelines, helped in taking the initiative forward.

In some cases, the lack of infrastructure has also caused difficulty in storing food supplies, maintaining hygienic standards and providing separate areas for cooking and for children to play. Although all AWCs are operational, several do not have dedicated buildings. Efforts have been made in the past two years to address this gap on a priority basis by setting up AWCs in school buildings where possible and undertaking construction en masse.

Last but not the least, since rice for AWCs and wheat for THR is supplied by the Food Corporation of India, the earlier problems of non-supply, poor quality and delay in lifting and transporting these two commodities still persist.

Replicability and Sustainability

Social sustainability of the initiative is high, owing to the successful run of the community-driven model that has been institutionalised for the SNP. Following the success

Image 4: Children take morning snack of sprouted gram at the AWC in Jagannath Leprosy Colony, Bhubaneswar

of Jaanch Committees in SNP, the system will now also be extended to other components of ICDS on a trial basis to induce more community participation in implementation.

Long-term sustainability requires the state administration to create an enabling environment. For the purpose of introducing reforms, support for this initiative was garnered from the apex to the grassroots level and the required trust to be invested in grassroots functionaries.

The replication of this model requires a strong administrative thrust in identifying the context-relevant loopholes in the system, as was done in the case of Odisha. Training and capacity building of the community is also an essential factor for the smooth deployment of the model, which has demonstrated that procuring food materials at ration rates may be difficult but is possible, and that contractors can be removed from the supply chain of SNP with beneficial results in terms of effective implementation.

Conclusion

Going forward, it would be important to broaden the focus of ICDs by complementing the supplementary nutrition programme with home-based nutrition. This must also involve identification of vulnerable families where children are more prone to SAM. Moreover, while local procurement has improved in most parts after the shift towards greater decentralisation within the ICDS in Odisha, it is important to address specific difficulties in the procurement of rice and wheat through requisite administrative reform.

Fact Sheet

Theme	Health
Nodal Implementing Agency	Department of Women and Child Development, Government of Odisha
Geographical Coverage	All districts of Odisha State
Target Groups	Aganwadi children (3-6 years), pregnant and lactating mothers and children up to 3 years of age, adolescent girls in nine districts of Odisha and senior citizens of the state
Years of Implementation	2011 - Present

The National Rural Health Mission (NRHM), Haryana, has launched the Indira Bal Swasthya Yojana (IBSY) as a preventive health scheme to screen all children accessing public health and education facilities. Haryana is the only state to have a such a preventive healthcare measure comprehensively covering its under-18 population.

2.22 Indira Bal Swasthya Yojana: Applying preventive healthcare measures to promote children's health in Haryana

The Indira Bal Swasthya Yojana (IBSY) is a preventive health scheme launched by the National Rural Health Mission (NRHM), Haryana, which aims to screen all children accessing public health and education facilities like schools and anganwadis, for diseases, disabilities and deficiencies and refer them for free follow-up treatment if required. This makes Haryana the only state in the country to have a single preventive healthcare measure that so comprehensively covers the under-18 population. The IBSY screens lakhs of children each year, resulting in large-scale preventive treatment and the discovery of significant health risk patterns in society that are used for future policy formulation.

Rationale

Until this scheme was implemented, none of the Indian states had a single preventive healthcare measure that comprehensively covers the under-18 population. If detected early, diseases and illnesses can often be treated at a far lesser cost than in advanced stages. Prevention is better than cure is an axiom of medicine that has even more relevance when seen from the perspective of governance.

In keeping with this preventive approach toward healthcare, the Government of Haryana launched the IBSY scheme to screen the state's children (up to 18 years of age) on three major indicators: disease, disability and deficiency. *Table 1* shows the main health conditions screened under IBSY. As can be seen, a wide range of health conditions are covered under the screening process. However, this list is not exhaustive, and if any other ailments are detected, they too can be noted down by the functionary carrying out the screening.

Image 1: Beneficiaries of IBSY receive medical care at Karnal Civil Hospital

Table 1: Health conditions screened for under IBSY

Deficiencies	Childhood Diseases	Developmental Delay and Disability	
• Anaemia • Vitamin A deficiency (bitot spot) • Vitamin D deficiency (rickets) • Malnutrition (SAM) • Goitre	• Skin conditions • Otitis media • Rheumatic heart disease • Reactive airway disease • Dental problems (caries) • Convulsive disorders	• Vision impairment • Refractive error • Cataract • Squint • Ptosis • Visual Disability • Hearing impairment • Hearing and speech disability	• Neuro-motor impairment • Orthopaedic disability • Motor delay • Cognitive delay • Mental retardation • Language delay • Behavior disorder (autism) • Learning disorder • Attention deficit hyperactivity disorder

Source: National Rural Health Mission, Haryana, and OneWorld Foundation India, 2014

Objectives

IBSY aims to provide free preventive and curative healthcare to the under-18 population, with focus on disease, disability and deficiency. The scheme seeks to cover all the children in *anganwadis* (child-and mother-care centres) and government schools.

Key Stakeholders

The key stakeholders in the IBSY are NRHM Haryana and the beneficiaries are children and adolescents up to the age of 18 who are in *anganwadis* and government schools.

Figure 1: Key stakeholders in the IBSY initiative

NRHM, Haryana

- Implements programme in convergence mode with Sarva Shiksha Abhiyan and Departments of Health, Women and Child Development, and Social Justice and Empowerment

Beneficiaries

- Children and adolescents up to the age of 18 who are in anganwadis and government schools

Implementation Strategy

The IBSY was launched on January 26, 2010, with a formidable goal to screen an estimated population of 38 lakh under-18 children in the state. Plans were made to implement the scheme in a phased manner and in convergence mode. The first phase was to cover primary schools, the second phase was for *anganwadis*, and the third phase was for middle and senior schools, thereby covering the under-18 population.

However, the modalities of implementation changed in 2011, and the strategy was changed to cover all the students in a single school (Class 1 to 12) at one go and the children in *anganwadis* separately. In the case of schools, teachers have been selected as the functionaries to conduct the screening. This was done because each teacher has a class of 30–40 students and is well placed to carry out the screening. In the case of *anganwadis*, the anganwadi workers (AWW) are the functionaries selected to carry out the screening. Extensive capacity building has been done for both the teachers and the AWWs. The process has been kept as simple as possible, and the functionaries only have to tick against the relevant condition if a diagnosis is made. The registers, which are used for data was collection, have index pages to carry a summary highlighting the children who need referral.

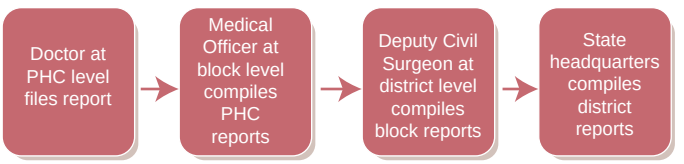
Anganwadis conduct screenings during two periods. First, when mothers come to the centre to avail services like rations and the second, during immunisation drives. This approach ensures almost universal screening.

After the screenings are done, health check-up camps, involving medical and paramedical staff, are organised. Parents are informed in advance about the date and time of the health camps and also about the ailments their children are suffering from. Owing to the shortage of doctors, dental surgeons have been made part of check-up teams. The children requiring further treatment are referred to the relevant health facility, such as the Primary Health Centre (PHC), Community Health Centre (CHC) or the district hospitals. Over the course of its implementation, IBSY has also developed convergence with other programmes such as Adolescent Reproductive and Sexual Health (ARSH) and Weekly Iron Folic Supplement (WIFS) for maximum utilisation of existing resources.

During the implementation of the scheme, the critical importance of community involvement in ensuring acceptance and sustainability of the scheme became evident. Simply motivating teachers proved insufficient, and demand from the community for the scheme had to be created. Therefore, an IEC campaign was undertaken to improve community awareness about the impact of the scheme on the health of their children. Community leaders such as Sarpanchs (village heads) were brought on board and made nodal functionaries for disseminating information on the scheme.

The data collection strategy also underwent a gradual change. The screening data was initially stored in three separate registers categorised on the basis of age — one for 0–6 year old children in *anganwadis*, another for 6–12 year olds in government primary schools and the third for 12–18 year olds in government secondary schools. However, a shortage of female doctors meant that questions on menstruation could not be asked of adolescent girls, leading to some questions being dropped. The registers were later simplified and all three were integrated into a single register, which now tracks the same data for the entire age bracket of 0–18 years.

Figure 2: Reporting system used in IBSY



Source: OneWorld Foundation India, 2014

A state monitor and three consultants are doing the monitoring for IBSY. Field inspections are conducted for IBSY and ARSH implementations, and teachers are made aware of their responsibilities, if necessary. *Figure 2* shows the reporting system utilised for tracking the scheme's progress across the state.

Resources Utilised

IBSY operates in a convergence mode, harnessing the existing infrastructure and human resources of various departments. In terms of financial expenditure, the cost of the scheme stood at Rs. 52 lakh in FY 2011–2012.

Impact

Wide coverage: The IBSY has covered a massive population of 38 lakh and made a huge impact through preventive disease screenings. *Table 2* provides details about the number of screenings conducted and cases detected.

Identification of adverse health conditions and pre-emptive treatment: From the data it is evident that a very large proportion of children (71%) are suffering from anaemia. Various other health conditions have also come to the fore and been pre-emptively dealt with. An exhaustive list of interventions is provided in *Table 3*.

Key Challenges

The greatest challenge faced by the scheme has been to convince parents to avail of the benefits and bring their children for follow up treatment. A majority of the beneficiary parents are daily wage earners steeped in poverty, who stand to lose their day's income if they take their children for follow-up treatment. There is a tendency to downplay the effects of adverse health conditions till the child becomes dangerously ill. This

Table 2: Number of screenings conducted and cases detected in Haryana

Activity	FY 2010-11	FY 2011-12	FY 2012-13
Children screened	30,65,974	32,06,797	22,66,751
Children detected anaemic	11,11,736	6,05,975	1322081
Heart disease cases detected	112	200	214
Malignancy cases detected	40	13	16
Tuberculosis cases detected	965	630	206
Hernia and hydrocele cases detected	198	305	167
Juvenile diabetes cases detected	40	292	103
Epilepsy cases detected	948	749	1737
Skin disease cases detected	46,470	50,486	22480

Source: National Rural Health Mission, Haryana

Table 3: Interventions under the IBSY in Haryana

Activity	Total	Disability related activities	Total
Children treated at health facilities	5,92,185	Disability camps done	397
De-worming doses given	3,974,447	Children examined in disability camps	36,033
Dental cases treated	51,155	Disability cases detected	46,045
Disease cases treated	1,16,446	Disability certificates given	15,152
IFA tablets given	10,51,75,658	Children identified for aids and appliances	3,352
Spectacles given free of cost to children	10,480	Identified for corrective surgeries	1,038
Cleft lip/palate	20	Corrective surgeries done for children with disability	99
Heart surgeries done	12		

Source: National Rural Health Mission, Haryana

happens particularly in the case of disabled children. Even parents who do bring their children for treatment tend to drop out if repeated follow-ups or travel to a distant facility are required. Poverty and lack of awareness about the long term effects of neglecting healthcare appear to be the key impediments in bringing the children for follow up treatment. The IBSY is tackling this issue through Behaviour Change Communication (BCC) to build awareness among parents about why they must go for follow up treatment.

People speak...

"My son Hitanshu was born with a cleft lip and palate. I am a poor man who has neither the time nor the money to go to Chandigarh or Rohtak to get him operated. Through this initiative, my son was operated for free and all facilities were taken care of. For me this is no less than a blessing from God. I am very grateful for this initiative."

"My daughter Deepshika had a severe case of bow legs. She has benefited from this initiative, something good has happened to her and that is more than enough for me."

"My daughter Chintan had a heart problem. Within six months of detection she got operated upon for free. I make it a point to take her for the follow ups. We are very happy with the services provided. "

Bringing the teachers on board was the other major challenge the scheme faced during the initial period. Teachers initially refused to support the IBSY as they saw it as the job of the Health Department. Securing the teachers' cooperation was essential as they play a key role in the scheme. A series of meetings were thus held between key NRHM officials and senior educational administrators, such as district and block education officers, and the teachers themselves. The efforts eventually fructified, and the teachers came on board. However, some teachers are not very proactive and do not screen children in advance, preferring to do it only when the health check-up team comes to the school. This gives the doctors also an excuse to skip the school and come back later, thereby delaying overall service delivery.

IBSY has also faced logistical and coordination challenges. Several issues concerning coordination and supply chain management came up during the initial stages of the implementation. For example, while holding disability camps in 2010, calipers that had to be supplied by the Sarva Shiksha Abhiyan reached about 8 months late; these became obsolete as the measurements of beneficiaries had changed by then. However, subsequent improvements in coordination have largely addressed these issues.

There has also been a change in the strategy of holding camps. The earlier approach was to hold block-level camps and transport doctors from the district to the block level. However, this resulted in long waiting times for beneficiaries and had a discouraging effect. The approach was then reversed, and beneficiaries were taken from the block to the district level, where the doctors were already stationed. This arrangement has proved to be much more effective.

Creating a functional MIS for monitoring and evaluation of the scheme remains a challenge. Tablet-based field monitoring was piloted, but connectivity issues have acted as an impediment to the successful functioning of this approach.

Overall, the scheme is seen to result in excessive pressure on higher-level (tertiary) healthcare facilities. Limited capacities and knowledge of doctors at lower levels (such as PHCs) result in more referrals to the higher-level units. This increases the workload on tertiary care units, reducing their ability to deal with priority cases.

Replicability and Sustainability

IBSY has received high-level political and administrative support, which provides a good foundation for sustainability. However, as the scheme involves convergence of several different government departments, the first and foremost requirement is that all the stakeholders must be convinced

about the value of the scheme and be brought on board. Their doubts and uncertainties should be addressed through patient and persistent dialogue so that there is sufficient motivation all the way to the field-level operatives.

A top-down approach would be disastrous and result in innumerable bottlenecks at every level. There must also be special emphasis on capacity building and incentives for teachers, who are the main field level operatives who motivate the parents to bring their children to health facilities for follow-up treatment.

On the demand side too, a lot more needs to be done to counter the structural limitations (for example, poverty) that hinder effective demand by beneficiaries. One good approach could be to introduce extensive and sustained IEC and BCC campaigns for the target beneficiaries.

Conclusion

A flagship scheme of the Government of Haryana, IBSY has had a major impact on disease prevention in the under-18 population. The scheme has been able to successfully converge and leverage the existing infrastructure and resources of various departments. Attention must, however, be paid to the hindrances encountered during implementation, primarily the issues related to motivation of field-level operatives and insufficient appreciation of the value of the scheme by all the stakeholders, including the beneficiary population. Greater dialogue and persuasion, capacity building, measures to improve motivation and effective awareness-generation campaigns are some other strategies to tackle these issues.

Fact Sheet

Theme	Health
Nodal Implementing Agency	National Rural Health Mission, Haryana
Geographical Coverage	All districts of Haryana State
Target Groups	Local population up to 18 years of age
Years of Implementation	2010 - Present

Staff of the Narayana Nethralaya Postgraduate Institute of Ophthalmology, Bengaluru where the KIDROP, aimed at preventing vision loss in premature infants of underserved areas in Karnataka has been initiated.

2.23 KIDROP: Preventing vision loss in premature infants of underserved areas in Karnataka

The Karnataka Internet Assisted Diagnosis of Retinopathy of Prematurity (KIDROP) project was initiated in 2008 by the Narayana Nethralaya Postgraduate Institute of Ophthalmology, Bengaluru and was integrated with the National Rural Health Mission (NRHM) in the Karnataka in 2009. It is India's first and largest rural tele-medicine programme using tele-ophthalmology to tackle infant blindness, caused by Retinopathy of Prematurity (ROP). The KIDROP project uses trained technicians and digital equipment to provide diagnosis and treatment to premature infants in the under-served areas of rural Karnataka. As of 2014, KIDROP has screened over 17,800 infants in over 85 neonatal care centres across 19 districts of Karnataka since its launch.

Rationale

Retinopathy of Prematurity (ROP) is the leading cause of infant blindness in India. Approximately 7-15% of the babies who develop ROP need screening and treatment for the disease. However, there is an acute shortage of ophthalmologic resources in the country, and less than 20 centres in India undertake ROP management. Inadequate resources and lack of proper treatment and screening leave a majority of ROP-affected babies vulnerable to permanent and irreversible blindness.

In 2008, Narayana Nethralaya Postgraduate Institute of Ophthalmology, Bengaluru, initiated KIDROP to provide accurate diagnosis and suggestions for treatment to premature infants in under-served areas of rural Karnataka. The project uses RetCam Shuttle, which is a portable wide-field digital imaging device, to screen premature infants for ROP. The RetCam is capable of imaging 130 degrees of the retina of neonates, and is used to perform on-site examinations by trained technicians who are capable of triaging these images. The device can be used in both hospitals and rural centres. Narayana Nethralaya's KIDROP team stores, reads, analyses and uploads these images from the rural centres in which they operate. After successful implementation of the programme by Narayana Nethralaya Postgraduate Institute of Ophthalmology in six districts for over 18 months, the KIDROP project collaborated with the NRHM, Ministry of Health and Family Welfare, Government of Karnataka, in 2009 and became India's first public-private partnership (PPP) initiative in the field of infant blindness.

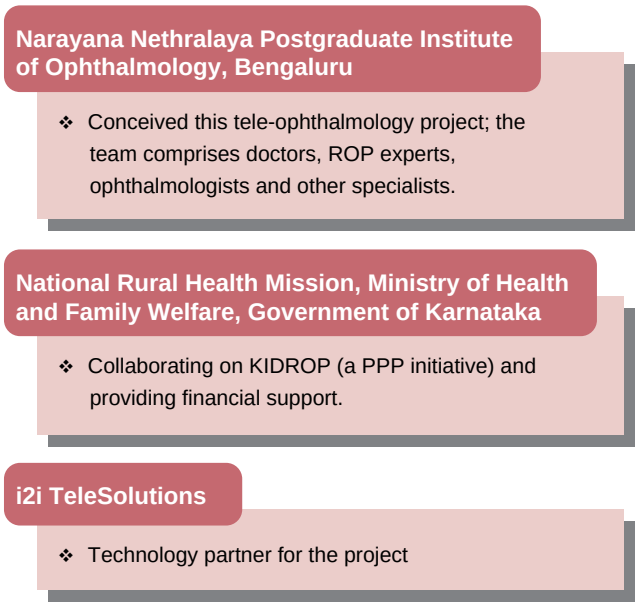
Objectives

The KIDROP initiative aims to provide primary and preventive eye care services to the rural infants who develop ROP. It tackles a major cause of blindness by improving access to advanced paediatric retinal care. The KIDROP model is focussed on establishing a telemedicine network for screening infant blindness and expanding the initiative across the country.

Key Stakeholders

Narayana Nethralaya Postgraduate Institute of Ophthalmology, Bengaluru, conceived this tele-ophthalmology project. The team comprises doctors, ROP experts, ophthalmologists and other specialists. Since 2009, the National Rural Health Mission, Ministry of Health and Family Welfare, Government of Karnataka, has been collaborating on KIDROP, and providesthe financial support the project. i2iTeleSolutions is the technology partner for the project.

Figure 1: Key stakeholders



Implementation Strategy

KIDROP is based on the 'triple T' philosophy – tele-medicine; training of peripheral ophthalmologists; and talking to neonatologists, paediatricians and gynaecologists. The project began with five centres in 2008, and expanded to provide its services in 25 centres across the southern districts of Karnataka. Most of the centres were located in rural areas, where, prior to KIDROP, there was no provision to screen for ROP.

The tele-ROP project started its work by visiting Neonatal Intensive Care Units (NICUs) in different areas. It used Information, Education and Communication (IEC) to create awareness about ROP among neonatologists and paediatricians. Spreading awareness about ROP is important, as it is the responsibility of neonatologists and paediatricians to refer all babies to the NICU for screening by the team on a prescribed day.

The process of screening starts with the digital imaging of infants' retinas using the RetCam Shuttle. The specialised KIDROP team carries this camera to all the centres where screening is required. The technicians trained by the team are enrolled to conduct imaging of these infants, who are at the risk of developing ROP. The technicians are required to process, store, analyse and report the cases of ROP using a triage-based algorithm, based on the principle of 'pattern recognition' referred to by Dr. Anand Vinekar, Head of Department of Paediatric Retina and Paediatric Visual Rehabilitation at Narayana Nethralaya Postgraduate Institute of Ophthalmology.

The technicians classify the cases into three categories: 1) if a case requires urgent attention, it is referred to an ophthalmologist; 2) if ROP exists but is not serious and does not require treatment, the infant is categorised as requiring follow-up; and 3) if the retinal vessels have completed maturation, the infant can be discharged.

Image 1: A premature infant in neo-natal intensive care unit

In the next stage, the technicians upload the images taken with the RetCam Shuttle on a server using a customised software. The ROP experts view the images on a computer or Apple iPhone, facilitated by a technology developed by i2i TeleSolutions in 2009. The technology enables access to real-time images and has been considered one of the top ten innovations in the medical domain. The reports generated by the doctors are then transferred to the technicians through cell phones or over the internet

Image 2: KIDROP staff screening infants

into a secure database server, with the signature of the doctor. In this way, a record of each patient is created for future use.

If an infant is diagnosed with ROP, the treatment is provided at the rural centre itself by the specialised KIDROP team and experts, including the locally trained ophthalmologists. The services are provided free of cost or are heavily subsidised. Only those who can afford to pay are charged.

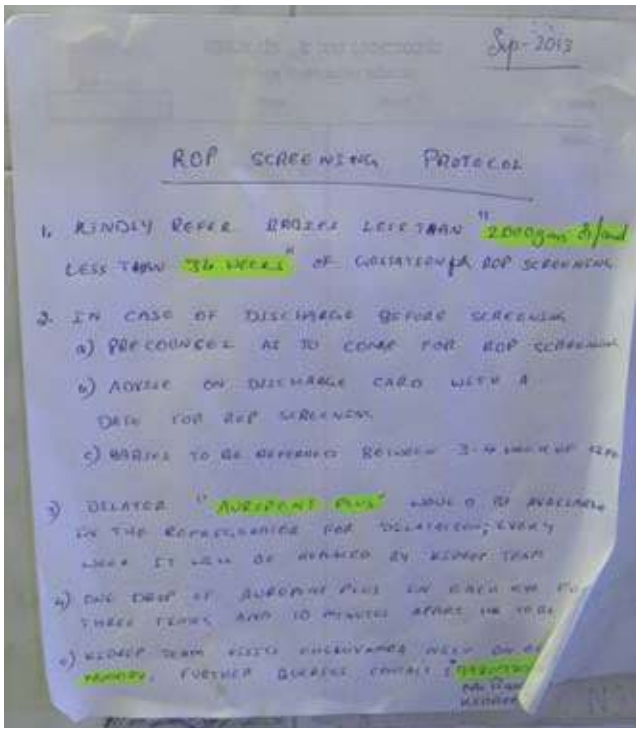


Image 3: ROP protocol

Source: KIDROP

Resources Utilised

KIDROP is being implemented in PPP mode. The Government of Karnataka is responsible for funding the equipment and logistics, and for providing salaries to the teams. Narayana Nethralaya, the private partner, on the other hand, is responsible for providing free screening and treatment to all the patients. There is an alternative model in which Narayana Nethralaya bears the cost of treatment without any external funding, and patients may pay in some situations based on their financial condition. The treatment is free for all babies born in government hospitals. Other children are also provided services free of cost by the Narayana Nethralaya team and in some cases (where affordable) families are required to pay up to 30% of the nominal cost and the remaining cost is taken care of by Narayana Nethralaya. A full charge is imposed on patients in private/corporate hospitals that cater to people who can afford the treatment there. The revenue thus generated helps cross-subsidise the service provided to the patients from BPL families or those recommended by government hospitals. This helps sustain the no-profit no-loss service.

Despite the lack of financial resources no child has been denied this treatment. The study done by Indian Institute of Management (IIM), Ahmedabad states that the low cost KIDROP model is the best strategy for the ROP implementation in remote areas where the patients are not able to afford the treatment despite requiring immediate screening.

The KIDROP team has imparted training to ophthalmologists, ophthalmic technicians and other non-technicians to become ROP experts. Approximately 14 teams have been trained to undertake screening and have been placed in remote areas of Karnataka. The team at KIDROP also encourages other states to send their doctors and staff for ROP training. It has expanded its training beyond Karnataka to states such as Rajasthan, Tamil Nadu, Odisha and Uttar Pradesh, as well as countries such as South Africa and the UAE.

Technological innovation

KIDROP uses an innovative solution that allows doctors to easily view images on an iPhone using wireless data connectivity, without the need for a personal computer or the internet. KIDROP has trained technicians to screen infants in the peripheral centres using the RetCam Shuttle (Clarity MSI, USA) and store, read, analyse, grade and upload these images from the rural centre itself using an indigenously developed internet-based PACS system which also delivers these images to the remote expert on his or her iPhone or PC or iPad in real time. The KIDROP technicians receive live reports delivered through the internet-based server.

The technology helps manage project data and records. It allows doctors to view retinal images even from remote locations and revisit a patient`s history whenever the need arises. Another advantage of using an iPhone is the better and clearer view of graphic images and the provision for enlarging images to focus on a particular area.

Impact

Successful use of technological innovation to cure blindness at an early age: The KIDROP programme is an innovative attempt to provide screening and treatment of ROP and cure infant blindness using innovative technology to deliver services even to the remote areas of Karnataka.

Wide coverage using technology: Using India's first portable RetCam Shuttle, as of 2014 KIDROP services reach over 85 neonatal care centres across 19 districts – Davanagere, Haveir, Gadag, Bellary, Chitradurga, twin cities of Dharwad and Hubli in Central Karnataka; and the districts of Raichur, Bidar, Gulbarga, Bijapur, Bagalkot, Yadgir and Koppal in Northern Karnataka in a partnership with NRHM; and the districts of Mysore, Mandya, Kolar, Tumkur and Bengaluru Urban and Bengaluru Rural of Karnataka, and the initiative has managed to screen over 17,800 infants, provided laser treatment to over 1,161 infants, and conducted 53,282 imaging sessions.

Key Challenges

The KIDROP project has faced a variety of challenges, including low awareness, technological problems, organisational hurdles, financial sustainability issues, and problems related to collaboration with other programmes of the government and the PPP framework with the Government of Karnataka. However, efficient management and continuous dialogue between different stakeholders have helped overcome the challenges to a certain extent.

Lack of awareness in the community about the problem of infant blindness and its treatment posed a major challenge. To overcome this challenge and spread awareness about ROP and its treatment, many focus group meetings were organised for mothers, doctors, paramedics and neonatologists. The KIDROP team also started a Facebook page and used social media as a platform to increase awareness among all citizens.

The project also faced resistance to adoption of new technology, especially from stakeholders at the grassroots level. To make them comfortable with technology, efforts were made to conduct live video consultations, integrate work lists into MIS and send SMS reminders to patients' caregivers for follow-up. Another technological challenge was the non-availability of 3G and wireless broadband services, which affected the delivery of services.

At times, delays in government funding acted as an impediment, as it held-up the purchase of equipment required for screening and treatment. The demand for improvement in RetCam at a lower cost was another issue faced by doctors. Better understanding and ownership among government staff would help in timely release of funds and prevent any disruption in the functioning of the project. Effective planning and better coordination between the public and private partners is important for the sustainability of any project of this nature.

One of the most serious problems for KIDROP has been the lack of experts. Statistics show that there are less than 20 ROP experts in India. The shortage of trained technicians and doctors affected proper coverage of all the centres even when there was an urgent need for screening of infants.

To avoid this scenario, KIDROP developed a specialised system that allowed screening of all the patients who are in urgent requirement of screening through provision of a red card, known as REDROP. The card is given to mothers whose babies weigh less than 2kg. It contains information on the risk of developing ROP and states the urgent need for screening at a hospital. Further follow-up with the mother is undertaken based on the condition of the infant.

Replicability and Sustainability

An innovative project, KIDROP has the potential to be easily replicated across other states and countries. It is a cost-effective and innovative model and the technology used in KIDROP can be easily replicated in other states; especially in remote areas where people lack access to services and cannot bear the cost of taking their babies to private urban hospitals.

The project has expanded over the years. Beginning with five centres in 2008, it now covers 85 centres across 19 districts of Karnataka that are covered by Narayana Nethralaya. It conducts screening at 81 hospitals spread across different geographical areas of the state. The team plans to expand the programme to the entire state.

The model has also been replicated in parts of Maharashtra and Gujarat with the assistance of the KIDROP team. In March 2013 a team from Rajasthan has initiated training in Bengaluru.

Awards and Recoginition

KIDROP was awarded the prestigious "Innovation in Health Care through PPP" Popular Choice Award on November 15, 2012, at the e-India awards.

The technology used in the KIDROP model was selected in the category of 'Top Ten Medical Innovations of 2009" by the *India Today* magazine.

***Harvard Business Review* has also mentioned KIDROP as a model of 'reverse innovation' for other countries to replicate.**

Notes from the field: A visit to Mandya hospital and Sri Cheluvamba hospital for women, Mysore

Doctors and other specialists were seen counseling mothers who had come for their babies' check-up and follow-up. The mothers were very satisfied and thankful to the KIDROP initiative and the team for providing eye care services free of cost. It was comforting for them to know that screening for ROP will protect their children from blindness.

KIDROP is partnering with other states in India and has requested the Government of India to expand this model of preventing infant blindness all over the country. Many states, such as Maharashtra and Gujarat, have replicated the model in some parts with the help of the KIDROP team. In view of the success of the KIDROP model, Rajasthan sent technicians for training in ROP screening to Bengaluru in 2013.

The sustainability aspect of this initiative has been immensely enhanced by the launch of Rogi Bal Swasthya Karyakram (RBSK) by the Government of India. This programme aims at detecting and averting disability in the age group of 0-5 years. KIDROP initiative is aiming at just one aspect of disability and can very well fit into the larger policy context provided by RBSK. The implementation of RBSK as a part of the NRHM makes it mandatory for all state governments to implement it. This amalgamation of KIDROP into the wider policy context through the RBSK and NRHM enhances the sustainability of the project.

Image 4: KIDROP screening centre

Source: KIDROP

The project has generated international interest as well, and many countries, including Thailand, Indonesia, Russia, Mexico, Dominican Republic, South Africa and Brazil, have shown interest in collaborating with the KIDROP team and adopting the model.

Conclusion

The KIDROP project has proven to be a financially viable ophthalmic care service provided across several districts in the state of Karnataka, especially in its remote underserved areas. Observing the success of this innovative ophthalmologic project in reaching out to the rural masses, many other states and countries have started collaborating with the KIDROP team to replicate the model and serve their citizens.

FOREVER programme to screen babies' eyes

Under the existing initiative, Narayana Nethralaya has launched another comprehensive programme – FOREVER – to focus on ROP, eye care, vision and eye cancer, including rehabilitation. The programme provides universal screening to all babies for one year after birth through the government healthcare system. It is implemented in collaboration with the State government and complements the government-sponsored Rashtriya Bal Swasthya Karyakram (RBSK), a national programme for child welfare. Both the programmes will be expanded all over the country to reduce the incidence of infant blindness.

Fact Sheet

Theme	Health
Nodal Implementing Agency	Narayana Nethralaya, Bengaluru, in partnership with the Government of Karnataka
Geographical Coverage	19 districts of Karnataka State
Target Groups	Infants and premature babies
Years of Implementation	2009 - Present (Initiated without government support in 2008)

2.24 Mo Masari: Using insecticidal nets to protect pregnant women and children from malaria in Odisha

Mo Masari is a successful malaria prevention initiative implemented by the Government of Odisha to protect pregnant women and children in malaria endemic districts of Odisha. The scheme focusses on ensuring efficient distribution and proper use of Long-Lasting Insecticidal Nets (LLINs) by the targeted population. The accompanying rigorous Information, Education and Communication (IEC) and Behaviour Change Communication (BCC) campaigns, run by the Department of Health and Family Welfare and National Vector Borne Disease Control Programme (NVBDCP), Odisha, has been the crucial element that brought this simple malaria prevention strategy to fruition. 89% of the women receiving LLINs reported using it during pregnancy and up to 99.5% pregnant women retained the LLINs with them.

Rationale

Malaria is a rampant health concern in Odisha. Odisha has been a high endemic state and has had a higher Annual Parisitic Incidence (API) of 9.3 compared to the rest of India.[1] Despite being home to only 3.5% of India's population, in 2010 the state accounted for 20% of malaria cases, 33% of falciparum malaria (a more dangerous type of the disease) cases and 25% of all malaria deaths reported in the country. Aiming to check the high incidence of, mass distribution of LLINs was undertaken as part of the National Rural Health Mission (NRHM) under the aegis of Government of India (GoI). Seventeen clusters across 26 high-endemic districts of Odisha were identified and approximately 19 lakh LLINs were distributed in 2009–2010 itself.

A point of focus has been controlling malaria incidence in pregnant women, who are particularly vulnerable because pregnancy significantly reduces a woman's immunity to malaria. Prior to 2008, the National Drug Policy on Malaria had recommended chloroquine tablets for pregnant women, but due to the subsequent resistance of falciparum malaria to chloroquine, its use was stopped

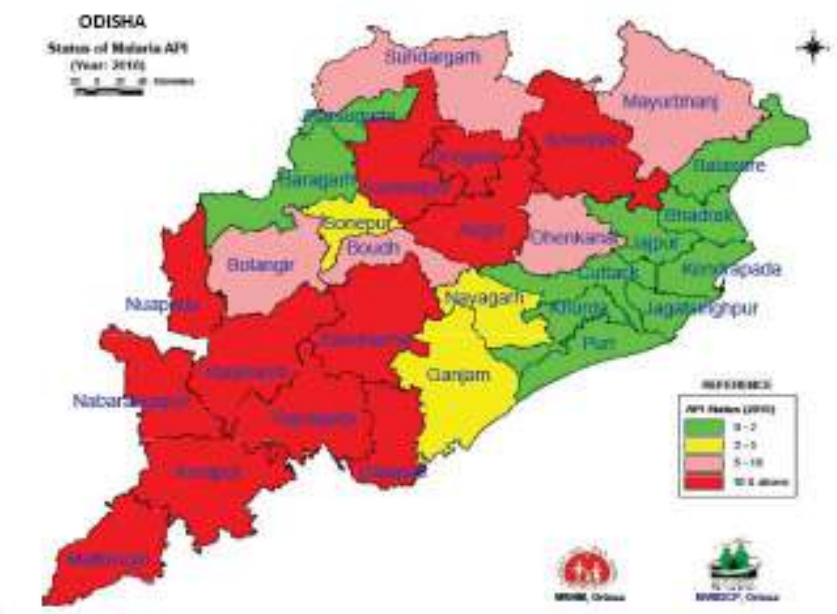


Image 1: Malaria annual parasitic incidence in Odisha in 2010

Source: "Evaluation of Use of LLIN by Pregnant Women under Mo Masari Initiative and Effectiveness of BCC Messages on Malaria". 2012. TMST and DoH&FW, Government of Odisha.

Malaria interventions in Odisha

- Mo Masari: Promoting use of LLINs by pregnant women and children (under Government of Odisha)
- LLINs distributed through Gaon Kalyan Samitis (GKS) using the cluster approach (under Government of India)
- Promoting use of insecticide-treated mosquito nets (ITMNs)
- Early diagnosis and complete treatment (EDCT) through establishment of fever treatment depots (FTDs) and sentinel surveillance
- Indoor residual spray (IRS)
- Anti-larval measures, including source reduction measures

[1] *API refers to number of malaria positive cases (microscopically positive + RDT positive cases) detected during a year per total population; As of 2002, India had brought it down to less than 2. Technical and Management Support Team (TMST) on behalf of Department of Health & Family Welfare, Govt. of Odisha. 'Evaluation of Use of LLIN by Pregnant Women under Mo Mashari Initiative and Effectiveness of BCC Messages on Malaria'. March 2012.*

across the country. Seeking an alternative to aggressively combat malaria in pregnant women, the Government of Odisha designed a parallel, targeted strategy – called the Mo Masari scheme – to build on the mass distribution of LLINs by GoI. Introduced by the state NVBDCP in November 2009, Mo Masari identified pregnant women, children up to five years of age and students in tribal residential schools as the key beneficiaries for receiving the free LLINs.

Objectives

Mo Masari's main objectives are to prevent the occurrence of malaria among pregnant women and children and to reduce the API in high-endemic areas of Odisha.

Key Stakeholders

The key stakeholders of the scheme are at three levels – the Department of Health and Family Welfare, NVBDCP - Odisha, and Technical and Management Support Team (TMST) at the State level; Chief District Medical Officer, District Malaria Officer, Assistant District Malaria Officer, Vector Borne Diseases Consultant at the district level; Malaria Technical Supervisor, Community Health Centre (CHC) medical officer at the block level; Accredited Social Health Activists (ASHAs), Anganwadi Workers (AWWs), one male health worker and one female health worker, Multi Purpose Health Supervisor at the sub-centre level; and beneficiaries including pregnant women and their children in tribal residential schools and in orphanages.

Figure 1: Key stakeholders of the Mo Masari scheme

State
- Department of Health & Family Welfare
- National Vector Borne Disease Control Programme (NVBDCP), Odisha
- Technical and Management Support Team (TMST)

District
- Chief District Medical Officer (CDMO), District Malaria Officer (DMO), Assistant DMO, Vector Borne Diseases Consultant

Block
- Malaria Technical Supervisor, CHC Medical Officer

Sub-centre
- ASHA, AWW, one male health worker and one female health worker, Multi Purpose Health Supervisor

Beneficiaries
- Pregnant women and their children
- Children in tribal residential schools
- Children in orphanages

Implementation strategy

The Mo Masari scheme was piloted in January 2010 in five districts of Keonjhar, Kandhamal, Rayagada, Malkangiri and Nabarangpur. The strategy focussed on two main beneficiary groups: (i) pregnant women and their children up to five years of age and (ii) children studying in tribal residential schools. There was delay in

Image 2: Mo Masari nets for distribution on Village Health and Nutrition Day (03.02.2014) in Kandhamal district

Image 3: An ASHA worker gets instructions on using the LLIN

extending the scheme to tribal schools and distribution was undertaken in 2011–2012. In the pilot phase 1,01,350 nets were distributed to pregnant women and 2,54,356 to tribal schools.

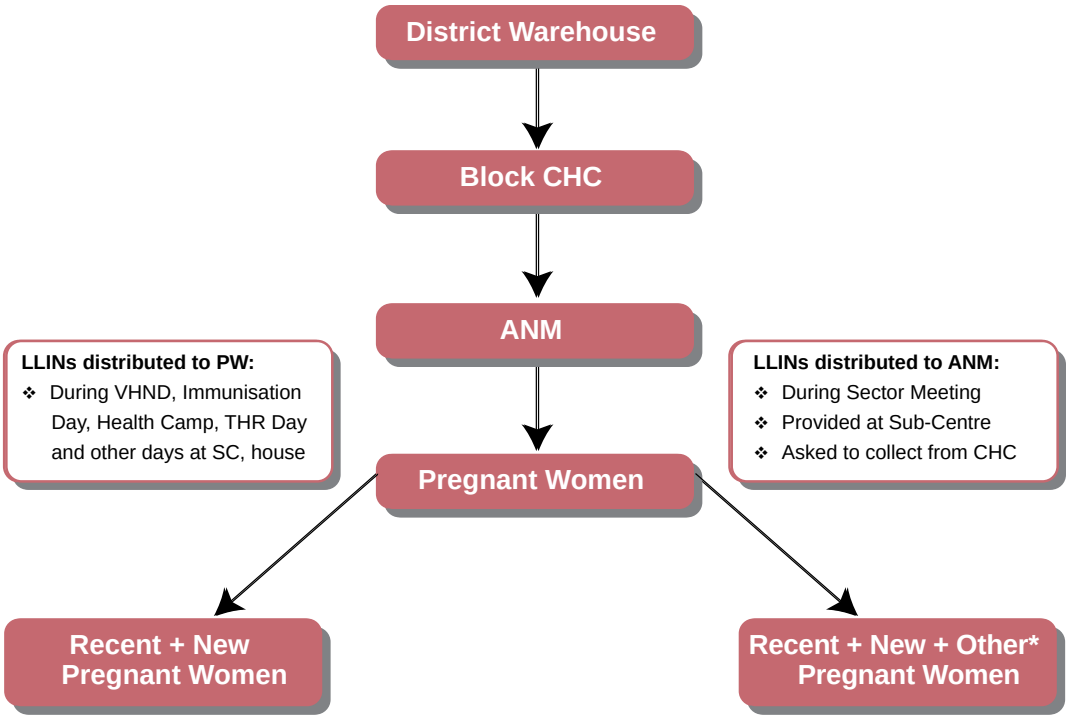
After a successful pilot, the scheme was scaled up to cover seven districts in the state. As of 2013, Mo Masari covered 12 districts - Keonjhar, Kandhamal, Rayagada, Malkangiri, Nabarangpur, Deogarh, Sambalpur, Angul, Nuapada, Koraput, Kalahandi and Gajapati. The selection of districts was based on the high rate of API. Since 2013, the scheme has been expanded to cover a third set of beneficiaries – children in orphanages (including government and non-government run orphanages).

Under the scheme, pregnant women receive family-sized LLINs, in which the mother, the new-born child and at least one other child can sleep. The nets distributed to pregnant women are generally blue in colour so that families can easily distinguish these from the household's other LLINs, which are milk white in colour. The residents at tribal schools and orphanages receive individual-sized nets.

Unlike for the general cluster approach programme, where the nets are procured from the GoI, for the Mo Masari scheme the Government of Odisha's State Drug Management Unit (Department of Health and Family Welfare) procures nets through a public-private partnership scheme, comprising a consortium of three

Image 4: Pamphlets and posters used to promote Mo Masari

Figure 2: Process flow for LLIN distribution to pregnant women



Source: Technical and Management Support Team on behalf of Department of Health & Family Welfare, Govt. of Odisha

**Other pregnant women are those pregnant women who come for delivery to their paternal houses, if not received LLIN at their in law's house. In such cases, GKS members accordingly instruct ASHA, AWW, MPW(F).*

private vendors, at a cost of Rs. 217 per net for the nets for pregnant women.

The process flow for net distribution varies depending on the beneficiary type. The first point of distribution for pregnant women is at the local sub-centre, where nets are given during Antenatal Care (ANC) check-up. Around 50% of the beneficiaries are given LLINs through sub-centres. The remaining beneficiaries are covered during Village Health and Nutrition Days (VHNDs), polio immunisation days, at health camps or through door-to-door distribution by Auxiliary Nurse Midwife (ANM) or ASHAs.

In the case of tribal residential schools and orphanages, the implementation is done in convergence with the Scheduled Tribes (STs) and Scheduled Castes (SCs) Development Department, Government of Odisha, since they have data on the list of schools and beneficiaries across the state and also have ground-level officials who can coordinate the distribution. The procurement is carried out in the same manner as other LLINs, and the District Malaria Officer coordinates with the District Welfare Officer and the school headmaster or orphanage officials to ensure that the LLINs reach beneficiaries.

Image 5: (Top) Nidhi Ratha and (above) Street play by locals

Source: Report - 'Evaluation of Use of LLIN by Pregnant Women under Mo Masari Initiative and Effectiveness of BCC Messages on Malaria'. 2012. TMST and DoH&FW, Odisha

The robust IEC and BCC campaigns launched during Mo Masari implementation to promote the use of LLINs and their maintenance played perhaps the most important role in making the scheme a success. A three-tier model was followed for the campaigns in the each phase of LLIN distribution. During the pre-distribution phase, district officials, such as the NVBDCP consultant, trained ASHAs and ANMs on the proper usage of the nets. ASHAs and ANMs, in turn, gave demonstrations to the beneficiaries on how the LLIN should be handled, washed and dried. A pre-publicity campaign was organised to generate demand for LLINs. In the distribution phase, demonstrations were given on using and caring for the nets, and handmade posters and pamphlets were distributed to promote the use of LLINs. A small leaflet was also passed on with each net to ensure that the nets are properly used and last their lifecycle of three to five years. The campaign *'Nidhi Mousa to Masari Ne'* was launched to promote behavioural change among beneficiaries by reiterating the message on malaria prevention and usage of LLINs. The campaigns focussed on the highly successful character created for the LLIN programme – Nidhi Mousa (Uncle Nidhi). A van campaign (using a chariot called Nidhi Ratha) and folk theatre were also used to promote the message. In tribal areas, traditional methods of dissemination, such as drum beating, as well as Interpersonal Communication (IPC) were used to reach the masses. Teachers and students at tribal schools were sensitised during assembly sessions. A comic booklet in Odiya was also prepared specifically for children. Awareness generation on malaria has also been integrated with NRHM's school health programme to ensure better reach. For the post-distribution phase, a discussion platform, called Nidhi Mousa Adalat, was conceived to be held every three months. Also, in every village, a Swastha Kantho (health wall) has been mandated to provide updated details of key contact persons like ASHAs and the dates of VHND or immunisation days. A grievance helpline has also been put in place to address queries from beneficiaries.

Resources Utilised

Odisha had multiple malaria interventions in operation across the state prior to the introduction of Mo Masari. The same officials engaged with those interventions, from the NVBDCP functionaries at the state level to the District Malaria Officer to the ASHA at the village level, are involved in implementation of the Mo Masari scheme. Hence, Mo Masari was easily integrated into the existing operational framework.

From 2009-2011, the Department for International Development (DFID), United Kingdom, funded malaria intervention schemes under the Odisha State Health

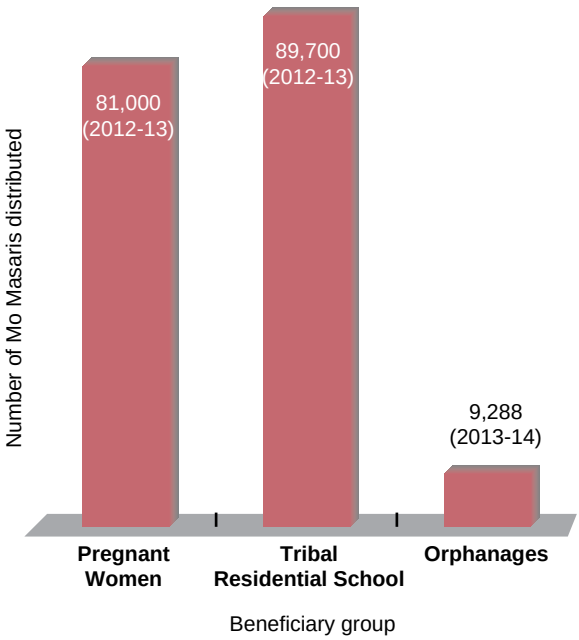
Plan (OSHP) budget. Widespread and robust IEC/BCC campaigns which were also deployed for awareness generation were also funded by OSHP. After this period, the Government of Odisha has been providing complete funding for the scheme.

Impact

Wide coverage: In terms of coverage, almost 84% women received LLINs during the distribution phase, and 89% reported sleeping under LLINs during pregnancy. About 43% and 42% women received LLINs during second and third trimester, respectively. Only 9% pregnant women were covered during the first trimester, due to factors such as late registration and lack of ANC services. Also, ANMs hesistated to distribute LLINs that are specifically meant for pregnant women, to women who are in the first trimester of their pregnancy because some women opted to terminate their pregnancies in their first trimester, striking down the purpose of LLIN distribution to this population segment.

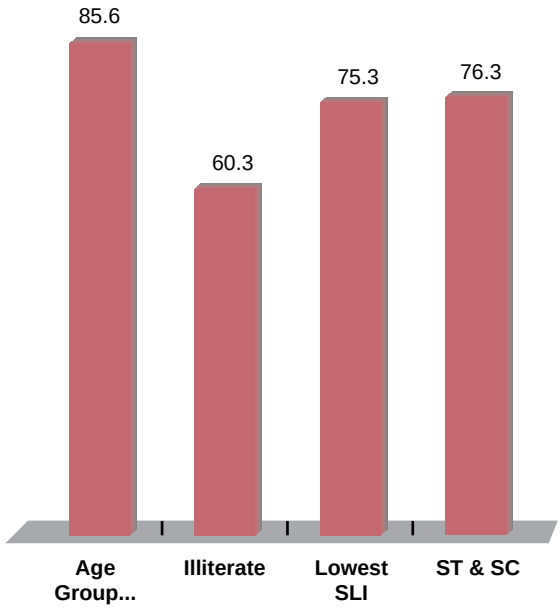
Higher utilisation: Following the distribution, up to 99.5% pregnant women had retained the LLINs with them. Compared to cluster approach areas, Mo Masari-only areas demonstrated higher utilisation of LLINs, possibly because individual attention was given to pregnant women through IPC[2]. The communication campaigns that accompanied Mo Masari were important contributors to high utilisation. The effectiveness of the initiative's IEC/BCC/IPC strategy is illustrated in *Figure 5*.

Figure 3: Coverage of Mo Masari (number of nets distributed)



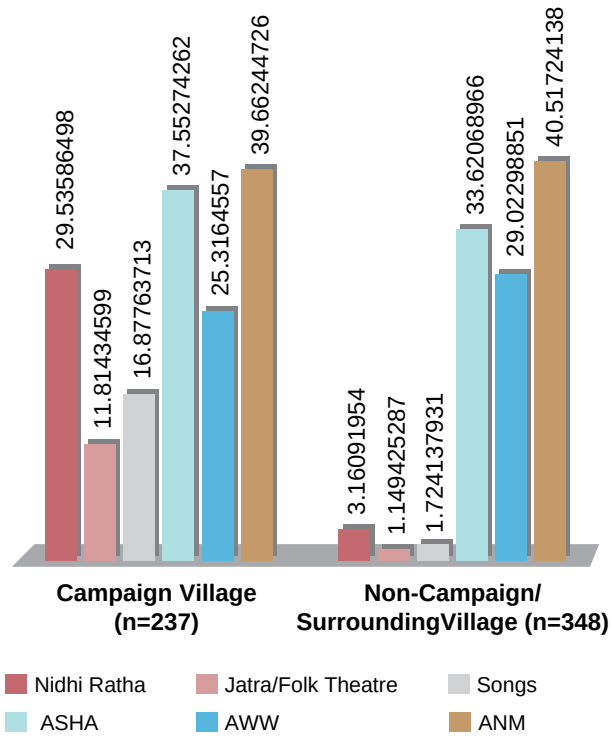
Source: Technical and Management Support Team on behalf of Department of Health & Family Welfare, Govt. of Odisha

Figure 4: Socio-economic characteristics of pregnant women in Mo Masari areas (in %)



Source: Technical and Management Support Team on behalf of Department of Health & Family Welfare, Govt. of Odisha

Figure 5: Source of Information of households about Do`s for the use of LLIN (in %)



Source: Technical and Management Support Team on behalf of Department of Health & Family Welfare, Govt. of Odisha

[2] *Technical and Management Support Team (TMST) on behalf of Department of Health & Family Welfare, Govt. of Odisha. 'Evaluation of Use of LLIN By Pregnant Women under Mo Masari Initiative and Effectiveness of BCC Messages on Malaria'. March 2012.*

Key Challenges

The scheme faced some initial resistance from a section of the population that was wary of the use of mosquito nets due to various myths or misconceptions. Attempts were made to overcome this resistance through effective IEC/BCC campaigns and consistent IPC by ASHAs, who distribute LLINs as part of the cluster approach programme.

Difficulties also arose from improper use of LLINs. The average life of the net is about three to five years but improper use of the net, such as washing it in hot water or using baking soda to clean it, reduces its efficacy. Sometimes the net, in its new packaging, was seen as a prized possession and stored for a long time instead of being used immediately. Secondly, in some cases, the cover of the nets was being used for other purposes like storing puffed rice, which could be harmful.

Logistical issues in procurement and supply at certain points also posed a challenge, making it difficult to adhere to stipulated time frames. In the initial stages, individual-sized LLINs for children in schools were difficult to procure, and hence, Insecticide-Treated Mosquito Nets (ITMNs) had to be distributed instead. The remoteness of tribal areas created problems of access, but these problems were overcome by hiring local people for distribution and using folk theatre or other traditional forms of art in campaigns instead of mobile vans.

Replicability and Sustainability

Mo Masari has complemented the cluster approach of the larger LLIN distribution programme. This has increased its sustainability quotient and tapped into the awareness about using LLINs to control malaria. The cluster approach, being implemented at the grassroots by the communities themselves, has helped in bringing about a behaviour change toward LLINs and in eliciting proactive support.

Image 6: Swastha Kantho at Nuagaon, Kandhamal District

Attempts at replication of such an initiative should consider the context in which Mo Masari has been implemented. In Odisha, there was an existing taskforce and executive committee that worked on malaria interventions and understood the scenario. Also, the units of intervention were clusters, defined by the incidence of malaria and not on the basis of geography or revenue. Also, a separate evaluation team was in place to efficiently assess and monitor implementation.

Conclusion

Odisha's primary objective of reducing the rate of API in the state is being successfully achieved through interventions like Mo Masari. The scheme has made major headway toward malaria control in the population segment most vulnerable to it. The need is to keep up the momentum of the scheme. Enthusiasm about the scheme is apparent in the words of implementing officials such as the Chief District Medical Officer of Mo Masari-covered Kandhamal district: "If these consistent efforts are kept up, in three years, the API can be brought down from 23 to 2, even in a high endemic district like Kandhamal."

Fact Sheet

Theme	Health
Nodal Implementing Agency	State Vector Borne Diseases Control Programme, Department of Health and Family Welfare, Government of Odisha
Geographical Coverage	12 districts of Odisha State
Target Groups	Pregnant women, children up to 5 years, students in tribal residential schools and children in orphanages
Years of Implementation	2010 - Present

2.25 NRHM Initiatives: Improving access to healthcare through strategic incentives in Assam

Aiming to improve the healthcare scenario in Assam, the state team of the National Rural Health Mission (NRHM) launched some innovative programmes in 2010 to promote health-seeking behaviour among beneficiaries and improve service delivery. Morom is one such initiative that provides cash incentives to in-patients at public health facilities. A total of 117,181 patients have benefitted in 2013–2014, with approximately Rs. 3.5 crore being disbursed. Likewise, another scheme, Mamata, provides baby kits to mothers who stay on at health facilities for 48 hours after delivery to receive post-partum care. The state has also set up Nutrition Counselling cum Management Centres (NCMCs) to augment the reach and efficacy of the existing Nutrition Rehabilitation Centres (NRCs) in proactively screening and treating malnourished children.

Rationale

Assam faces severe challenges with regard to health of women and children. *Table 1* shows some critical indicators. The Government of Assam, working through state NRHM, has taken various initiatives to enhance the state's performance on these health indicators. Improved service delivery and people's access to healthcare, primarily in rural areas, is the core focus of these initiatives.

NRHM, Assam launched three important initiatives in 2010: i) Nutrition Counselling-cum-Management Centres; ii) Mamata; and iii) Morom.

Nutrition Counselling-cum-Management Centres (NCMCs) are unique centres established to assist the existing district level set-up of Nutritional Rehabilitation Centres (NRCs). The NRCs were set up by the Government of India to tackle the issue of severe acute malnourishment (SAM) in children under the age of five years. Such cases have a high fatality rate. The number of children afflicted with this condition is 4.98% in Assam, with a particularly high concentration among tribals and populations displaced by ethnic conflicts, such as in Kokrajhar. Child malnourishment is caused by a variety of factors, including poverty, low literacy rate, lack of knowledge about family planning, poor hygiene, improper infant feeding and poor dietary habits.

Table 1: Mother and child health indicators for Assam

Indicator	Assam	All India
Maternal Mortality Ratio	347 (2010, Source Annual Health Survey 2011-12)	212 (Source RGI 2007-09)
Infant Mortality Rate	55 (Source: SRS Bulletin, 2011)	44 (Source: SRS Bulletin, 2011)
Under Weight Children	40% (Source. NFHS-III, 2005-06)	46% (Source: NFHS-III, 2005-06)
Children who are Anaemic	76.7% (Source: NFHS-III, 2005-06)	79.2% (Source: NFHS-III, 2005-06)

Source: www.nrhmassam.in

Mamata has been initiated to address the issue of high maternal mortality rate (MMR). An estimated 21.5% of Assam's maternal population does not undergo delivery in health facilities, which increases their vulnerability to disease and death. There are also barriers to receiving postpartum care, owing to lack of awareness on the part of the patient and lack of concern on the part of doctors, who are often under pressure to treat a large numbers of patients at public health facilities.

Mamata incentivises mothers to remain at the health facility for 48 hours after delivery to receive postpartum care. The initiative, thus, has two positive consequences. Firstly, it provides direct health benefits to the newborn, and secondly, it serves as a conditional reward that empowers mothers to insist that they remain in the hospital for at least 48 hours, thereby receiving the requisite postpartum care.

Morom has been initiated for the poorer sections of society in general and daily wage workers in particular. Weaker sections of society, particularly casual labourers, avoid seeking healthcare as it costs them their daily wages. Ailments are ignored, causing a negative impact on overall health. Morom seeks to compensate for the wage loss suffered during the period of hospitalisation.

Objectives

NRHM, Assam launched these three initiatives to meet different objectives. NCMCs, extensions of NRCs, have been set up with the objective of expanding reach in peripheral areas to identify and provide medical care to children with SAM under the age of five years and educate mothers on appropriate nutritional practices. Mamata, on the other hand, aims to incentivise mothers for seeking postpartum care by providing them baby kits. The objective of Morom is to provide monetary incentives to in-patients at public health facilities so as to motivate them to access healthcare.

Key Stakeholders

The key stakeholders of NCMCare the NRCs, National Rural Health Mission, Department of Health and Family Welfare, Department of Social Welfare, Department of Panchayati Raj and Rural Development, United Nations Children's Fund (UNICEF) and partner NGOs and CSOs.

In the case of Morom and Mamata, the stakeholders are: beneficiaries, who are given the incentives in return for their health-seeking behaviour; NRHM, Assam, which provides the funds; and the hospital administration teams, which undertakes the disbursal of benefits

Implementation Strategy

Nutrition Counselling cum Management Centres

The first NRCs in Assam were set up in 2010–2011 in districts with high tribal and displaced[1] populations – in the civil hospitals at Udalguri and Kokrajhar districts and at the Primary Health Centre (PHC) in the Kharupetia block of Darrang district. By the year 2012–2013, 10 NRCs were established across Assam, and nine more were slated to be set up. The NCMCs are extensions of NRCs and are located either at the district hospital itself or at peripheral locations, bringing beneficiaries closer to health services. They have been set up in four districts (Dibrugarh, Nagaon, Darrang and Morigaon)

Figure 1: Key stakeholders in the implementation of NCMC

Nutrition Rehabilitation Centres	❖ Extend the reach of NCMCs to peripheral areas
National Rural Health Mission	❖ Nodal state level implementing agency
Department of Health and Family Welfare	❖ Convergence with ICDS in using Anganwadi Workers for outreach services
Department of Social Welfare and Panchayati Raj and Rural Development Department	❖ Awareness generation
UNICEF	❖ Technical and financial support
Partner NGOs/CSOs	❖ Community outreach and identification of malnourished children

Figure 2: Three initiatives under NRHM, Assam

Nutrition Counselling cum Management Centres

- ❖ Conducts screening camps for identification of malnourished children
- ❖ Help with monitoring and reporting of children with SAM
- ❖ Counsel and educate mothers on appropriate nutritional practices

Mamata

- ❖ Incentivise mothers for seeking post partum care by providing baby kits
- ❖ Kits contain mosquito nets, blankets, baby cream, baby oil, soap, cotton cloth and baby powder

Morom

- ❖ Provide indoor patients in government health facilities with financial benefits to incentivise health seeking behavior
- ❖ The amount payable to patients is as follows:
  - PHC/CHC/SDCH - Rs. 30 / day for a maximum of 5 days
  - District Hospitals - Rs. 50 / day for a maximum of 5 days
  - Medical Colleges - Rs. 75 / day for a maximum of 7 days

[1] *Kokrajhar has witnessed significant ethnic and communal violence that has displaced large numbers of people.*

and sanction has been received for expansion to the remaining 23 districts.

As opposed to NRCs that attend to children in the SAM category, the NCMC is an out-patient activity attached to the health centre focusing on providing preventive health services. The counsellors at the NCMC also take height and weight measurements of pregnant women to calculate their body-mass index and counsel them according to the needs identified, besides attending to attending to women in the post-natal stage counselling and guiding them to inculcate proper breast-feeding practices. They also counsel mothers for the nutritional needs of children under the age of five years.

Besides this, the counsellors also conduct screening camps and take anthropometric measures of children under the age of five years to find out about their nutritional status and identify cases of malnutrition. Children found to belong to the SAM category are referred to the NRC for treatment.

At the community level, the nutrition counsellors are part of the Village Health and Nutrition Day activities every Wednesday in collaboration with other actors like Auxiliary Nurse Midwife (ANMs), Accredited Social Health Activists (ASHAs), Anganwadi Workers (AWWs) and Health Workers (HWs). The Village Health and Nutrition Day also serves as an event where children with SAM can be identified. This integration of the NCMCs activities across departments such as Health, and Women and Child Welfare, is modelled on the implementation of the Pulse Polio programme.

The nutrition counsellors at NCMCs are graduates or post-graduates in disciplines such as home science and have a good command on the subject of mother and child nutrition. They undergo a four-day orientation training following their induction into service. This training is conducted by master trainers from the medical college and the state agriculture university. Besides this, they undergo additional orientation programmes twice a year.

Morom and Mamata

Morom and Mamata were both initiated in May 2010. Being relatively simple initiatives to implement, they utilise the existing health infrastructure for disbursing funds and baby kits and only require awareness generation among beneficiaries. A large scale IEC campaign, comprising hoardings and newspaper advertisements, was launched to build awareness about the two initiatives.

The process flow for Morom and Mamata initiatives is similar. In the case of Morom, when patients are admitted

Image 1: Mother with a baby kit at Morigaon Civil hospital

into the general ward of a public health facility, they are informed that they are entitled to the relevant amount and their details are entered into the indoor patients (IPD) register. The incentive amount varies depending on the type of public health facility. For example, while an indoor patient admitted to any of the medical colleges in Assam would receive Rs. 75/day for a maximum of seven days, the patients admitted to district hospitals and CHCs/PHCs receive an amount of Rs. 50/day and Rs. 30/day, respectively, for a maximum of five days.

When patients are discharged, their discharge slip is cross-verified with hospital records and the relevant amount is disbursed through cash and cheque.

In the case of Mamata, the mother is entitled to the baby kit only after she completes the stipulated 48-hour stay at the health facility after delivery. Entries are made in hospital records when the mothers come in. After discharge, the baby kit, containing mosquito nets, blankets, baby cream, baby oil, soap, cotton cloth and baby powder can be obtained from the hospital store after showing the discharge certificate and signing in the Mamata register.

Resources Utilised

The NCMCs do not entail very high expenditures besides the salaries of Rs 15,000 per month for the counselors, the budget for which has been leveraged from ICDS, NRHM and the Tribal Development Department. A one-time expense (not more the Rs 40,000) is allocated per NCMC towards establishment costs and for purchase of equipment to measure height and weight.

Financial support for both Morom and Mamata is provided by the NRHM. The annual running expenditure for the Morom initiative is Rs. 12-13 crore.

People speak...

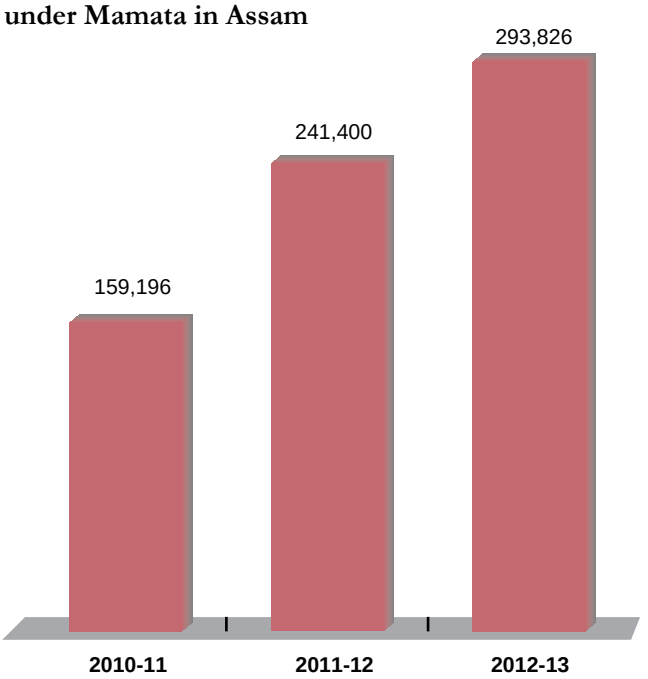
Cerebral palsy is one of the consequences of malnourishment. The child on the left had already succumbed to this mental disorder by the time the ASHA diagnosed him with SAM. However Nazima Khatoon, the young mother on the right, promptly brought her daughter to the NRC upon SAM diagnosis. She expressed gratitude and happiness and was satisfied with the facilities offered to her daughter.

Impact

Bringing health services closer to the people: The NCMCs are located at health centres like the district hospital or health centres at peripheral locations, bringing beneficiaries closer to health services. They have been set up in four districts and sanction has been received for expansion to the remaining 23 districts. The four districts are covered by 37 NCMCs staffed by an equal number of nutrition counsellors 35 of whom are women and two are men.

High uptake of services: Under the Morom initiative, a total of 117,181 patients from across Assam benefited in the year 2013-2014, with approximately Rs. 3.5 crore being disbursed. Mamata has also registered a steep increase in performance, as seen in *Figure 3*.

Figure 3: Total number of baby kits distributed under Mamata in Assam



Key Challenges

There are only 37 NCMCs as of now to address the nutritional needs of mothers and children in over 20,000 villages of Assam. Counsellors are found to be overburdened as they are responsible for providing a vast range of services and deal with increasing footfalls at the NCMCs.

Mobilisation of mothers and children remains a big challenge. Doctors are not adequately sensitised to the role performed by counsellors, and there is low appreciation of counsellors among other medical personnel. As a result, clients arriving at the out-patient departments (OPD) are not directed to meet with the NCMC counsellors.

Block-level monitoring, which is a vital role of the NCMC counsellors, involves travelling to distant places and this is a challenge for the counsellors. Even though some money is provided for fuel expenses out of the Block Monitoring Pool Fund, the location of health facilities at remote places poses challenges of accommodation, especially for women counsellors.

The chronic violence in the region also affects the access of clients to services and creates impediments in service provision. Assam has been plagued by insurgency and frequent communal, ethnic and regional conflicts. These have affected the functioning of NCMCs, particularly those in difficult areas such as Kokrajhar and Bodoland Territorial Area Districts (BTADs).

Fund transfer has been an issue for Morom and the NRCs. According to NRHM guidelines, payment disbursals must be done only through cheques. However, owing to poor financial inclusion among beneficiaries, cash is still being used for disbursal at NRCs and for Morom.

Replicability and Sustainability

The NCMCs have no major sustainability challenges as they have been attached to government health establishments. There are plans to expand on the NCMCs and eight more counsellors have been hired to join in the calendar year 2014. The State government is also committed to expanding the NCMC network and so, funding them is not an issue. The demand generated in the communities they serve has been steadily increasing, reflecting the community's acceptance. The same holds true for Morom and Mamata initiatives. Therefore, their sustainability and replicability are largely dependent on local initiatives as they are essentially supply-driven

programmes that do not bank upon a revenue model for sustainability.

Besides demand for human resources, replicability of NCMC does not require much infrastructure either (but for height, weight and arm measuring instruments, registers and charts). The Morom and Mamata initiatives only require finances and strong procurement systems.

Conclusion

NRHM, Assam's initiatives to bolster access to healthcare are clearly generating greater demand, as can be seen in the increase in beneficiary numbers over time. The strategy of using incentives to address access constraints and to motivate beneficiaries to adopt health seeking behaviour seems to offer a workable solution for improving rural healthcare.

Fact Sheet

Theme	Health
Nodal Implementing Agency	National Rural Health Mission, Assam
Geographical Coverage	All districts of Assam State
Target Groups	NCMCs- Malnourished children under the age of 5 years and mothers Morom- Casual labourers/Daily wage earners Mamata- Pregnant and nursing mothers
Years of Implementation	2010 - Present

INFRASTRUCTURE AND DEVELOPMENT

2.26 Intelligent Transport System: Improving urban public transport in Mysore

Launched in 2012, the Intelligent Transport System (ITS) in Mysore has involved Information and Communication Technologies (ICTs) to enable smarter transport networks that help traffic management, ensure real-time control and safety besides curtailing the growth of private vehicles. In doing so, it has resulted in several benefits to the people, such as improvements in safety, increased commuter satisfaction, reduction in traffic congestion and pollution levels, reduction in travel time delays and related uncertainties. It has provided an alternative to India's inefficient urban public transportation through the provision of dynamic and real time information of bus routes to the passengers. This has been achieved without putting the government or citizens through the inconvenience of construction and widening of roads, or cutting of trees.

Rationale

Mysore city faced severe problems of road congestion and associated issues of commuters, which include delays in the arrival of buses at bus stops, lack of information about different bus routes and stops, time, frequency etc. Considering the wide range of problems related to mismanagement of traffic, high pollution levels and the high growth rate in traffic density in the recent past in Mysore dynamic solution capable of contributing to the creation of an efficient and sustainable public transport system was required in the city.

In its effort to support the overall public transport system, Karnataka State Road Transport Corporation (KSRTC) introduced the ITS to deliver high quality services and make the system more passenger friendly through the appropriate use of ICTs. This approach was the result of lessons learnt from the conventional response of constructing flyovers or widening roads, which have not proved to be highly effective or sustainable solutions to the challenges posed by increasing traffic and population.

Recognising the shortcomings in the urban public transport systems, ITS aims to improve the transport system in Mysore, taking into account the operational costs of traffic congestion, maintaining environment quality and promoting traffic efficiency by reducing passenger waiting time, improving the frequency of buses, and ensuring the safety of passengers.

Objectives

The Mysore ITS was conceptualised with the objective of managing the entire public transport system in the city to make it safe, more efficient and environment friendly. By introducing real time data and facilitating commuters with accurate information on bus schedules, estimated timings of arrival and departure, announcing bus stops (by their names) and fare details at bus stops, bus terminals and inside the buses using SMS, internet and an interactive voice response system (IVRS), the project aims to reduce the commuter's dependence on personal automobiles. The initiative also promotes state-wide use of sustainable urban public transport by monitoring accidents and traffic congestion through effective diversion of traffic in case of emergency.

Key Stakeholders

The ITS initiative benefits from the involvement of multiple stakeholders at various levels. Key stakeholders of this initiative are based in Mysore. *Figure 1* provides a clearer picture of the involvement and the role played by each stakeholder in the formulation and implementation of the initiative.

Implemented by the Government of India in partnership with the Global Environment Facility (GEF) - Sustainable Urban Transport Programme (SUTP), Intelligent Transport System involves multiple stakeholders at various tiers. The Mysore ITS was conceptualised to manage the entire public transport system in the city and for this it roped in the KSRTC. Two key ministries of the Government of India involved in this initiative were the Ministry of Urban Development which was involved in formulating policies and coordinating activities and programmes with the State governments and other central ministries; and the Ministry of Environment which acted as the nodal agency in the administrative structure for the planning and implementation from the perspective of the environmental issues involved.

Figure 1: Key stakeholders

Sustainable Urban Transport Project (SUTP)

- Initiated under the scope of National Urban Transport Policy to foster a long-term partnership between Government of India and State/local governments in the implementation of a greener environment.

Karnataka State Road Transport Corporation (KSRTC)

- Implemented the Intelligent Transport System in Mysore to adress the need for efficient urban transport management.

Ministry of Urban Development (MoUD)

- Involved in formulating policies, monitoring and coordinating activities and programmes of various State government, central ministries and other concerned authorities related to urban development issues.

Global Envirionment Facility (GEF)

- Provides grants to developing countries and countries with economies in transition for projects related to global environmental issues.

The World Bank

- Helps institutions to find suitable solutions to the development challenges and supports the SUTP programme.

United Nations Development Programme

- Provides grant support to developing countries for such projects to carry out project activities effectively.

Ministry of Environment and Forests

- Nodal agency in the administrative structure of the Central government for the planning, promotion, co-ordination and overseeing the implementation of India's environmental and forestry policies and programmes.

IBI Group

- Its services focus on the physical development of cities, including planning, design, implementation, analysis of operations in various areas of development including transportation networks and intelligent systems

CMC Limited

- Involved in design and development of application.

Besides the stakeholders described above, the World Bank was also an important stakeholder since it supports the SUTP. Also, the United Nations Development Programme (UNDP) provided expertise and training for the officials involved in the ITS. The IBI group which focusses on the physical development of cities, including planning, design, implementation, analysis of operations in various areas of development including transportation networks and intelligent systems, also played an important role in the ITS along with Computer Maintenance Corporation (CMC) Limited which was involved in the design and development of the ITS.

Implementation Strategy

In Mysore, the implementation of ITS is overseen by the KSRTC. The Mysore City Transport Division (MCTD), a division of KSRTC, operates a fleet of about 400 buses from three depots in Mysore. The initiative was introduced in 2012 with the selection of a total number of 105 bus stops across Mysore, which gradually extended to all the bus stops in the city. It plans to cover 500 buses, 105 bus stops, 6 bus terminals and 45 platforms.

The Mysore ITS includes core systems like the Vehicle Tracking System, Real Time Passenger Information System and Central Control Station and technologies including Global Positioning System (GPS), Electronic Display Systems and other ICT tools. A digital display unit is used for displaying details of arrival and departure of buses, in both Kannada and English. Location information is

Figure 2: Implementation strategy

- **Online tracking of KSRTC buses using GIS maps by offcials**
- **Online tracking of KSRTC buses by the commuters**
- **Provision of commuter portal for the commuters**
- **Bus announcements and text display in both English and regional language**
- **Expected time of arrival of buses**
- **SMS and IVRS faciity for tracking the bus by commuter**
- **Two way communication between driver and central control station**

Source: OneWorld Foundation India, 2014

updated by the Vehicle Mounted Unit (VMU) to the central server via General Packet Radio Service (GPRS), which is a wireless data connection. In this manner, the ITS has provided a sustainable solution to the problem of traffic congestion.

Further, based on the information collected through the VMU, bus stop information on current and forthcoming arrivals is displayed inside buses for the benefit of passengers. In addition to the display of information, details of the approaching bus stops are also announced inside the bus. There is also a provision of displaying the information about expected time of arrival of the bus at the bus stops.

For better operationalisation and monitoring of the bus transport system in Mysore, ITS is supported by a two-way communication voice facility for the driver and the Central Control Station to contact each other in the case of emergencies or accidents. Bus drivers are provided with communication headsets to interact with the Central Control Centre and are given a keypad interface for voice communication. At the end, daily reports about the number of bus stops skipped, delays in the arrival of buses, performance of the drivers etc are generated through this system.

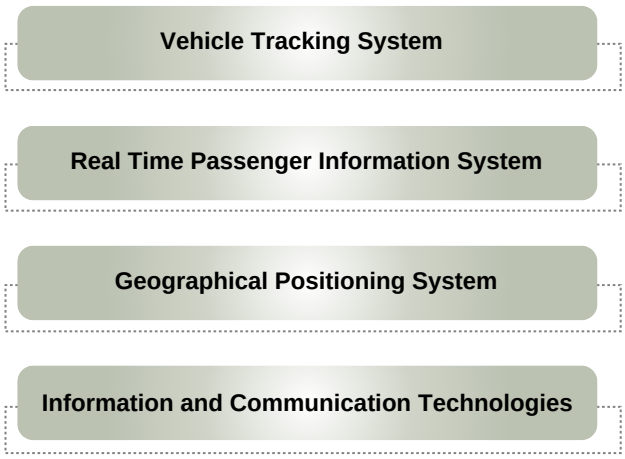
Building such intelligence into the transport system has many benefits, such as reducing the waiting period and uncertainty, increasing accessibility of the system, reducing fuel consumption, reducing traffic congestion and increasing the management's ability to track the bus fleet. KSRTC's integrated approach effectively leverages ICT tools and services based on GPS-enabled navigation systems. The Mysore ITS offers a sustainable solution to the ever growing demands of urban transport by way of providing information on bus location, number of passengers in the bus, estimated time to reach the bus stop or the destination through various channels such as IVRS, SMS or online, at the bus stop itself.

Components of Mysore ITS

The digital display unit is one of the crucial components of the ITS. This is installed at the bus stops for displaying the details of arrival and departure information of the buses in both Kannada and English. It displays information about the Route Number, Bus Number, Terminal, Platform, Bay, Origin, Destination and Estimated Time of Arrival (ETA) & Estimated Time of Departure (ETD). This information gets updated by the central server through GPRS.

Another important component is the in-bus display system that displays information on the forthcoming (arrival) bus stop and the current stop information for commuters inside the bus. This information is sourced from the central control stations and is updated by GPRS.

Figure 3: Components of ITS Mysore



Source: OneWorld Foundation India, 2014

Audio announcements of the upcoming bus stops are made inside the bus to help commuters keep track of the routes and travel safely. Through access to Geographic Information System (GIS) maps, commuters can easily track information on the status of a bus through this website - http://mitra.ksrtc.in/Mysore_commuter_3/. The expected time of arrival of the buses is also visible through the GIS mapping.

The SMS system in the ITS provides real-time bus arrival information and scheduled bus availability. This helps the commuters to plan their trips according to real-time information.

Responses to commuters' telephonic queries are provided through an IVRS facility under the Mysore ITS initiative. The system aims to provide information in Kannada and English. An online portal has been set up to help commuters in online tracking of the KSRTC vehicles and for access integrated to GIS map. The portal provides information in both Kannada and English.

Resources Utilised

The Mysore ITS initiative is funded by the Global Environment Facility (GEF)-Sustainable Urban Transport Project (SUTP), KSRTC and other international bodies such as the World Bank and UNDP. The Ministry of Urban Development (MoUD), being the nodal agency, is responsible for implementing the ITS initiative.

The infrastructure related investment is partly financed with the support of the World Bank-GEF grant assistance and consultancy studies are financed partly through GEF grants. The estimated cost for the deployment of the ITS in KSRTC city services in Mysore is about Rs. 19.13 crore.

Image 1: Electronic display board for bus travel timing

Source: ITS, KSRTC Mysore

The Mysore ITS technology framework comprises wireless communication, sensing technologies, inductive loop detection, video vehicle detection, electronic toll collection, and convergence of different technologies, GPS, display systems and other information systems. The technology deployed in the implementation of ITS is helpful in providing real-time passenger information to commuters while in buses and also at bus stops and bus terminals. The information displays inform passengers about the details of the arriving bus stop, the route number, the expected time of arrival and departure etc.

Technology infrastructure comprises a data centre which includes different types of servers like communication, database and application. Other technical components comprise a Central Control Station including a video wall in the control room, dispatcher workstations and access control. Core applications include GIS and ITS and commuter friendly applications including SMS, IVRS and a commuter portal in Kannada and English.

About 1,439 crew members have been trained as part of this initiative. The training, which includes class room training, in-bus-demonstration and a visit to the control room, was also provided to depot managers and traffic inspectors.

Selected users of KSRTC services were also trained in the use of various devices and technologies deployed in the implementation of the ITS. As a part of implementation strategy, a team of training instructors from the three training institutes of the KSRTC was put together to help the on-going training on ITS, especially for drivers, conductors and other users within the KSRTC.

Impact

Greater safety, convenience and commuter satisfaction: The introduction of ITS in Mysore has resulted in several benefits to people, such as safer travel, lesser traffic congestion and delays leading to greater commuter satisfaction. The display of ETA and ETD helps commuters to calculate the total time that will be taken to travel to any destination and accordingly help them

Image 2: Commuter portal in regional as well as in English language

plan their journey. The idea behind the introduction of this intelligence-based-system in public transportation is to increase mobility and provide wide range of services to passengers.

Positive environmental impact: As the initiative does not demand any widening of roads, construction work, or cutting of trees, it has not inconvenienced residents of the city, and not had an adverse impact on the environment in terms of air/water/noise pollution or vegetation or land degradation. In fact, ITS has resulted in a favourable impact on the city's environment by way of ensuring efficient flow of traffic and reducing pollution.

Increased use of public transport, lesser traffic and pollution: The introduction of ITS has led to increased use of public transport as it has become more convenient and reliable. The reduction in use of personal vehicles has also contributed to reduced traffic and pollution.

Key Challenges

The integration of VMU and weak connectivity of GPRS posed a challenge to the technical team at KSRTC during the implementation of the ITS initiative in Mysore. Moreover, since the system works to provide time-bound and real time delivery of services, it faces challenges in the prediction of expected time of arrival for all the bus stops with accuracy. As getting real time information from buses was central to ITS, making GPRS signals available throughout the city proved crucial for the successful implementation of the ITS in Mysore.

As such an initiative has not been implemented anywhere in the country before, there was lack of in-house domain knowledge and the consequent dependence on consultants in addition to multi-level monitoring and coordination posed its own set of challenges.

Since financial management plays a pivotal role in the long-term effectiveness and sustainability of any initiative,

Image 3: Classroom training of bus drivers

Source: ITS, KSRTC, Mysore

ITS Mysore has ensured the involvement of many different funding agencies. While this has resulted in a basket of funding sources, which has its own advantages, it has also brought along its share of complexities in the system. Astute financial management was required in the light of the multi-funding relationships as the varying formats and different norms and financial flows made this even more challenging.

Another major obstacle related to taking the drivers into confidence as most of them feel this system puts them under scrutiny. This has meant that access to the infrastructure inside the bus has been a formidable challenge.

The large scale of operations and consolidation of information networks was also found to be challenging. For instance, synchronising massive daily operational changes to system requirements was difficult. The other key challenge was to address the customer service through this unique technology.

Post-deployment, KSRTC faces the challenge to ensure security and maintenance of in-bus equipment and display boards and ensure uninterrupted power supply at bus shelters, which are not owned by KSRTC.

Replicability and Sustainability

By mobilising community support and demonstrating the sustainability of its approach, KSRTC has been able to expand the ITS initiative and its services all over Mysore. KSRTC is also planning to introduce a similar system for another 2,000 buses within Karnataka state in a sustainable manner. Other road transport corporations that have shown an interest in replicating this initiative include the Andhra Pradesh State Road Transport Corporation and the Bangalore Metropolitan Transport Corporation.

The strength of the Mysore ITS initiative lies in its ability to undertake successful integration of the bus equipment and display boards at terminals with real time passenger information for commuters. The use of such environment friendly and user friendly approach provides the initiative with vast potential for replication not just in Mysore, but in the entire country.

Financial soundness, which is a crucial factor in the sustained continuance of an initiative like this one, required due diligence in the administering of contracts for products and services. The preparation of a detailed tender process and financial plan was a crucial precondition to be met, especially given the involvement of high-end technologies and other equipment to be installed inside the buses. Replication of this initiative, therefore, has to take into account the cost of technology

Highlights of Bus Rapid Transit System (BRTS)

Ahmedabad Bus Rapid Transit System (BRTS)

Based on the concept of redesigning the city's infrastructure and making the existing transport system accessible, efficient and environment friendly, Ahmedabad's BRTS has deployed the intelligent transport system since 2009. The project, officially known as 'Janmarg', and managed by the Ahmedabad Janmarg Limited, aims to dedicate separate lanes to buses, pedestrians and non-motorised vehicles. The project started with a 12.5 km long corridor and 20 stations with corridors stretching to nearly 89 km across the city, thereby connecting less accessible areas of city and an external ticketing system.

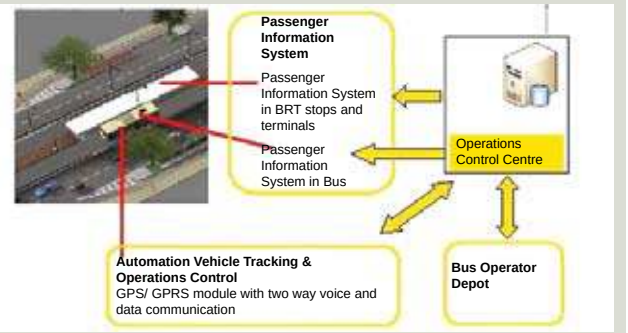
The project was implemented by Ahmedabad Municipal Corporation (AMC). The Centre for Environmental Planning and Technology (CEPT) University is involved in planning and designing the project which is funded by the Ministry of Urban Development, Government of India and Janmarg Limited. GMV intelligent transportation Pvt.Ltd. provides the required technological support for the working of this system.

The Ahmedabad BRTS is another successful example showcasing how, through the use of intelligent transport system technologies, public transport can help reduce traffic congestion, reduce distance and duration of travel and reduce air pollution. The Ahmedabad BRTS has created a positive impact and has been regarded as the best practice in urban transport management.

The major components of BRTS Ahmedabad are its running ways, Bus Rapid Transit (BRT) stations, customised buses and the intelligent transport system. The ITS applications used to make BRTS system efficient and effective in Ahmedabad was acheived by he means of an automatic vehicle tracking system, electronic fare collection, real time passenger information and its traffic management. These features are explained below:

Automatic Vehicle Tracking System - The Automated Vehicle Locator Tracking System uses GPS devices mounted on the vehicle as the primary source of data for tracking purposes. It also facilitates Central Computing System (CCS) to enable public information system to act as a source of information that is displayed on the public display screens and through voice-based information. This includes tracking of vehicles through the use of automatic vehicle location installed in individual vehicles that collect fleet data for these vehicle locations. The location of the vehicle is tracked through the use of GPS technology and can be viewed on GIS maps.

Electronic Fare Collection - The primary sources for fare collection on BRT stations are station ticket terminals, ticket validator and access control systems whereas the source for ticket dispensing and validations



on city bus service are barcode/smartcard-based hand held ticket terminal. This results in increased transparency and eases the process of ticketing. The automated fare collection is operated through the use of smart card and coin tokens.

Real-time Passenger Information System - Passenger information consists of services providing commuters with the real time information and schedule regarding the bus service and expected time of arrival and departure. The information is provided through display screens on bus stations, display screens on buses, voice announcement systems on buses and through the Ahmedabad Janmarg Limited portal for bus schedule to assist the passengers.

With the introduction of ITS in Ahmedabad BRTS, the city has hassle free travel, smart cards for ticketing to avoid congestion, reduced pollution, separate corridors for bus stations and people have been encouraged to use more of public transport by providing high quality service. The BRTS network has resulted in increased mobility and accessibility to less well connected places and low income areas. This project has also been awarded as the Best Sustainable Transport Award, 2010 and was adjudged the Best Mass Rapid Transit System by the Government of India, 2009. The figures below will provide a glimpse of the impact of BRTS:

Number of buses covered	139
Number of routes covered	8
Number of bus stops covered	118
Total number of passengers	1,50,000 (approx.)
Total number of smart card holders	7,20,000 (approx.)
Total number of student card users	5,000 (approx.)

(Data: 2009 - 2014)

While the BRTS' objective is to improve the exiting public transport system, it has its own set of challenges, such as narrow carriageway, high instances of encroachment and requirement of additional land acquisition for construction of corridors, stations etc. Thus, the Ahmedabad BRTS represents a model that is both technically and financially sound and holds immense potential for replication.

Highlights of Mysore ITS

- 28 crew members and seven buses saved from auto scheduling. Auto scheduling is a system based on dynamic vehicle routing and scheduling feature, which helps in optimising the usage against manual scheduling of buses.
- Vehicle utilisation (buses) increased from 247.5 km to 251.7 km.
- Crew utilisation of ITS employees increased from 66.3 km/ employee to 68.2 km/ employee.
- Total savings of 55 operational hours and 26.55 Operational Time (OT) hours.
- A total of 1,555 non-earning km of the running time of buses cut down.
- 2000 km augmented daily which fetches Rs. 30 average earning per km (EPKM) and daily increased revenue of Rs. 6,000.
- In-bus equipment installation completed in 420 buses.
- Among 2 line & 4 line display boards, 157 out of 161 installations are completed.
- Among 10 line & 16 line Display Boards, 24 out of 26 installations are completed.
- 1493 crew members have been trained and geo-fencing, field survey and validation completed for all 342 routes.

development, deployment and maintenance involved in the working of the system.

For any initiative to be replicable, it should keep in mind the end-users of the system. The Mysore ITS has proved to be a feasible tool in improving the access and efficiency of public transport for the citizens.

Conclusion

The Mysore-ITS initiative envisions building citizen-centric urban transport solutions instead of focussing on improving the conditions for private vehicles. Real time information is the most important application of its implementation in Mysore.

The initiative aims to reduce traffic congestion by helping people to plan their travel in a better way, suggesting alternate routes and keeping passengers informed about different timings, buses and routes, thus making public transport user friendly.

A well designed and planned ITS system in buses will make a significant improvement in the urban transport scenario in Indian cities, especially as it puts the needs of the majority who use public transport at the forefront.

Fact Sheet

Theme	Infrastructure and Development
Nodal Implementing Agency	Karnataka State Road Transport Corporation (KSRTC)
Geographical Coverage	Mysore City, in Mysore district of Karnataka State
Target Groups	Citizens of Mysore
Years of Implementation	2012 - Present

LOCAL GOVERNANCE

2.27 – 24 x 7 Metered Water: Improving water supply in rural areas of Punjab

Aiming to maximise coverage of villages availing water supply schemes, the 24x7 Metered Water Supply initiative has successfully involved the community in planning and implementation and metering water consumption for judicious use in Punjab. The nodal department, the Department of Rural Water Supply and Sanitation (DRWSS), Government of Punjab, has also introduced a novel pull-model of proactively calling beneficiaries to obtain beneficiary feedback and to address grievances on water supply service. In order to inculcate sustainable practices in the usage of water, to ensure parity in its usage, and to ensure that water charges are paid, water meters and a system of pay-per-use has been introduced in 15 villages of Punjab. Funds that are left over after the completion of tasks are ploughed back into water and sanitation-related projects in the village as they are not permitted to be used for other purposes.

Rationale

Water supply in rural areas of the state of Punjab has been intermittent and limited. Hand pumps, wells and submersible bore-wells are commonly used by the community as sources of water. However, people are facing problems due to water sources drying up during summer months, unhygienic and non-potable quality of water, spread of poor sanitation-related diseases such as cholera, diarrhoea and jaundice, etc. The alarming rate of groundwater depletion has also been a major cause of concern in Punjab.

It was in the backdrop of such a situation that the Department of Rural Water Supply and Sanitation (DRWSS), in collaboration with the World Bank, initiated reforms in the system of water supply in 2005. 24x7 metered water supply was an initiative envisaged as a community-driven model requiring participation in organising, managing and streamlining water supply through Gram Panchayat Water Supply and Sanitation Committees (GPWSCs).

Image 1: Metered 24x7 water supply in a house in Paprala village, Ropar district

Objectives

The main objectives of the initiative are to cover the villages that are Not Covered (NC) or Partially Covered (PC) under existing water supply schemes and to convert them to Fully Covered (FC) villages. The idea also is to facilitate sustainable water supply services and encourage judicious use of water through effective pricing.

Key Stakeholders

The initiative is being run by the different departments of government at various levels like state, district and village. The details of the key stakeholders are given in *Figure 1*.

Figure 1: Key stakeholders

State

- State Programme Management Cell, Department of Rural Water Supply and Sanitation in collaboration with World Bank

District

- District Programme Management Cell (DPMC)

Village

- Gram Panchayat Water Supply and Sanitation Committee (GPWSC)

Beneficiaries

- Population in rural villages of Punjab

Implementation Strategy

a. Pilot

The pilot was launched in three main villages of Ropar district – Paprala, Railon Khurd and Rasalpur. A consultation was held between officials from DRWSS, the World Bank and members of the community in order to understand the problems and requirements of the community, following which GPWSCs were formed in 2005.

A beneficiary share of Rs. 1,500 per household (totalling Rs. 5.02 lakh from the villages) was taken as a compulsory contribution from the community in order to kickstart the initiative. The rationale behind fixing a beneficiary share was to assure the involvement of the community in attaining a favourable and sustainable solution to the water supply issues and to create direct ownership of the initiative.

The Department and World Bank provided the remaining funds for the project and helped procure infrastructural requirements through a tender process in 2007. The total cost amounted to Rs. 55.19 lakh. Thereafter, in September 2009, all aspects of operations and maintenance of the initiative were handed over to the GPWSC, with the government limiting its role to hand-holding and Information, Education and Communication (IEC) activities.

Since the model is demand-driven, the implementation of this initiative begins only after an interest is expressed before the DRWSS and when all members of the village show willingness to participate as financial stakeholders through stipulated contributions. The IEC activities by DRWSS also helped in generating interest in target villages.

b. Process flow for initiation of the project

The community is mobilised and a GPWSC is formed. It is headed by the Sarpanch and includes compulsory and adequate representation from the following categories: women (33%), Scheduled Castes/Backward Communities (20%), below poverty line/landless residents (33%) and others (14%). Once this is done, the GPWSC opens a bank account for financial transactions and proceeds with the collection of the beneficiary share from all of the village households.

The next step is to conduct a digital survey to assess households in the target area after which the District Programme Management Cell (DPMC) prepares an action plan which is coterminously approved by the GPWSC. The government also starts the tender allocation process for infrastructural requirements with the participation of the community. After construction work and metering are completed, operations and maintenance are handed over to the GPWSC. A handholding staff including executive engineers and finance officers are appointed to provide assistance to the GPWSC in technical matters.

Image 2: Bulk meters set up near the OTR for Paprala, Railon Khurd and Rasalpur villages

While earlier, the total beneficiary share was fixed at a minimum of 10% of the overall cost, this has now been relaxed, owing to difficulty in collecting large amounts from the community. Hence, it is now fixed at a minimum of Rs. 800 for general category persons and Rs. 400 for members from Scheduled Castes/Scheduled Tribes/ Backward Communities. This has been made flexible for application in water-logged and mountainous areas.

c. Metering and billing

Meter readings in each house are jointly undertaken by the pump operator and the cashier on 25th day of every month. The meter reading record is maintained in a register that also includes the signature of every consumer so as to ensure the correctness of the meter reading. Presently, water bills are prepared by the cashier, but plans are afoot to outsource the preparation of the bills to a Chandigarh-based computer agency that will charge Rs. 1 for the preparation of each water bill which will be borne by the consumers/GPWSC on a trial basis.

The collection of charges on water bills is done jointly by the pump operator and cashier. In case of any default in meter during use, an average bill of previous three months usage is charged.[1] The GPWSC supplies new

[1] *Department of Water Supply and Sanitation, Punjab. '24x7 water supply in villages covered under PRWSS Project assisted by World Bank'. 2013.*

water meters in lieu of faulty meters. The charges for the new meter are to be borne by the consumer. If any consumer is found guilty of misusing water, his water connection is disconnected and reconnection is done only after seeking reconnection charges.

d. Awareness generation

IEC activities are the cornerstone in encouraging and facilitating the implementation of this initiative in villages. An Information, Education and Communication (IEC)/ Human Resource Development (HRD) team at the DPMC conducts awareness generation activities on a regular basis in selected villages. Activities are divided into four main stages like pre-planning, planning, implementation and post-implementation. The number of villages and the number of trainings to be conducted in each stage are fixed beforehand.

e. Pre-planning and planning stage

In this phase, pamphlets and IEC material are distributed on the initiative's benefits and advantages. Assistance is provided in forming the GPWSC and identifying nodal implementing authorities. Community mobilisation activities such as street plays, *muniyadi* (announcements made through speakers mounted on vehicles), inter-personal communications and live demonstrations of how to check the quality of water are undertaken.

f. Implementation and post-implementation

After formation of the GPWSC, capacity building activities are carried out for all participants in the process to understand their roles and responsibilities on matters such as material inspections and Indian Standards Institute (ISI) checks. A 'Transparency Wall' is assigned in a prominent area of the village for displaying details on rules and regulations, finances, dates for bill payments, penalty for delay in payments etc. Exposure visits and experience-sharing events among villages are conducted for inspiring uptake of the initiative in a new village and to study effective implementation models. In the post-implementation stage, Inter Personal Communication (IPC) is usually used for creating awareness on the topics of conservation of water, maintenance of water supply connections and disinfection of water.

Image 3: Government officials and members of GPWSC of Paprala village outside the pump room

People speak...

HRD specialist, Ropar

IEC specialist, Ropar

"In our experience, women and children have been the ideal Target Groups in effectively carrying forward the message of water and sanitation. Monthly exposure visits or meetings are held with performing and non-performing villages to bring about motivation. Demonstrations and peer learning have been noted as highly effective strategies for motivating villages, particularly in the case of non-performing villages".

g. Grievance redressal

Two main grievance redressal mechanisms have been created to address concerns of the beneficiaries regarding water supply and sanitation under this scheme.

1. **Telecalling beneficiaries – proactive feedback mechanism**

After handing over operations and maintenance to the GPWSC, the role of DRWSS remains only in handholding and supporting implementation of the scheme. However, it has been found out that there are difficulties in addressing day to day issues in a timely manner due

to limited staff. Hence, a new feedback mechanism, named 'Telecalling Beneficiaries – Proactive Feedback Mechanism', has been devised, in which a key person of GPWSC, such as the Chairman/ Secretary, is called periodically by the DPMC to ascertain the status of the initiative and the problems therein. It had been piloted in the district of Ludhiana and has now been upscaled to cover 22 districts in the state.

Reports are generated on the basis of the data entered after these calls, and are used for managerial interventions addressing the following issues:

1. List of villages where operation and maintenance accounts have not been opened
2. Villages where the Silver Ionisation Plant is not functional
3. List of villages that have been commissioned but supply is not yet functional
4. Number of leakages in the village on a monthly basis
5. Transactions that are not carried out through the bank
6. Villages where transparency walls have not yet been made
7. Nodal officer-wise calling status
8. Status of private water connections commissioned under International Development Association (IDA) and Sector Wide Approach (SWAP)
9. Block-wise abstract of total number of connections with respect to the total number of households
10. New addition in private connection as per Telecalling
11. List of villages where the initiative is commissioned but the number of connections is less than 50%
12. List of villages where the initiative is commissioned but the number of connections is less than 70%

While Telecalling Beneficiaries operated on a novel pull-model for addressing grievances, a conventional push-model for grievance redressal called Shikayat Nivaran Kendra has also been instituted.

2. Shikayat Nivaran Kendra

The Shikayat Nivaran Kendra, started in 2009, is a call centre stationed in the Department. It is equipped with a team of call operators who register water supply related complaints received via phone, IVRS and email. These are recorded in an online database. Details such as name, village, district and block are collected from the complainant and a complaint ID is issued. After categorisation of the complaints, they are forwarded to the concerned officials in the DRWSS for resolution.

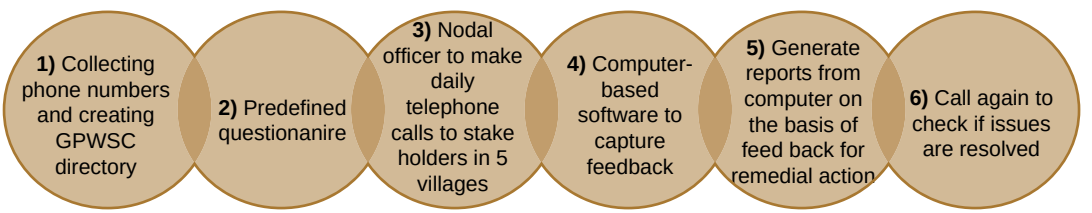
These two mechanisms, therefore, work in tandem to ensure that beneficiaries have adequate channels to air their problems and have them resolved in a timely and organised manner. Telecalling, in particular, has also become a useful monitoring tool to assess the status of implementation in target villages.

Resources Utilised

The staff employed for technical expertise and support at the village level includes one executive engineer, two junior engineers, one pump operator and one mechanic. The Sub-Divisional Engineer at the district level facilitates monitoring and hand holding activities for operation and maintenance to ensure that monthly meetings take place, records are checked and computerisation of records is done.

While a finance officer is assigned to train the GPWSCs in the proper maintenance of financial records and steps involved in handling and transacting funds, a chartered accountant conducts third-party auditing. In addition to this, IEC and HRD specialists are also employed in

Figure 2: Process flow for telecalling beneficiaries



Source: Department of Rural Water Supply and Sanitation, Government of Punjab

the DPMC for year-round IEC and Behaviour Change Communication activities in targeted and non-targeted villages.

A common overhead tank reservoir, liquid level controller, pump room and bulk meters are essential constructions in the initiative. At the household level, water supply connections and metering facility have to be installed.

The DRWSS has set up the necessary software and the hardware (technological infrastructure) for running the feedback and grievance redressal mechanisms explained earlier. Technological set up is required to enable computerised billing in villages as well.

Initial set-up funds for the project are jointly borne by DRWSS, the World Bank and by the grassroots beneficiaries. Operations and maintenance for routine expenses and repair thereafter are met using funds collected by the GPWSC from the beneficiaries.

Water tariffs are determined wholly by the GPWSCs in such a manner that the collection covers their operation and maintenance costs, covering the salary of the operators and cashiers, electricity charges for pumping water, and other routine expenses. Besides this expenditure, the GPWSCs have also been able to generate savings under this revenue model.

Image 4: Online portal for accounts and record-keeping

Source: www.gpwsc.in, Department of Rural Water Supply and Sanitation

During the maintenance of finances, separate accounts are drawn for capital and operation and maintenance expenses. An online portal (www.gpwsc.in) has been created for uploading the financial details of participating villages and is now being scaled up to include individual billing as well. This was introduced with the objective of increasing transparency in financial matters and encouraging citizen monitoring of the initiative.

Impact

Uptake of the initiative by an increasing number of villages, increases in revenues and improvements in distribution networks: As of May 2013, 15 villages in four districts were provided 24x7 metered water supply under this initiative. These are Singhpura Sitabgarh, Bhajauli, Dau Majra, Jeouli and Fatehgarh of district Mohali; Chitmali, Paprala, Rasulpur, Railon Khurd, Abhiana Kalan and Abhiana Khurd of district Ropar; Dedran, Manhera Jattan of district Fatehgarh Sahib; and Jatiwal of district Patiala. There has been an increase in monthly revenue collections since the introduction of metered water connections *(Table 1)*. GPWSCs plough the savings back into water and sanitation-related projects in the village as they are not permitted to use these funds for other purposes. The savings are generally used for purchasing backup pumps and generators or to expand the distribution network.

Tele-calling beneficiaries and Shikayat Nivaran Kendras as successful grievance management practices: Out of the 2,110 GPWSCs that were to be contacted in January 2014, 1,750 were successfully called. Of this 1,473 have reported no problems while the remaining are in different stages of resolution with the concerned engineers. The outcomes each month

Table 1: Surplus revenue generated after commissioning 24x7 metered water supply

District	% of connections	Monthly tariff (in Rs.)	Surplus revenue generated (in Rs.)
Mohali (Oct 2009 - Jan 2010)	100	Rs. 60/- flat or Rs. 4 per unit	1,24,859/- (in 5 villages)
Ropar (Oct 2009 - Jan 2010)	100	Rs. 30/- flat or Rs. 5 per unit and Rs. 40/- flat or Rs. 3 per unit	1,32,400/- (in 4 villages)
Fatehgarh Sahib (Sep 2008 - Sep 2009)	100	Rs. 8/- per KL upto initial consumption of 12.5 KL and thereafter Rs. 10/- per KL	47,340/- (in 2 villages)
Patiala (Oct 2009 - Jan 2010)	100	NA	NA

Source: Department of Rural Water Supply and Sanitation, Government of Punjab

vary depending upon the frequency and nature of the complaints faced. Further, the Shikayat Nivaran Kendra has received a total of 35,448 complaints until February 2014. Of this 35,197 have been attended and 211 are pending. Most frequent complaints have been of water supply failure in some specific areas, due to a variety of reasons like leakages in pipelines or mechanical faults in the machinery.

Demand-driven approach helps monitoring: The initiative has also shown qualitative benefits of this demand-driven approach. It includes making timely intervention after identifying the grey areas in the functioning of the scheme, providing third party feedback on the running of the scheme, identifying and rectifying institutional weaknesses such as non-opening of bank account for operation and maintenance expenditure and non-deployment of adequate staff by GPWSC. The data made available through this mechanism has become vital for monitoring and evaluation purposes which would otherwise have been difficult to collect in light of the fact that the maintenance of records is often poor.

Water conservation: It has been observed that users are more conservative in their water usage as it is metered and paid-for according to use, as opposed to the earlier practice of storing large amounts of water which were discarded when fresh supplies arrived. For example, judicious water usage in Singhpura village in Mohali district has reduced the wastage of water from 30% to 8% and reduced consumption of electricity by 20%.

Parity in consumption and payment: The installation of meters has brought about parity in the consumption of water and the amount paid by the user. This has proven especially beneficial for users who consume less amount of water than other members of the community and so do not have to pay a flat rate.

Demand for spread of initiative to new villages: The visible success of the initiative has created a demand for it in non-participating villages as well. For example, while it had taken one year to mobilise the contribution of the community during the pilot stage of the initiative in Paprala village, such mobilisation has now become possible in merely two to three IEC visits in the new participating villages. The leadership and ownership witnessed in implementing the initiative successfully has also been an inspiring factor. Each year, the best performing village receives a monetary reward of Rs. 1.5 lakh. This has helped the winning villages take pride in their collective achievement and it also incentivises the performance of other villages.

People speak...

Balbir Singh, Paprala village

Paprala's success has been largely attributed to the driving force and leadership of a highly respected member of the community - Balbir Singh. He played a lead role in mobilising and uniting the community for starting the project in Paprala village and also introduced stringent measures to tackle problems of defaulting and tampering. Says he: "When we checked the quality of our earlier sources of water, we found that they were of very poor quality. It was then that we decided to work with the World Bank in introducing this project. We faced many difficulties but in the end everyone from small children to old men played a part in bringing this project together. Even those who were not convinced initially finally came on board seeing the success of the model. We make sure that everyone follows the rules strictly - penalties for late payment or defaulting are levied, even if it's a member of the GPWSC."

Key Challenges

In the early stages of the initiative, mobilisation was not an easy task and needed the help of highly proactive members of the community who were willing to take on a leadership role.

The poor maintenance of records has been a major issue in transferring administrative responsibility to the newly-formed GPWSCs. Regular trainings are carried out by ground staff to overcome this issue. HRD specialists check accounts and records in the initial months to ensure that systems are being properly followed.

The GPWSCs have sometimes shown reluctance in collecting statutory taxes such as VAT and sales tax from contractors. Consistent hand holding and pressure is applied through appropriate channels at the district and block levels to ensure that such revenues are collected on time. In the initial stages, people were not receptive to calls for feedback and would sometimes respond rudely. Partial information obtained from such persons

results in repeat calls. However, after persistent attempts in explaining the purpose of the call, this problem has subsided to some extent. Another problem is that although the target of GPWSCs to be contacted daily is just five, the concerned persons are often unreachable or unavailable, necessitating repeat calls.

Replicability and Sustainability

In implementation so far, the social sustainability of the initiative has been high owing to active participation of the community. The success of the initiative in resolving critical water issues has created demand in other villages as well, increasing its potential for replication.

Metering and billing has helped in incentivising conservation of water, thereby, promoting long-term environment sustainability. Depletion of groundwater being a concern in Punjab, water conservation measures are vital in maintaining a better balance. Metering will, therefore, be scaled up to a further 100 village in 2013-14 to encourage this practice.

On the financial front, the revenue model has not only helped keep expenditure in check but has also resulted in savings at the village level. This has reduced government expenditure but, more importantly, it has given village functionaries the financial resources to implement more water-related schemes.

For replication outside the state, it is important to devise a revenue model that adequately covers capital costs and also draws sufficient revenue for operational expenses. Awareness generation and capacity building activities are also important areas of consideration for effective implementation.

Conclusion

DRWSS plans to replicate this model in the remaining 2,000 villages covered under the World Bank project. The community too has been willing to take necessary steps in this direction, including paying for water and handling operations, on the assurance that they will have access to sufficient, good quality water at reasonable rates.

Fact Sheet

Theme	Local Governance
Nodal Implementing Agency	Department of Rural Water Supply and Sanitation, Government of Punjab
Geographical Coverage	4 districts (Mohali, Ropar, Fatehgarh Sahib and Patiala) of Punjab State
Target Groups	Rural population of Punjab
Years of Implementation	2005 - Present

The Department of Rural Water Supply and Sanitation installed water metres and introduced billing in villages of Punjab as part of the initiative on '24x7 Metered Water: Improving water supply in rural areas of Punjab'. The initiative has thus brought about parity in consumption of water and the amount paid for it. In the process, it has helped incentivise conservation of water.

2.28 Entitlement-Based District Planning: Innovating planning process for accuracy and efficiency in Bihar

Entitlement-Based District Planning (EBDP) is a unique initiative that institutionalises decentralised planning at the district level across Bihar through an entitlement-based approach to ensure inter-regional and social equity. EBDP has educated district officials and Panchayati Raj Institution (PRI) representatives on various schemes and statutory provisions they are entitled to and has helped improve the process of monitoring and decision-making while reducing the scope of corruption and leakages besides enhancing public participation. The initiative is an effective model to standardise and disseminate public information and leverage existing resources and infrastructure in a unique way.

Rationale

Planning is a critical component in development policy formulation and implementation. It is a process that can be used to match needs with available resources in a manner than ensures that the most pertinent needs are prioritised for addressal. The sheer size of fiscal flow between the centre and the states, coupled with the multitude of national and state-level schemes and programmes, makes the task of conducting integrated decentralised planning daunting. The planning process has its share of shortcomings, especially as plans are made sector-wise on the basis of estimates, with the previous year's outlays serving as the baseline for the current year's plan. Adding to the challenges of planning are mega projects, such as the national flagship programmes, which detail prescriptions for planning, implementation and monitoring processes, because these projects may not always be in sync with each other.

The 73rd and the 74th Constitutional Amendments necessitate a more decentralised and integrated planning. In response to this changed need, the Planning Commission, Government of India, brought out a comprehensive manual in 2008 on integrated and inclusive planning that needed to be adapted to the local context by State governments in their district planning processes.

The Department of Planning and Development (DoPD), Government of Bihar (GoB), adapted the guidelines of this manual in the form of the EBDP in 2010 to envisage a scientific system of planning that could ensure 'Growth with Justice'. EBDP seeks to curb inter-regional disparity and ensure social equity in planning and implementation of development schemes in Bihar.

Image 1: Meeting at the DPMU office in Vaishali

Objectives

EBDP seeks to achieve many ambitious objectives including formulating a mechanism for applying integrated and inclusive decentralised planning at the district and lower levels. It aims at guiding the district planning process through knowledge of the detailed resource envelope, making it less speculative, decreasing chances of corruption and helping improve implementation of schemes.

EBDP also improves the government's knowledge about resources and their appropriate application, enhances decision-making, improves people's participation and achieves an outcome-oriented planning process. It can also be used as a planning-cum-monitoring tool by stressing on the saturation approach.[1]

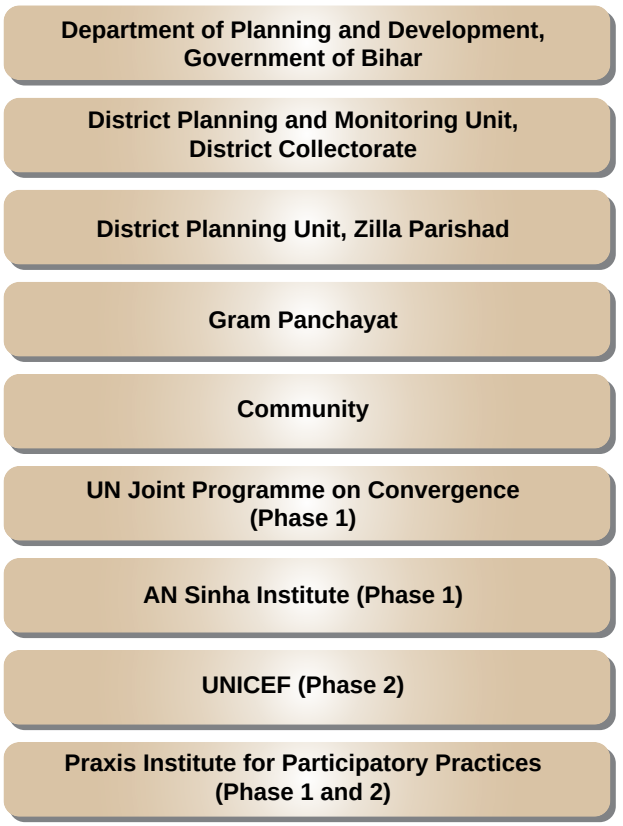
[1] *Saturation approach aims to ensure that the benefits of any government scheme should eventually reach all those who are entitled to those benefits and the gap, if any, should be plugged through this planning process. For instance, if a scholarship scheme is for all scheduled tribes girls who have secured more than 75% marks in Class X examinations, all the students who have fulfilled these criteria should get the benefits of this scholarship.*

Key Stakeholders

The implementation of EBDP in Bihar involves an array of stakeholders beginning with the Department of Planning and Development (DoPD) of the Government of Bihar, and the District Planning and Monitoring Units attached to each District Collectorate, Zilla Parishads, Gram Panchayats and the communities they work for. Advisory roles in implementation of the initiative are performed by the United Nations Joint Programme on Convergence, United Nations Children's Fund (UNICEF), the A N Sinha Institute and the Praxis Institute for Participatory Practices.

The key stakeholders involved in the planning and implementation are listed in the graphic below:

Figure 1: Key stakeholders



Implementation Strategy

The implementation of EBDP began with brainstorming within the DoPD on the manner in which a decentralised and integrated approach to planning could be rolled out in Bihar.

The outcome of this brainstorming was an entitlement approach that could dovetail all existing schemes in terms of well-articulated entitlements and aim at universalisation and saturation of entitlements simultaneously. Further, the initiative would retain its inclusive and decentralised character as plans were to be made from the level of Gram Panchayats.

Accordingly, a circular of district planning was developed, explaining an approach as described in detail in the following paragraphs. This exercise, thus, had the potential for developing a detailed resource envelope for planning at different levels and ensuring the delivery of all entitlements exhaustively.

a. Phase I

The first phase began in 2010 with the prioritisation of entitlements and placing them in an order beginning from one to four – with individual entitlements being given top priority and area entitlements trailing the others. Each level was directed to plan for the schemes being implemented at its level. For instance, Gram Panchayats, blocks and districts were expected to plan for the schemes that they would implement.

With these guidelines in place, the Annual Plan 2011-12 made the district the unit of planning for the first time in Bihar. Accordingly, Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis was done for every sector in the district and further, for the entire district. The results of this analysis informed a two-pronged strategy to take the planning process to the grassroots:

1. Enumeration of annual requirement of funds at all levels based on the entitlement and norms of development schemes through a consultation process and assessing the trend of the expenditure and resource outlay of past years; and,

2. Involving the community in the planning process, facilitating community members to articulate their needs, creating a ratified shelf of projects, and matching the same with the requirement of funds and resources available at all levels.

In the first phase of EBDP, the exercise was highly decentralised, going down to the ward level. Challenges such as the lack of clarity on the meaning of entitlements and lack of data and knowledge of the resource envelope were identified as the reasons for the plan document submitted by the districts looking like a "wish list".

For this reason, the district plans of the first phase could not be converged with the State plan. To overcome this, another phase was started with the help of UNICEF in which templates identifying the entitlements and guidelines for implementation were prepared and circulated to the districts to complete their knowledge gap.

Highlights of the planning process

A Government Circular defined the planning process in three steps:

Mapping all entitlements stemming from various schemes, policies, legislations and government orders and which were meant for different kinds of eligible units - e.g. individuals, households, institutions and areas. In the process, over 3,600 entitlements of different kinds were mapped.

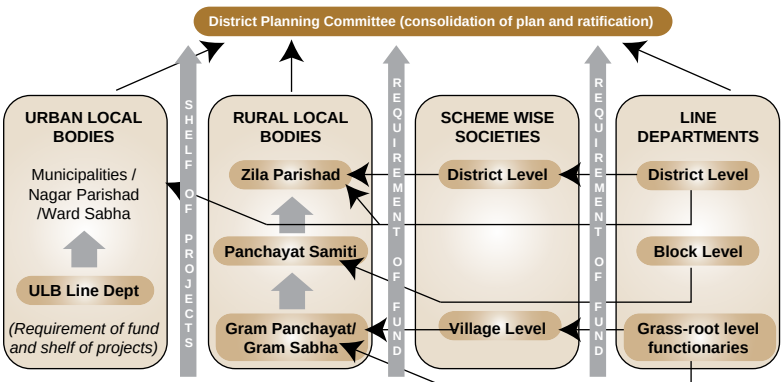
Determining the units eligible for claiming the entitlements at different levels, i.e. Gram Panchayat, block, municipality and district.

Quantification of critical backward linkages, i.e. actual resources/inputs required (human, financial, land, materials, etc.) for delivery of all entitlements. (To function optimally, each PHC must have 2,700 sq. ft. space, nine designated functionaries, adequate material such as medicines, furniture) as per IPHS standards that would come to an annual cost of Rs. 49.9 lakh.

b. Phase II

The first phase of implementation of EBDP highlighted the loopholes that needed to be plugged and this started the second phase of interventions with technical cooperation from UNICEF, in which the DoPD prepared a template enlisting all the entitlements for districts. These formats were sent out to all 39 district headquarters to fill their position against each of these entitlements and report back to the DoPD. The exercise helped the districts to know their entitlements, identify gaps and scientifically quote investments required to saturate these gaps. The district plan for 2014 and 2015 is based on these detailed templates. This planning process, however, does not involve wider community participation as of now, unlike Phase I.

Figure 2: Process flow of EBDP



Source: Department of Planning and Development, GoB.

People speak...

Shiv Shankar Pathak, Sr. Coordinator, Capacity Development, DPMU, Vaishali

"Phase 1 was highly decentralised as we went down to the ward level to make the plan in 2009 but the concept of entitlement was not very clear. This time the use of a format has made the task well-defined."

Phase II of the EBDP initiative was piloted in Vaishali district in 2013 with technical assistance from UNICEF, to arrive at a comprehensive list of entitlements.

This process of the pilot in Vaishali district involved:

1. Consultative meeting to brainstorm about the strategy for implementation of the initiative;
2. Directives sent to District Collector, all district and block level officials and PRI representatives about the action plan;
3. District level workshop organised to distribute guidelines, format templates and explain specific requirements of the EBDP planning process. The need for clear and time-bound filling of formats was explained and the requisite formats were provided to all attendees;
4. Workshops in all 16 blocks of the district explaining the EBDP process and clarifying any misconceptions about the process to the block and Panchayat level representatives;
5. Filling of the entitlement templates at the village level for accuracy;
6. Compilation and computerisation of data collected;
7. Preparation of draft district Plan based on this data; and
8. Approval of the draft district plan by the district planning committee and sent to the State government.

c. Learnings from the pilot

A key point emerging from the pilot was that the initial implementation of the planning process needs more time and so, the process should begin in July. It was also felt that the orientation of PRIs to EBDP should be done more thoroughly by each department at the block level. The learnings from this pilot will be assessed before upscaling EBDP-based district planning to other districts of Bihar.

d. Trainings

Trainings are crucial to the successful implementation of decentralised and integrated planning. For this purpose, guidelines explaining the entire process were developed in Phase II. This phase involved extensive trainings for district and block level officials, as well as for PRI representatives at the block level in Vaishali district.

The upscaling of the process to the State would require effective capacity building of data managers. A pool of human resources to guide stakeholders at various levels is being identified across the State. As District Planning Office has been identified as an important link given its role in anchoring the EBDP initiative, there is a need for proper training of its staff.

Resources Utilised

The EBDP initiative utilises existing human resources and infrastructure of the DoPD, District Collectorates and PRIs. In its first year, the initiative engaged technical resource persons at the rate of Rs. 20,000 per district for all the 39 districts of Bihar. Besides this, an untied fund of Rs. 20,000 for facilitation was provided to all the districts.

In the first phase of preparing EBDP-based district plans, the technical and knowledge resources of the AN Sinha Institute and UN Joint Programme on Convergence were utilised. In the second phase beginning in 2012, UNICEF supported the pilot of EBDP plan process in Vaishali district and contributed to the preparation and publication of guidelines for the districts and process documentation.

Impact

Awareness generation of District and PRI officials: The most significant impact of EBDP was educating district officials and PRI representatives about various schemes and statutory provisions they are entitled to. In Vaishali district, many PRI representatives expressed ignorance about certain schemes and ensuing entitlements at the block level workshops. This process generated detailed knowledge at the district level of their resource envelope and their current status against all the 3,600 mapped entitlements

Identification of gaps and focus areas: The initiative also revealed the gap that needs to be saturated. This enabled targeted allocation of resources based on the need for saturation of gaps. The gaps in schemes and priorities were assessed based on the gaps in existing central schemes and these gaps were saturated by making suitable state-level schemes. For instance, the gaps left in the Prime Minister Gram Sadak Yojna were filled up in the Chief Minister Gram Sadak Yojna. This knowledge resource brought forth stipulated implications that could guide perspective policy planning as it prepared a comprehensive database for the entire state. At the same time, a number of conflicting policy guidelines and norms were also identified in the process, bringing to focus the need for re-assessment of policies and norms. EBDP also highlighted those needs that are not covered under the existing set of entitlements, creating the opportunity to prepare perspective plans for a long term and determine the appropriate use of untied fund for districts and lower levels of administration.

Key Challenges

The process of EBDP illuminated the shortcomings of the previous system of planning, but faced its own share of challenges.

District planning was supposed to be based on local resources. However, district level officials had no idea of available funds or resources due to lack of information on the resource envelope meant for the district and lower levels. By Phase II, an exhaustive template for entitlements was prepared to overcome this challenge.

There was no clarity about what constituted entitlement and this hindered the process. This resulted in preparation of wish lists that did not match resources, so the initial phase of planning came to naught. For instance, in Vaishali district, a village wished for an airplane factory to be opened in the village. Dovetailing this plan into the state plan became difficult. In Phase II in Vaishali, this was overcome by organising workshops and using a detailed template mapping entitlement.

This planning exercise was new to officials, and hence, the first phase of the consultative process with people turned out to be shallow rather than planning based on entitlements. In Phase II, a scientific approach to involving the community was developed and piloted.

Many existing schemes were not framed in the language of entitlements. Schemes of the nature of discretionary

sanctions, lump-sum transfers and pilots have been initiated in a limited number of places. Incorporating such schemes in the map of entitlements was difficult.

Lack of standardised rates and material-use policies for various constructions made it difficult to generate aggregated projections of the requirement of various kinds of building materials.

Conflicting policy norms made it difficult to assess entitlements. For instance, while the Sarva Shiksha Abhiyan suggests a primary school every km, the Right of Children to Free and Compulsory Education (RTE) Act, 2009, says there should be one teacher for every 30 students. By the standards of the RTE Act, Sarva Shiksha Abhiyan will have to be updated. Such contradictions posed difficulties in assessing entitlements.

Replicability and Sustainability

The EBDP initiative encourages the existing machinery of the State government to engage with planning, using a different mechanism and yardsticks. It is primarily process re-engineering that dovetails all the grassroots and district-level plans into an overarching state plan. After the initial effort put in defining entitlements and mapping them, the process has evolved as a routine practice, which is sustained through the regular institutional structures engaged in planning. Hence this innovative practice is highly sustainable. Also, steps are being initiated to digitise data related to populations and entitlements for computer-based tracking of entitlements. This requires dedicated data-support functionaries called Accredited Statistical Volunteers, who are being recruited on contract to assist in data collection at various levels from time to time. Such a move will go a long way in implanting the entitlement-based approach within the local planning process. Village registers containing data on eligibility and uptake of various entitlements are also being developed for use by local stakeholders. In addition, a one-point internet-based pool of disaggregated data on the claims and gaps in uptake of entitlements is being planned for use by planning entities at all levels.

The federal structure of India is such that the entitlements emerging from central level schemes and constitutional obligations remain similar for the entire country with some additions or deletions as a result of State-level policies. Therefore, the format of entitlements largely be applied across the country. The forward and backward linkages emerging from EBDP-based plans, if applied across all states could be converged at the national level, to generate precise data that could significantly improve development policy planning, monitoring and implementation.

Conclusion

EBDP is a path-breaking initiative with the potential to redefine development policy planning and implementation in the country. It has the potential to liberate the planning process from the current speculative method and place it on a scientific plane. Within a short span of three years, EBDP has brought to light various gaps in planning and highlighted the effect that these gaps have on increasing inter-sectoral and inter-regional disparity. By bringing in the concept of entitlements in development planning, it makes service-provision mandatory. A path-breaking initiative, EBDP is evolving with each phase.

Fact Sheet

Theme	Local Governance
Nodal Implementing Agency	Department of Planning and Development, Government of Bihar
Geographical Coverage	All districts of Bihar State
Target Groups	Citizens of Bihar
Years of Implementation	2010 - Present

SOCIAL SECURITY

2.29 Aam Aadmi Bima Yojna: Life insurance for rural landless labourers in Andhra Pradesh*

Aam Aadmi Bima Yojana (AABY) is a group insurance scheme for the benefit of rural landless agricultural labourers implemented by the Society for Elimination of Rural Poverty (SERP) at the state level and 'Zilla Samakhya' at the district level in Andhra Pradesh. The scheme extends benefits for life insurance as well as coverage of partial and permanent disability to a designated family member. Scholarships are also awarded to two children in the family of a disabled/deceased insurance holder, who are between grades 9 and 12. As of 2014, a total of 38 lakh rural landless agricultural labourers in Andhra Pradesh are covered under the scheme.

Rationale

In October 2007, the Government of India introduced a life insurance scheme – the Aam Aadmi Bima Yojana – for the poorest of the poor, particularly rural landless agricultural labourers, so that their bereaved families have financial resources and support to fall back on in the event of their untimely death or any other disability-causing mishap. Both, the Central and State governments contribute to the premium to be paid on the insurance policy, and have partnered with the Life Insurance Corporation of India (LIC) to issue bonds to beneficiaries.

Since this scheme was launched, the state of Andhra Pradesh has excelled in its implementation and performance. As early as 2005, before the introduction of AABY, a few scattered districts such as Chittoor and Vizianagram had introduced their own versions of insurance schemes for rural landless labourers in partnership with the LIC.

Image 1: (From left) APM, DPM and members of Mandal Samakhya (in blue) at Medak District, Andhra Pradesh

The claim settlement rates in certain districts were not very high and the process followed was mostly manual. In Chittoor, however, a high rate of success was noted owing to the robust monitoring system in place. Hence, when the AABY was first launched in Andhra Pradesh in March 2008, it was decided to adopt the successful Chittoor model statewide.

The Government of Andhra Pradesh has placed AABY under the umbrella framework of the Indira Jeevitha Bima Pathakam (IJBP) which includes 80 lakh beneficiaries under various insurance schemes for rural landless labourers such as Abhaya Hastham (pension and insurance scheme for SHG women) and cattle loan insurance.

Objectives

The primary objective of this scheme is to support families of rural landless agricultural labourers in the event of their death or disability. This includes monetary support, and also scholarships for children in the family. In the case of Andhra Pradesh, there is an emphasis on ensuring that the initiative is implemented and carried forward successfully by the community through the community based organisations (CBO) model.

Key Stakeholders

The nodal agency for overall facilitation, monitoring and evaluation at the state level is the Society for Elimination of Rural Poverty (SERP), an autonomous body under the Department of Rural Development chaired by the Chief Minister of Andhra Pradesh. The Zilla Samakhya is the nodal agency at the district level.

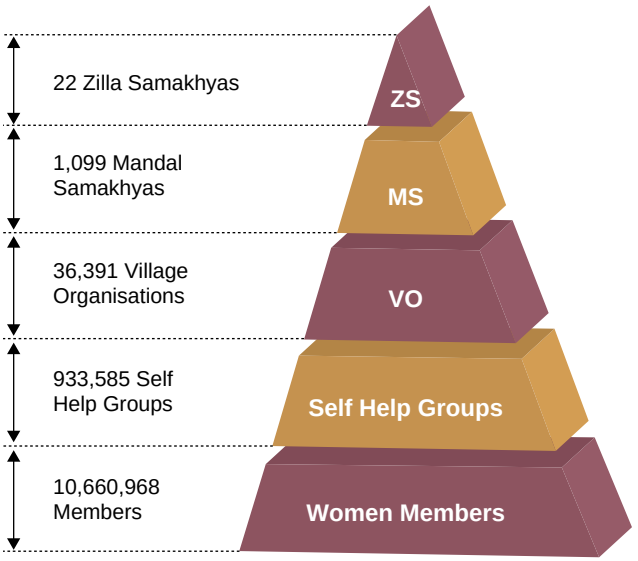
** The field work for this case study was conducted in Andhra Pradesh before the state of Telengana was carved out of it in June 2014.*

The LIC processes the insurance claims and payments for the cases submitted.

The implementation from the grassroots level and upwards is carried out entirely by a structure of CBOs *(Figure 1)* wherein one SHG has approximately 10-12 members, and 10-20 SHGs form one Village Organisation at the Panchayat level.

These voluntary organisations form the Mandal Samakhya at the block level and, finally, members of the Mandal Samakhya form the Zilla Samakhya (including District Project Managers and Assistant Project Managers) at the district level. Finally, the most important stakeholders are the beneficiaries – rural landless labourers and their families.

Figure 1: Key implementing stakeholders under the CBO model



Source: Social Security Unit, Society for Elimination of Rural Poverty

Implementation Strategy

The eligibility criteria for enrolling beneficiaries and the benefits accrued under AABY are described in *Table 1*. The add-on benefit in this insurance scheme is the scholarship awarded to a maximum of two children from the beneficiary's family for the years when s/he is studying in the 9th to 12th standards.

a. Process

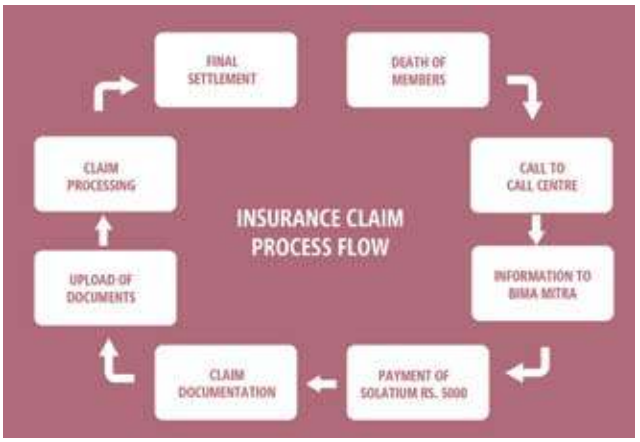
The overall process in obtaining the insurance claim takes approximately 30-36 days and involves a few steps detailed in *Figure 2*.

Table 1: Eligibility and benefits under AABY in Andhra Pradesh

Eligibility criteria	Rural landless households
Age Group	18-59 years
Premium	Rs. 320/- per member. 50% by Central government and remaining 50% by State government
Nodal Agency	State government
	Benefits
Natural Death	Rs. 30,000/-
Accidental Death	Rs. 75,000/-
Total Permanent Disability	Rs. 75,000/- (loss of two eyes or two limbs or loss of one eye and one limb in an accident)
Partial Permanent Disability	Rs. 37,500/- (loss of one eye or one limb in an accident)
Scholarships	Two children of the beneficiary studying in 9th to 12th standard will get Rs. 300/- per quarter per child

Source: Society for Elimination of Rural Poverty website

Figure 2: Process flow of insurance claim under AABY in Andhra Pradesh



Source: Social Security Unit, Society for Elimination of Rural Poverty

Upon the death or disability of the beneficiary, a call must be placed to the call centre within 24 hours (a non-negotiable requirement). The toll free number of the district insurance call centre is given at the back of every policy bond.

The operators at the call centre will do a preliminary verification of the beneficiary's documents on record – name, age, nominee's name and corresponding details

on the policy bond. The operator then contacts the Bima Mitra of the particular mandal so that he/she can proceed to the beneficiary's house.

The Bima Mitra will withdraw a solatium of Rs. 5,000 from a nearby ATM. She visits the house of the claimant (along with a member of the Village Organisation, where necessary) and confirms the cause of mishap. If the cause is suicide or murder, the family will not be eligible for the claim. She will collect the policy documents from the family member, verify them and then hand over the solatium to the nominee.

Within the next seven days, the Bima Mitra must procure the remaining documents – Death certificate, FIR (in case of accidental death), post-mortem report or medical reports in the case of disability and upload it to the portal at the Mandal Samakhya level.

Image 2: Copy of an LIC policy bond

The call centre will verify the documents online and, if found satisfactory, will pass it on to the LIC. If not, it will revert to the Bima Mitra. The LIC office downloads these documents on a daily basis to process these for verification. If all the documents are satisfactory, LIC reverts in approximately four days and uploads the voucher details on the website.

LIC transfers the claim amount to SERP which is then transferred to the concerned nominee's bank account or post office account directly via eFMS. In case the beneficiary does not have a bank account, the money is transferred to the Zilla Samakhya and then a bearer cheque is issued through mandal/village level officials.

b. Grievances

There is an offline redressal system in case of grievances, enquiries, or any other concerns, using which beneficiaries can approach members of the Mandal Samakhya (MS). If it cannot be resolved at the MS level, it will be forwarded to the District Project Manager (DPM). The DPM is authorised to change details on the policy bonds except the policy holder's name. In cases where the DPM cannot take action, a written application will be sent to the Project Director and thereafter to the CEO. A beneficiary is also entitled to make changes to policy details (except policy holder's name) at the time of renewal of the policy each year.

c. Awareness generation and capacity building

Awareness at the grassroots level is important for new entrants and importantly, also, for the existing beneficiaries, who sometimes are not willing to pay the Rs. 15 service charge. Large-scale awareness campaigns were conducted through flyers and door-to-door campaigns by Bima Mitras.

The role of a Bima Mitra

The Bima Mitra – a key implementing agent at the mandal level

- A Bima Mitra is selected from among the SHGs and is given charge of all beneficiaries under Indira Jeevitha Bima Pathakam in the mandal. This therefore includes the AABY.
- They are trained by the DPM on how to approach the bereaved family, what must be said, which documents should be verified and collected, and the procedure to be followed thereafter.
- Bima Mitras are given incentives for every claim submitted. She receives Rs. 700 per claim if documents are uploaded within 7 days and if bank nominee details are sent within 15 days,or Rs. 150 otherwise. The incentive system, thus, helps in handling cases speedily and efficiently.
- Every Bima Mitra is given an account with an ATM card and will have a minimum balance of Rs. 10,000 at any given time, so the solatium can be paid to the family in short notice.
- Every month, the performance of the Bima Mitra will be reviewed by the DPM. They will review the time taken for uploading documents, the percentage of claims uploaded and the percentage of claims paid.

Mandal level meetings have also been used as a platform for disseminating information on insurance schemes like AABY and roping in new registrations. Stickers and posters have been used for advertising the toll free numbers of district insurance call centres. Capacity building sessions are conducted through a chain that starts at the State level in the first instance, and then proceeds down to the district, mandal and other levels.

Resources Utilised

The monitoring and evaluation of the scheme is done by authorities who fall under the wider framework of Indira Jeevitha Bima Pathakam (IJBP). Under this framework, the insurance call centres and associated personnel in each district are being used to serve all insurance schemes of the IJBP. Also, since all the insurance schemes including AABY use the CBO model for implementation, they do not require any additional human resources other than the existing pool.

There are two main technological components in AABY – a web portal and SMS alerts system. User-defined login access has been given to officials from the State to the mandal level and to LIC. Most of the data entry is done by the Mandal Samakhya and the district insurance call centre at the time of registration, renewal, and in case of death of a beneficiary.

In 2013-14, mobile applications have also been introduced to support the web portal's format. SMS alerts will be sent immediately to the nominee and the Assistant Project Manager (APM) of the mandal, if a claim is raised by officials at the state or district call centre. When documents are not submitted within a period of seven days, reminder SMS alerts will also be sent to the nominee.

The State and Central government have set aside funds and partnered with LIC for the payment of insurance premiums on each policy. The Government of Andhra Pradesh pays 50%, i.e. Rs. 160 and the remaining amount is paid by the Central government.

Expenditures for maintenance, repair and operations are entirely managed and funded by the community. It has been observed that the service charge of Rs. 15 per beneficiary has been sufficient in covering these costs and, so far, has not fallen short in any district in Andhra Pradesh. The income and expenditure account of Medak district *(Image 3)* showcases the adequacy of funds in running the operations of AABY and other insurance schemes.

Impact

Wide coverage and high performance: The programme has a wide coverage as a total of 38 lakh rural landless agricultural labourers are covered under the scheme as of 2014. Even as early as 2010-11, 33% of the total beneficiaries in the country were from Andhra Pradesh and had a high performance rate of 84.96% claims settled as opposed to 15.03% in the rest of the country. Data from 2012-13 shows further improvement in Andhra Pradesh, as the claim settlement rate rose to 58%, while the rate for the rest of India was 42%. Also, the total number of scholarships sanctioned in Andhra Pradesh in the year 2012-13 was 10,253 in Phase I and 30,248 in Phase II. In terms of reaching marginalised communities, data from 2011-12 demonstrates that while 39% and 9% of the

ZILLA SAMAKYA(INSURANCE), MEDAK
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31-03-2013

EXPENDITURE	AMOUNT Rs.	INCOME	AMOUNT Rs.
Salaries	477,000	AABY - Service charges	1,730,641
Office Maintenance	26,814	ABH - Service Charges	2,829,786
Telephone Expenses	90,683	JBY- 2012-13 Service Charges	335,719
Repairs & maintenance	12,300	Bank Interest	940,878
Printing & Stationery	585,358	Cattle Insurance	528,473
Food Expenses	33,394		
ZS & MS Subcommittee TA DA	190,398		
Bhima Mitra TA, DA	857,161		
Bank Charges	44,469		
Vet team Budget TO MS	363,760		
Excess of Income over Expenditure	3,684,160		
Total	**6,365,497**	**Total**	**6,365,497**

Image 3: Income and expenditure account of Medak district, 2013

Source: Society for Elimination of Rural Poverty, Andhra Pradesh

beneficiaries in Andhra Pradesh were from Scheduled Castes and Scheduled Tribes respectively, 39% were from the Backward Classes.

Reduction of reporting time: The scheme also saw increased efficiency in reporting. In 2008, only 60% of the deaths were reported on the same day, whereas in 2014, approximately 92% deaths are reported within 24 hours since that has been made a non-negotiable requirement. A lag at this stage would, in turn, delay the entire process cycle but now it has been optimised by ensuring that beneficiaries respond at the earliest.

Reduction of time taken for claim settlement: The programme has also witnessed increased efficiency in claim settlements. Earlier, the settlement process would take up to three months in some cases. This has now been brought down to 30-36 days. Direct account transfers of claim amounts have also been initiated so that there is no delay in the money reaching the beneficiary and to prevent misuse of funds. In January 2013, a social audit of insurance claims and scholarships was conducted which revealed fraud and misuse of funds and hence, steps have been taken to eradicate this along with raising efficiency in processing.

Key Challenges

Maintaining good quality of data at the mandal level is one of the foremost challenges. The digitisation of data at the block and village level has been problematic as mistakes in data entry are frequent. Steps are being taken to ensure that adequately qualified and experienced people are hired for these posts in a bid to ensure better quality.

The prevalence of superstitions is also a stumbling block. At the time of enrolment and renewal, a common superstition is that if a beneficiary enrolls, s/he will die. Bima Mitras and other village members have been actively creating awareness on the benefits of the scheme to dispel this belief.

Inability to pay solatium in the case of delays is also a significant challenge. A time limit of 12 days from death of the policy holder has been set for receiving the solatium of Rs. 5,000. Where cases are not reported in time, the Bima Mitra will be unable to pay this amount for the funeral expenditure to be incurred by the family.

The poor quality of claim documents also hinders the process. Problems are faced, mostly in accidental deaths, where the death certificate, post-mortem report and other such documents are not signed by the appropriate authorities or the signatures are not appropriately placed on the document. Delays are still common in interior areas where officials are not easily available for obtaining signatures on the documents. The Bima Mitras or members of the Mandal Samakhya accompany the family to speed up the process.

Retention of Bima Mitras is also major concern. A Bima Mitra earns approximately Rs. 2,000-5,000 per month on an incentive basis. But in some cases, where the number of deaths is low, the Bima Mitra does not receive sufficient income. Thus they may look for job opportunities with better financial rewards. To counter this, SERP is planning to train Bima Mitras to be insurance agents through LIC or United India Assurance, so that they have a higher income.

The Direct Benefit Transfer (DBT) scheme does not work very well in this case as several beneficiaries do not have bank accounts. The fund flow process has now been changed to the DBT system to prevent the misuse of funds and delays in the claim amount reaching the family. However, only 42% of the beneficiaries have active bank accounts, and so the earlier fund flow system will have to be followed until there is 100% coverage under the banking system.

Replicability and Sustainability

One of the success factors in the Andhra Pradesh model of the AABY is the active participation of CBOs, ensuring delivery of the scheme's services by the community itself. This factor not only strengthens the social sustainability quotient of the scheme but is also a requirement for successful replication in other states.

People speak...

Anita, Bima Mitra, Sangareddy mandal, Medak

Anita has been the Bima Mitra of Sangareddy mandal in Medak district for the past five years. She earns Rs. 2,500 on average, per month, and has cleared a total of 126 claims so far. In her mandal, she has observed that a majority of the deceased beneficiaries are male agricultural labourers and that the death rate is high among AABY as compared to other schemes, owing to age. There have been no false claimants but she has had to reject claims in suicide related cases.

For replication, implementation, monitoring and evaluation of the scheme, it should be complemented with a strong IT architecture to ensure transparency and efficiency. Processes facilitated through the web-based application in Andhra Pradesh are:

1. Online registration and renewal of claims
2. Database of information on each beneficiary
3. Uploading documents such as Death Certificate and FIR, after the death of the beneficiary
4. Online settlement of final claim
5. Online transfer of claim amount via eFMS

Financially, as discussed above, nominal service charges are proving sufficient for operationalising and maintaining the scheme at the mandal and village levels. Periodic accounts review by the State machinery also helps in tightening this process and making it more sustainable. To enhance the benefits of the scheme, SERP is planning to introduce a new programme called Insurance Plus. The programme is meant to provide more comprehensive support to the bereaved family by, for example, ensuring that the widow pension is transferred on time, or by accommodating children in hostels so that they can continue their studies.

Conclusion

The success of the AABY in Andhra Pradesh provides a replicable model to provide insurance to rural landless labourers for implementation in all other states and UTs in the country. A large part of this success is owed to the community that has come forward to take ownership and facilitate disbursement of the benefits accrued to them.

Fact Sheet

Theme	**Social Security**
Nodal Implementing Agency	**Society of Elimination of Rural Poverty, Government of Andhra Pradesh, and Zilla Samakhya**
Geographical Coverage	**All districts of Andhra Pradesh State**
Target Groups	**Rural landless agricultural labourers and their families**
Years of Implementation	**2008 - Present**

2.30 *Daliya Jalao*: Liberating and rehabilitating manual scavengers in Badaun district of Uttar Pradesh

The Daliya Jalao *(literally meaning 'burn the basket') initiative sought to eliminate manual scavenging in Badaun district, Uttar Pradesh, through a mission mode approach, generating a high impact within a short period of time. Under the initiative 2,750 manual scavengers were liberated within a year and the initiative has had a profound impact on health indices with no fresh cases of polio reported since 2010. The initiative also took proactive steps to rehabilitate manual scavengers through existing government schemes such as pension schemes, special scholarships for children, rural housing schemes, loans and skill upgradation training. It has sustained itself on the willingness of the community of manual scavengers to organise themselves and eliminate manual scavenging.*

Rationale

The continuing practice of manual scavenging that involves cleaning of dry toilets and carrying/transporting the night-soil as head-load, primarily by women of certain Dalit communities, has remained a blot on India's development story. This practice has continued despite promulgation of prohibitive legislations and court rulings such as the Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993, which was followed by a Supreme Court ruling in 2003 (Public Interest Litigation Writ Petition (Civil) No. 583/2003 – Safai Karamchari Andolan and 14 other organisations vs. Union of India and others).

The tradition of manual scavenging seems far from over if we look at the figures of Census 2011 as there are around 7,50,000 families in India that still work as manual scavengers. The inability to curb this dehumanizing practice led to the passing of a more stringent law – The Prohibition of Employment as Manual Scavenger and Their Rehabilitation Act, 2013. This Act is more comprehensive as it prohibits employment as manual scavenger by prescribing stringent punishment, including imprisonment up to five years, and provides for rehabilitation of manual scavengers and their families.

According to a survey report of the Ministry of Social Justice and Empowerment, the latest figures of total manual scavengers and their dependents are 7,70,338 of which 3,42,468 are still to receive any kind of assistance for their rehabilitation. In this context, an initiative that has converted almost 80,000 dry latrines into pour flush latrines and successfully freed 2,750 manual scavengers and their families for rehabilitation is significant.

The *Daliya Jalao* initiative was a result of the combined efforts of the District Magistrate and the district administration of Badaun, with the support of the local community, to permanently mitigate the menace of dry toilets, practice of manual scavenging and unhygienic lifestyles in July 2010. It emerged because issues of hygiene and health had been brought to the foreground

Image 1: Prevalence of manual scavenging in Badaun, 2010

Source: District Administration Badaun, 2014

in 2009, highlighting the district's Infant Mortality Rate of 110 (highest in the state) and the frequent outbreaks of epidemics such as diarrhoea, dysentery, intestinal worms and typhoid. In 2009, the district also reported highest cases of wild polio viruses in India, leading to World Health Organization (WHO) and United Nations Children's Fund (UNICEF) declaring 16 out of 18 blocks of Badaun district as high risk blocks for polio. Efforts to identify the causes of this menace pointed to existence of dry toilets in alarmingly high numbers. The introspection within the district administration down to the village level led to the genesis of the *Daliya Jalao* initiative.

Objectives

The main objective of *Daliya Jalao* was to liberate manual scavengers from their degrading work of scavenging and their family members from the age-old stigma and discrimination. The programme also aims at rehabilitating them economically, socially and psychologically. It is also engaged in the task of converting all the dry toilets into pour flush toilets and achieve better sanitation, leading to the improved health indices in the district.

Key Stakeholders

The implementation of the programme is being led by local Panchayati Raj representatives, the District Magistrate and village level workers from various government departments with the support of the Rashtriya Balmiki Jan Vikas Manch and local print media. The beneficiaries involved in the programme are manual scavengers and dry toilet users.

Figure 1: Key stakeholders

Beneficiaries

- Manual scavengers
- Dry toilet users

Government Departments

- Panchayati Raj representatives
- District Administration
- Village level workers of various government departments

Other Supporting Organisations

- Rashtriya Balmiki Jan Vikas Manch (Balmiki Sena)
- Local print media

Implementation Strategy

This initiative was a result of the efforts of a proactive district administration trying to grapple with the issues of health. Since any progress on the health indices requires a focus on sanitation involving elimination of the traditional system of dry latrines, the situation called for convergence of efforts to address factors reinforcing manual scavenging. Addressing the issue of manual scavenging is complex, as it necessarily involves addressing issues of caste and gender, health and occupation, human dignity and freedom, and human rights and social justice.

In July 2010, after consensus within the district administration, a multi-pronged implementation strategy was devised to encourage home owners to convert dry toilets into pour flush toilets. Steps were also taken to encourage manual scavengers to give up cleaning of dry toilets. The idea was to target the demand and supply for manual scavenging, so that the cyclic pattern of reinforcement was destroyed. Since the entire district administration needed to be sensitised before any action on ground could be taken, rounds of meetings and trainings were organised. These meetings involved district, tehsil, block and village level workers from health, education and social welfare among other departments in the district.

Joint meetings were held amongst all the district level officials and nodal officers to coordinate work in the chosen blocks. These officials, in turn, trained the block and village level workers so that a comprehensive team was built to carry out the actual implementation.

The effectiveness of this exercise can be gauged from the fact that within a span of three months, around 566 manual scavenging families were liberated from this work and rehabilitated, and around 14,000 dry latrines were converted into pour flush ones and 51 villages that were chosen in the first phase of the initiative achieved total sanitation status.

Image 2: A manual scavenger in Badaun

Source: District Administration, Badaun

a. Awareness generation

The targeted behaviour change required intense engagement with the community and a well-planned Information, Education and Communication (IEC) campaign. A multi-pronged approach was devised for the purpose. The government functionaries at various levels were inspired to become role models by converting dry latrines in their own homes into pour flush ones. During the campaign, approximately 7,000 government functionaries converted their toilets from dry into pour flush ones. The engagement with the community was intense – beginning with sanitation campaigns which explained the ill effects of unhygienic disposal of human faeces on health, awareness was also generated through health camps, rallies, cleaning drives and wall writings.

As many as 500 village meetings were conducted by the District Magistrate and other government officials to underscore the link between health, hygiene and sanitation.

b. Liberation and rehabilitation of the Balmiki community

Simultaneously, efforts were made to rope in the energies of the leaders within the Balmiki community that was primarily engaged in cleaning dry toilets in Badaun, to motivate their members to give up the practice. Awareness of the community was generated through IEC campaigns, especially through the poster making event called *Naya Savera*, meaning new dawn, signifying a new beginning of hope. To motivate them, trainings in masonry were also organised so that they could be the agents for their own upliftment by dismantling the dry latrines and constructing the pour-flush ones instead. This also built their skills, giving

Figure 2: Team formation for leading *Daliya Jalao* initiative

Source: District Administration, Badaun

Image 3: Awareness generation in villages

Source: District Administration, Badaun

them the confidence to give up their hereditary profession for another means of livelihood. People and families giving up the traditional occupation of manual scavenging were also prioritised for receiving various government scheme benefits such as those accruing from below poverty line and Antodaya Cards, pension schemes, scholarships, loans, Mahatama Gandhi National Rural Employment Guarantee Scheme (MGNREGS) job cards etc. Efforts were made to create avenues to sustainably assimilate the community in the mainstream and end the years of discrimination that they had faced.

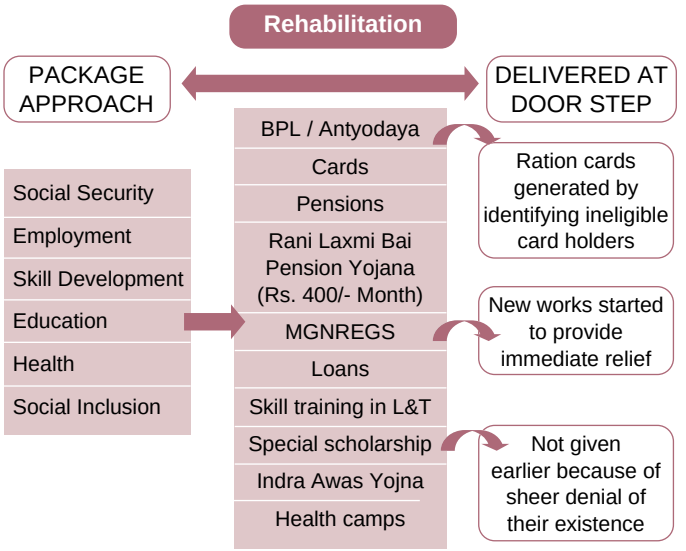
Most rehabilitation schemes were also aimed at ensuring that discrimination is checked. Most significantly, children from the Balmiki community were enrolled in schools with a special scholarship of Rs. 1,850, and were served mid-day meals alongside other children. A scheme providing loans for buffaloes to the community ensured that the milk produced gets access into the market through government dairies. Similarly, working alongside other MGNREGS workers placed the Balmikis on the same platform as any other community.

Hence, rehabilitation was not only about providing livelihood or just income generating opportunities, but it also had social rehabilitative features. In a symbolic manifestation of liberation from scavenging, a celebration was organised in villages by collective burning of the *daliyas* or the woven baskets that were used to carry night soil; hence the nomenclature, *Daliya Jalao*.

c. Trainings provided at the district level

District teams comprising heads of various departments were introduced to the intensity of the problem of manual scavenging and its negative impacts. At the village level, recognition of the issue as a problem was difficult due to high acceptance of the practice, but this was critical to the success of the initiative. After the

Figure 3: Rehabilitation scheme



Source: District Administration, Badaun

initial sensitisation of district level officers of various departments, a follow up was done through series of educational and motivational trainings by the District Magistrate along with medical doctors and senior officials from the district. In the implementation phase, review meetings and discussions were used as on the job training and motivation. IEC strategies for sensitisation, and completion of conversion from dry latrines to flush latrines on a mission mode became the prime modus operandi.

d. Monitoring and review

The district administration ensured that daily reports of the progress made were reported through email or telephone. Regular meetings were also conducted with the district and block level officials to review progress periodically and meet the challenges that arose during implementation. Extensive visits to the sites of implementation, meetings with people's representatives and media operated as a mechanism to obtain people's feedback on the initiative.

Resources Utilised

There were no earmarked funds for this particular initiative. The funds of Total Sanitation Campaign (TSC) were used for IEC activities and also as subsidy to those who converted their dry toilets to pour flush ones. The scheme utilised the district's planned budget for the campaign. In doing so, it converged activities of the various government departments for concerted action towards achieving total sanitation and better health.

Impact

Conversion of dry toilets into pour flush toilets: The initiative was implemented in a mission mode that generated a high impact within a short period of time. Within a year from the start of implementation, 50,000 dry toilets in 535 villages were converted into pour-flush ones. Another 20,000 dry toilets in the urban households of the district were also converted by July 2011.

Liberation of manual scavengers: The initiative liberated 2,750 manual scavengers in Badaun from dehumanising work by July 2011. The main reason behind this achievement was that community leaders took upon themselves the task of convincing manual scavengers to give up scavenging and a collective decision was taken by the community to this effect.

Improvement in health: The initiative has had a profound impact on the health indices, evidenced mainly by the fact that there was no fresh case of polio since 2010 in contrast to 52 wild polio-virus cases reported during the previous year, 2009. The numbers of sick children recorded in pulse polio rounds also came down from 155 cases in April 2010 to 95 in May 2011. There was also a steady decline in the incidence of diarrhoea as the number of cases decreased from 18,216 in 2009-10 to 12,675 in 2010-11.

People speak...

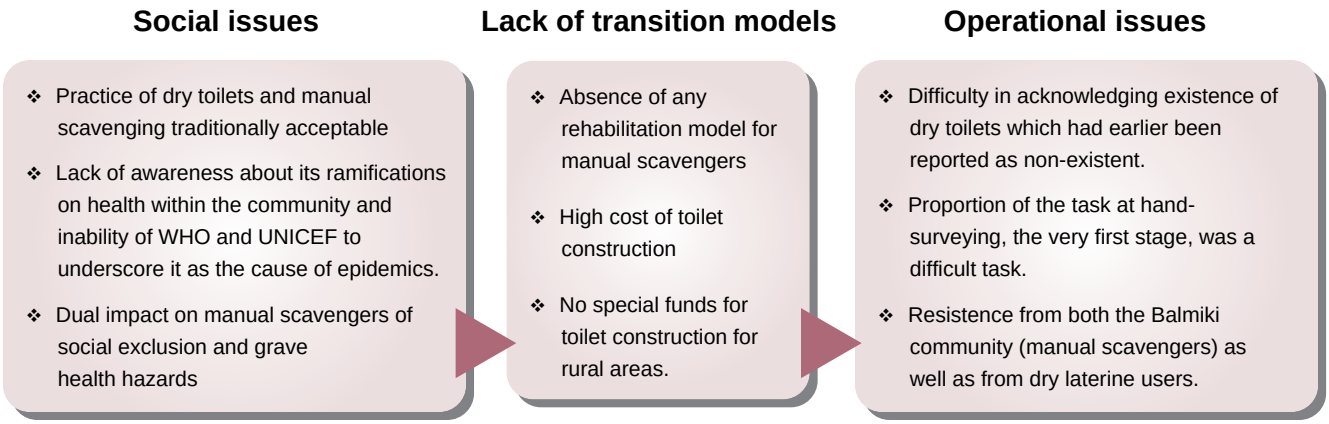
Kalicharan Balmiki, Badaun, leader of the community

"The change of profession helped us in freeing ourselves from (social) discrimination, (physical) illness and malnutrition aspects. But we still suffer from economic hardships as the rehabilitation could not fully cover the loss of income that we suffered. But our future generations are saved from the despised work we were forced to do for generations."

Bittan, Sheikhupur village, Badaun

"We used to work because of the traditional constraints. We could not say no to this despicable work. People from the village would force us to do this work. Now, we shall never pick up the daliya again."

Figure 4: Key challenges in Badaun



Source: OneWorld Foundation India, 2014

Key Challenges

Manual scavenging was a traditionally accepted practice and any attempt to eliminate it was a very challenging task. It presented multifarious challenges in terms of social acceptance and inclusion, financial implications in rehabilitation as well as implementation of the initiative and functional difficulties in implementing this initiative in mission mode. The details of these challenges have been elaborated in *Figure 4*.

Replicability and Sustainability

The Prohibition of Employment as Manual Scavenger and Their Rehabilitation Act, 2013, prohibits employment as manual scavengers, and makes it mandatory for the district administration to ensure that the law is enforced. *Daliya Jalao* presents a workable and effective strategy for implementing this Act. Hence, this strategy will remain critical until manual scavenging and dry toilets exist. It is highly replicable as after its success in Badaun, it has been replicated in 15 other districts in western Uttar Pradesh, home to the culture of dry toilets and manual scavenging. The most critical factors while implementing this strategy are community taking ownership of the project and comprehensive rehabilitation plan for the manual scavenging community, covering not just financial, but also social rehabilitation.

Conclusion

The 2011 Census threw up shocking data that demonstrated the limitations of earlier endeavours in eradicating manual scavenging. The strategy of *Daliya Jalao* placed the onus of action on the district administration of Badaun, making the task attainable by allowing contextual flexibility. The participatory approach and IEC campaigns ensured that all sections of society realised they have an equal stake in ending this practice as they all benefited from it, and this contributes to the sustainability of the initiative.

This comprehensive approach that involves, health, education and sanitation, leads to an overall impact that goes much beyond sanitation. The sustained impact of this initiative that was started in 2010, till the time of this documentation in 2014, is evidence that effective participatory strategies can ensure mitigation of the historically dehumanising practice of manual scavenging.

Fact Sheet

Theme	Social Security
Nodal Implementing Agency	District Administration, Badaun district
Geographical Coverage	Badaun district of Uttar Pradesh State
Target Groups	Manual scavengers and dry toilet users
Years of Implementation	2010-2012 (Rehabilitation component is ongoing)

A beneficiary of the Tripura government's initiative on 'Forest Rights Act, 2006: Distributing land deeds to tribal people in Tripura' displays his patta document.

2.31 Forest Rights Act, 2006: Distributing land deeds to tribal people in Tripura

Tripura holds the highest record of land deeds distributed under the Forest Rights Act in the country. Over 1.91 lakh claims were received from forest dwelling families and of these, over 1.24 lakh families have been benefitted with land ownership due to the successful implementation of the Forest Rights Act, 2006, in the state. The Tribal Welfare Department has now taken this to the next level, and converged a multitude of economic schemes with other departments for the benefit of all patta holders. This has been accompanied by impressive economic benefits with thousands of tribal families benefiting from fisheries, horticulture etc.

Rationale

During British colonial rule in India, all forested areas in the country, which at the time was one-fourth the land surface, was brought under direct control of the state under the Indian Forest Act. The vast number of communities whose social and economic lives were intimately linked to the forest were deprived of their right to continue peacefully, leading to grave injustice. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (hereinafter referred to as Forest Rights Act or FRA) was, therefore, promulgated with the objective of granting the tribal population of the country legal rights to forest land that they inhabit. Under the provisions of the FRA, the official land deeds or pattas are handed over to eligible candidates by designated officials of the State government after a process of verification and review. There are two sets of rights that may be granted – individual rights and community forest rights. The eligibility criteria states that these rights have been granted to those primarily residing on forest land for three generations (75 years). The rights are granted to those who occupied forest lands prior to 13 December, 2005 and depend on the forest or forest land for bonafide livelihood needs.

The cumulative statistics on FRA countrywide up to September 2013 show that 35.3 lakh claims have been received, of which 39% (14.06 lakh) have been accepted, while 47% (16.71 lakh) have been rejected and approximately 13% have not been decided.

Since the passing of FRA in 2006, its implementation has faced several challenges. The formation of gram sabha committees, a key entity under the FRA, has been raised as a common problem in several states. It is claimed that the relevance of the FRA is minimal in the North-Eastern states of Nagaland, Mizoram, Manipur and Arunachal Pradesh, where a majority of the land is already under the ownership of the people, and demarcated by natural boundaries. The implementation of the FRA has been also affected by violence in Left Wing Extremism affected states like Jharkhand and Chhattisgarh. Also, the states of Maharashtra and Assam are facing a large number of false claimants.

Image 1: Board highlighting scheme information in Tripura

It is in this backdrop that Tripura's accomplishments have become a harbinger for improving existing models of implementation of the FRA, 2006. Tripura has distributed the highest number of pattas so far, followed by Kerala and Odisha. A number of factors made FRA an important piece of legislation in Tripura. Of the total land area of the State, approximately 60% is under forest area. Of the total population in the state, 31.8% (11.66 lakh) are from Scheduled Tribes as per the 2011 census. There are a total of 19 tribes – the Kokborok tribe being the largest – and 1.71 lakh people fall under the category of Particularly Vulnerable Tribal Groups (PVTGs). Indian independence, Partition and the high influx of migrants in the State had an impeding impact on the status of the indigenous population of Tripura, particularly with respect to their land rights at the time of occurrence of these events. There were cases of tribal people being evicted from forest lands and harassed, making legal

possession of the land more important for their survival. As an official said, "The tribals' connection to the forest ecosystem is forged right at birth from the time the baby's umbilical cord to the mother is cut with a bamboo knife, and not a regular knife". This connection and the tribal people's dependency on the forest for their livelihoods made FRA vital for the vesting and protection of their rightful claims.

Objectives

The primary objective is to ensure that tribal people and forest dwellers have a clear and legal right to forest areas documented in the land deeds issued to them. In Tripura, this has been extended to the provision of economic benefits to all patta holders in the State for the social and economic upliftment of tribal people.

Key Stakeholders

The beneficiaries are the Scheduled Tribes and other forest dwellers who receive pattas under the FRA. The nodal implementing agency is the Tribal Welfare Department, Government of Tripura, headed by the Chief Secretary.

At each administrative level, committees have been formed as per the FRA. The State government has dovetailed schemes of other line departments and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) for providing economic benefits to patta holders *(Figure 1)*. In Tripura, the local governing body at the village level in Panchayati Raj Institutions (PRIs) is the Gram Panchayat, and in Autonomous District Councils, it is the Village Committee.

Figure 1: Key stakeholders under FRA in Tripura

Committees formed under FRA, 2006 - Tribal Welfare Department

- State Level Committee (SLC) chaired by Chief Secretary
- District Level Committee (DLC) chaired by DM
- Sub-Divisional Level Committee (SDLC) chaired by SDM
- Forest Rights Committee (FRC) for all gram panchayats and Village Committees

Line Departments under Economic Benefit Scheme for Forest

- Agriculture
- Animal Resources Development Department (ARDD)
- Fishery
- Forest
- Horticulture
- Handloom, Handicrafts and Sericulture Department (HH & SD)
- Tribal Welfare Department (TWD)

Beneficiaries

- People availing the services provided by the initiative

Implementation Strategy

The FRA came into force in Tripura in January 2008, but the actual implementation was deferred till August 2008 due to Assembly elections.

The details of the FRA were printed in newspapers and 1 lakh application forms were initially printed and distributed to the District Magistrates and Collectors for further distribution. Due to the overwhelming response received, applications were later invited on blank paper as well.

Process flow

In case of disputes, especially over the boundaries of land, arbitration takes places at the village level as far as possible. If the dispute is still not resolved, it is forwarded to the Sub-Divisional Level Committee (SDLC) and thereafter to the Divisional Level Committee (DLC) if required.

Cases of dispute have been few (approximately two to three cases per district), primarily since forest dwellers have been traditionally demarcating their lands with natural boundaries such as rivers, streams or trees and village officials are also aware about the ownership of individuals and families who have been living there.

a. Economic benefits scheme for forest dwellers

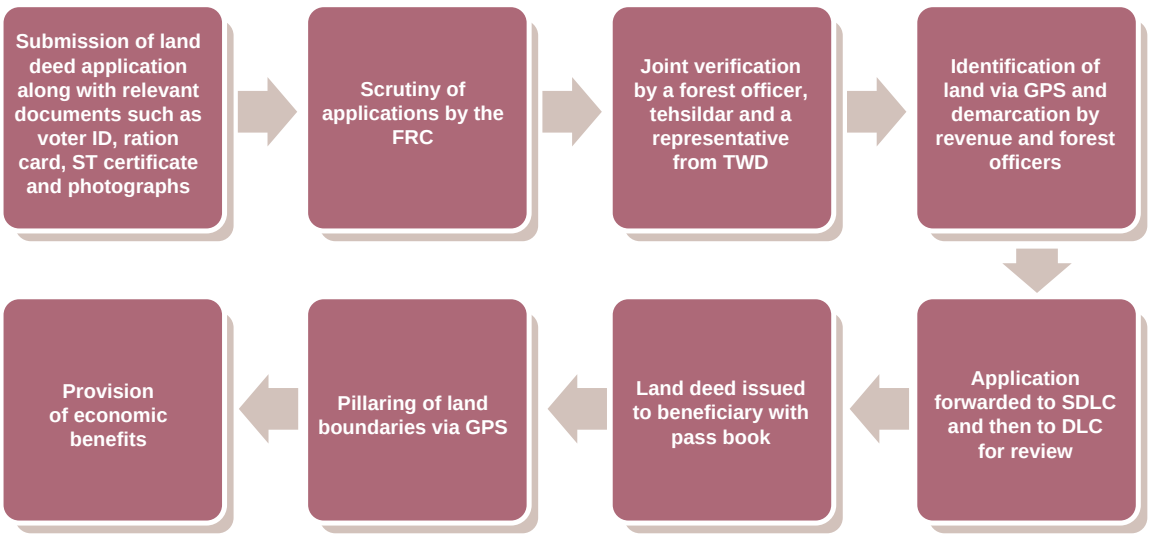
An action plan to provide economic benefits to patta holders for three years, i.e 2011-12 to 2014-15, was prepared by the Tribal Welfare Department with inputs from each line department. Annual targets were accordingly set and then monitored under the implementation of the FRA.

Once the pattas are distributed, beneficiaries are identified for the economic benefits schemes provided under various line departments. Some of the supplementary activities being carried out by the line departments in convergence with MGNREGA are as follows:

1. The Agriculture Department provides seeds such as those of lemon and orange as per the conditions of the land.

2. The Animal Resources Development Department

Figure 2: Process flow for granting land deeds in Tripura under FRA, 2006



Source: OneWorld Foundation India, 2014

provides support for pig breeding, backyard poultry, duck rearing programme, tapioca cultivation with a pig fattening unit and grass cultivation with goatery.

3. The Fisheries Department helps in creation of new water bodies and supply of fishery inputs to the water bodies

4. The Forest Department and Horticulture Department support creation of nurseries including vermin-composting. They also assist in plantation of short rotation species for economic returns, soil and moisture conservation works, river bank stabilisation by planting trees and raising medicinal plants.

5. The Directorate of Handloom, Handicrafts & Sericulture provides raw materials such as silkworms for creating supplementary sources of income.

6. The Rural Development Department provides housing under Indira Awaas Yojana (IAY) scheme of the Government of India.

b. Monitoring and evaluation

Regular review meetings are held at the State level and action-oriented plans are formulated, which are followed up regularly. Immense focus on ensuring the effective implementation of the FRA in Tripura have contributed immensely in its success.

During a review of the project in July 2013, the Chief Minister had issued orders for the completion of the patta process by the end of 2013 and, thereafter, to shift the thrust of implementation towards providing economic benefits to the community.

People speak...

Rohini Rupini in Jauntia Sub-Division

Rohini received her *patta* in 2009, after the application process of about 3-4 months. She belongs to the Halam tribe.

Besides the income earned by her son, the economic benefits provided to her are also potential sources of income-

1. A fish pond provided by Department of Fisheries.
2. 400 orange and lemon seeds, given by the Department of Horticulture in 2013.

Resources Utilised

Since the implementation is carried out through existing departments and offices of the Government of Tripura, additional resources were not required. Human and technical resources are contributed by the Tribal Welfare Department, which was in existence prior to the passing of the FRA. At the grassroots level, pillaring (i.e. placement of oblong stone markers, generally in four corners of the plot, to indicate boundary) is done to benefit the beneficiaries by clearly demarcating properties that have been granted under FRA.

Some additions have been made in terms of technology. Tripura has now transferred its data management with regard to implementation of the FRA to an online platform with the help of a Management Information System (MIS), designed and managed by the National Informatics Centre (NIC).

The data made available includes details of patta holders such as village, district and area of allotted land, the status of patta applications in process, and the financial year-wise benefits. The MIS has been made open to the public for ensuring transparency and accountability. Details of each applicant are currently being uploaded on to the website. These details can be cross-checked and reviewed by both citizens and officials.

The administration also makes use of a Global Positioning System (GPS) interface for mapping and recording the exact coordinates of the area of forest land being claimed. This was introduced for the purpose of maintaining more accurate records on the extent of ownership and to avoid any disputes on this account at a later stage.

Impact

Strong uptake of the FRA and related economic benefits: Claims were received in thousands on various fronts including completion of GPS demarcation, pillaring completion, passbook updation, GPS updation on MIS, and provision of IAY housing. *Tables 1 & 2* provides a detailed description of beneficiaries in figures.

Of the 1,50,065 Scheduled Tribe applications and 33,766 claims that were filed by Other Traditional Forest Dwellers (OTFD), only two claims satisfied the three

People speak...

Rohita Rupini and Bhaktonarayan Rupini, Jauntia Sub-Division

Rohita and Bhaktonarayan, belonging to the Halam tribe in Tripura, jointly own 10 acres of land. They received their patta in January 2009 which was personally handed over to them by the CM during a village function.

They had applied for the *patta* after receiving information on the patta procedure at a Village Committee meeting. They received their land *patta* in about three months.

The benefits they have availed of under various economic schemes of the government are cited below.

1. IAY housing has been provided to them.
2. They were given silk worms for rearing and producing raw silk which is then sent back to the Sericulture Department for processing. A rechargeable lantern with a solar panel was also provided for working at night. They earn between Rs. 8,000 to 10,000 from this activity.
3. Pigs provided by the ARDD are also being reared for sale.

Table 1: Economic benefits to forest dwellers provided by line departments in Tripura

Line Department	Achievement			
	2010-11		2011-12	
	No. of families	Fund expenditure (in lakhs)	No. of families	Fund expenditure (in lakhs)
Agriculture	-	-	6,386	854.05
ARDD	491	14.05	1,001	54.57
Fishery	2,612	299.95	3,061	439.23
Forest	1,922	174.25	3,887	388.00
Horticulture	5,642	640.00	11,142	2000.00
HH & S	511	68.70	1,077	141.95
Tribal Welfare	-	-	191	104.88
TOTAL	**11,178**	**1196.96**	**26,745**	**3,982.69**

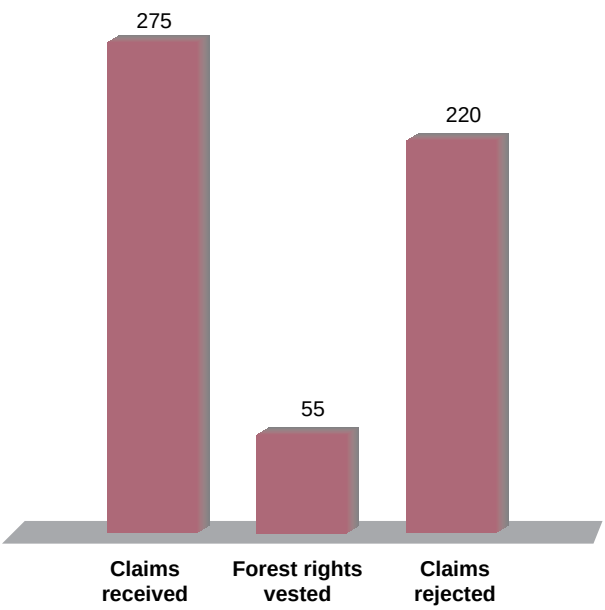
Table 2: Individual claims recorded (as of October 2013)

Indicators	Number	Claims
Total claims received	1,54,065	–
Forest rights vested/claims accepted	1,24,541	78.3% of claims received
Claims rejected	28,003	18.17% of claims received
Demarcation by GPS completed	1,19,069	98.66% of claims accepted
Pillaring completed	1,18,219	97.9% of claims accepted
Updating pass books	1,20,264	99.65% of claims accepted
GPS update on MIS	73,090	60.56% of claims accepted
IAY housing provided	21,228	17.58% of claims accepted

generation criteria as of December 2013. While the highest number of claims (98.66%) was accepted for the completion of demarcation by GPS, the lowest number of claims (17.58% was accepted for the provision of IAY housing.

Surge in provision of economic benefits: Economic benefits to tribal people also surged in various categories from the year 2010-11 to the year 2011-12. While 2,612 families benefited in fisheries in 2010-11, the number of such families in the year 2011-12 rose to 3,061. Similarly, the number of families benefiting in the horticulture segment was 5,642 in 2010-11, while the number of such families went up to 11,142 in the year 2011-2012.

Figure 3: Community claims (as of October 2013)



Key Challenges

Intermittent delay in coordination is one of the prominent challenges. The verification process requires the coordination of a number of authorities from different departments. Delays happen as coordination among all these officials is sometimes difficult owing to the numerous other responsibilities the officials handle. Delays occur especially at the time of the second or third round of applications that are filed when families split, leading to a further increase in the number of applications.

Augmenting financial resources is also a challenging task. Plans for expanding beyond the provision of economic benefits and including social benefits such as academic programmes/scholarships for forest dwellers have not materialised yet due to insufficient funds.

Fruition time in livelihood activities also poses a formidable challenge. With regard to some economic benefits granted in the implementation of the FRA in Tripura, there may be considerable delay in actually receiving the fruits of the benefits. For example, rubber plantations take seven years to fully mature, and to start generating a revenue. Therefore, the departments have introduced intermediary plans for activities that may be carried out by beneficiaries in the meantime. The pace of providing economic benefits to the forest dwellers is also slow due to fund constraints.

Replicability and Sustainability

The governance and accountability model in Tripura has been such that citizens have clear and veritable access to all government officials, including the Chief Minister, and can approach them with their grievances. This has also helped in enhancing performance.

Furthermore, the system of Autonomous District Council is spread across all eight districts of the state and, thus, it has not interfered in the functioning of the schemes as a parallel governance structure, as is sometimes noted in the cases of Meghalaya and Assam.

For long-term sustainability of the initiative, the Tribal Welfare Department has been able to successfully collaborate with other departments to provide economic benefits, in turn, ensuring that the lands are used gainfully and in a manner that would augment the livelihood of the tribal population. For replication, it is essential that people are made aware of their rights and entitlements, so that their active participation is secured for fruitful implementation. GPS, as a demarcation tool, must also be considered in ensuring accurate verification, demarcation and efficient record-keeping in the patta procedure. Political support and corresponding administrative initiative and participation, from the state level down to the local PRI bodies, are features of the implementation of the FRA in Tripura that are a must for replication.

Conclusion

Owing to the successful run of the economic benefits schemes linked to the FRA in Tripura, the Tribal Welfare Department of the state is planning to introduce more line departments in a phased manner for schemes such as coffee and tea plantations, which will engage people in additional gainful activities for optimal utilisation of forest land. It has also been decided that a Block Level Committee will be set up in the State for looking into the implementation of the FRA. Financial empowerment of tribal people through the already existing government schemes will go a long way in bringing this secluded population into the mainstream of the country's economic growth.

Fact Sheet

Theme	Social Security
Nodal Implementing Agency	Department of Tribal Welfare, Government of Tripura
Geographical Coverage	All districts of Tripura State
Target Groups	Scheduled Tribes and Traditional Forest Dwellers dependent on forest produce for survival/livelihood
Years of Implementation	2008 - Present

2.32 Himayat: Placement linked skill development in Jammu and Kashmir

'Himayat' provides young people in the state of Jammu and Kashmir (J&K) with skill training, followed by job placements. Employment is followed by extensive post-placement tracking and support to ensure that trainees are able to adjust to work life. The scheme is implemented in Public Private Partnership (PPP) mode by the Ministry of Rural Development, Government of J&K, along with partner training agencies. The youth enrolled for the training belong to the 18 to 35 years age bracket.

Rationale

The state of Jammu and Kashmir (J&K) has faced prolonged militancy, which has significantly affected the political and economic climate of the state. Persistent danger to the safety of life and property, lack of infrastructure and *hartals* (strikes) hinder large scale private investment and economic growth.

Employment opportunities with the government are limited. The National Sample Survey Organisation (NSSO) estimates that the number of unemployed persons in J&K stands at 1.3 lakh (2007-2008). The State District Employment and Counselling Centre (DECC), J&K, showed the figure of unemployed persons to be much higher, at 5.89 lakh as of March 2010. Since a significant portion of the unemployed happen to be young people, the situation poses two problems. The first problem pertains to a development deficit that has arisen through a persistent breakdown in the provision of health, education and other basic services and limited livelihood options. The second problem is that the unemployed youth are vulnerable targets for militant groups to recruit.

Image 1: Trainees at a learning centre in Sonwar, Srinagar

With the market and private sector unable to provide adequate livelihood opportunities to absorb the young people into the labour force, state intervention became necessary.

An Expert Group was constituted by the Prime Minister to formulate an employment generation plan involving both the public and private sectors in J&K. This Group recommended a two-pronged strategy including steps like sector-wise identification of initiatives for growth and employment generation. The Group also proposed to enhance employability of the youth by improving their existing skill sets. This proposal was developed in consultation with the Ministry of Rural Development as a placement-linked, market-driven, skill development scheme to provide employment to the youth of J&K.

The proposal was accepted by the Cabinet Committee on Economic Affairs, and on May 19, 2011, it was approved as a 100% centrally sponsored scheme called Himayat, which means support and protection, to be implemented in the entire state of J&K.

Objectives

Himayat aims to provide jobs in the private sector to the unemployed youth of J&K by equipping them with market-relevant skills. The scheme aims to conduct skill training for 1 lakh youth in five years and provide at least 75% of them with jobs.

The focus is on youth from low-income families and school dropouts. A minimum qualification of having passed the eighth grade is necessary. The scheme is completely free and open to all 18 to 35 year olds residing in the State who meet the minimum qualification. Preference is given to place young men outside the state and young women within the state. The implementation of the scheme is done by private companies or Non-Governmental Organisations (NGOs).

Key Stakeholders

The key stakeholders involved in the planning and implementation of the programme include the Ministry of Rural Development, National Institute of Rural Development (NIRD), Project Implementing Agencies (PIAs)/training agencies which are from both- the private and NGO sectors, and employers and trainees.

Figure 1: Key stakeholders

Ministry of Rural Development

- Nodal ministry which has initiated the scheme and provides funding

National Institute of Rural Development

- Nodal authority under MoRD which implements the scheme by hiring training agencies, training of trainers, providing funding and monitoring and evaluation

Training Agencies

- Project Implementing Agency (PIA) - Identifies available jobs available jobs and required skills, mobilises trainees, provides them training, conducts placements, post-placement tracking and provides support

Employers

- Provide employment to the beneficiaries and regular inputs to training agencies on the required skill sets

Trainees

- These are the main beneficiaries of the initiative. Any resident of J&K, between 18-35 years of age, with the minimum qualification of 8th grade pass, is eligible for the scheme. School dropouts and persons from poor/disadvantaged backgrounds are given preference

Implementation Strategy

Himayat was piloted in the cities of Srinagar and Jammu in 2011 with Infrastructure Leasing and Financial Services (IL&FS), and Don Bosco Tech as the training agencies. Initial challenges included weak infrastructure, poor Information, Education and Communication (IEC) outreach, and sub-optimal allocation of geographical areas to training agencies. Post placement dropout rates were high and a mere 30% of the trainees stayed on to work.

The implementation strategy was revised in 2012 and a new model was introduced. Following these changes, the Project Implementing Agency (PIA)/training agency conducts a market scan through placement coordinators and identifies available job opportunities and skill sets currently desired by employers. The market scan is conducted before the start of each batch and determines the batch size. Accordingly, the PIA prepares the curriculum, decides batch size and selects area of implementation along with submitting a proposal to the State Representative (SR) of the MoRD.

Due diligence by NIRD

The SR examines and approves the proposal, sanctions funds and allocates blocks to the PIAs, which are mandated to prepare training centres. There must be at least one training centre per block. When recruiting training staff for its centres, the PIAs try to hire locals to the extent possible and provide them training. Before the trainings begin, NIRD conducts due diligence of the training centre to assess whether adequate infrastructure is available. Each training centre must be able to cater to at least 35 students.

PIA mobilises community

Community mobilisation is the single most important component of the Himayat programme. Before mobilisation begins, each PIA is allocated exclusive villages where no other training agency can operate. This is done to avoid inter-agency rivalry and fix accountability. *Image 2* shows the spread of Himayat centres across the State.

This strategy has another positive effect. As the trainees at a particular training centre are from the same locality, they go together as a group and support each other

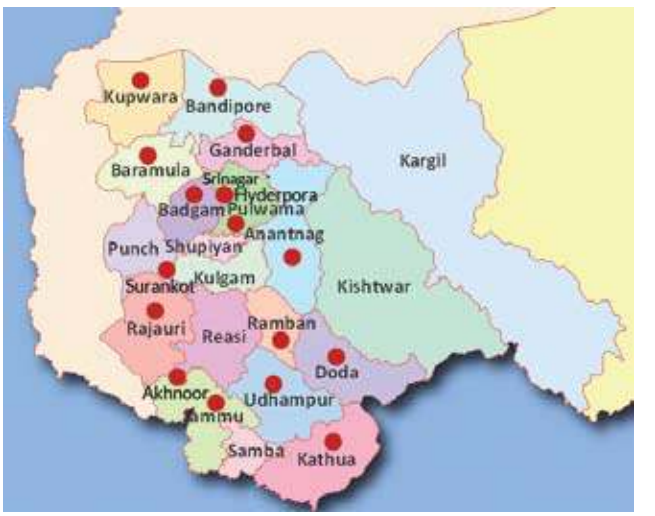


Image 2: 'Himayat' centres across Jammu & Kashmir

Source: Himayat.org

Clockwise from far left

i) Entitlement banner

ii) Biometric attendance device

iii) Medical assistance and pharmaceutical sales lab

iv) Hospitality lab

Image 3: Sample infrastructure

in the event of them being placed outside the State. While this strengthens their ability to cope with the new environment, it also makes it easier for families to keep track of them.

Mobilisation on a village saturation mode

The PIA must mobilise and train all the eligible beneficiaries in each Gram Panchayat before moving on to the next village. Local government officials such as Sarpanchs, Panchayat members and block development officers are contacted and their support is enlisted before mobilisation. The main focus of the scheme is on identifying truly needy and deserving candidates as they are the intended beneficiaries and their retention rates are much higher. Thus, the support of local level representatives is crucial as they are aware of the poor and disadvantaged candidates who need to be prioritised.

Extensive IEC campaigns are conducted with support of the local administration. Multi-pronged IEC strategies, including advertisements in newspapers, pamphlets, posters, hoardings, flip charts, village road-shows and intensive door-to-door mobilisation are used to reach out to the beneficiaries. To ensure maximum efficacy of the campaigns, the entire team of the training centre including the centre manager, domain trainers and staff participate in mobilisation. The emphasis on hiring local people for the project is, therefore, a strategic move.

In rural and remote areas of Kashmir, mosques form good sites for mobilisation. The Friday prayer has substantial congregation of the local community and some time is sought to address and inform the gathered local youth about the scheme.

Selection and training of candidates

Candidates arriving at the centre are subjected to a screening test to determine their domain aptitude and their eligibility for the scheme. The choice of vocation, however, is ultimately left to them.

If selected, parental consent is obtained. Parents are informed about training programme details such as duration and content of training, and minimum salary to be offered after placement. The duration of the training programme is either a three-month certificate course or a six-month diploma programme, depending on the training agency. Candidates are trained to be equipped with a mix of skills required to make them job ready. The training programme consists of the core domain expertise, functional English, IT usage and life skills comprising work life sensitisation and career skills. The current list of domain subjects offered includes hospitality, accountancy, customer relations and sales, Business Process Outsourcing (BPO), retail, medical assistance and pharmaceutical sales. During the training, Himayat alumni are brought to the centres to interact with trainees and share their experiences about their work life. Employers also visit and share their expectations, especially regarding the skill sets they are looking to hire. Trainees are given an allowance of Rs. 50 per day, which is credited directly to their bank accounts. There is also a provision for issuing cash cards in case students do not have bank accounts. Cash cards are purchased in exchange for money and the equivalent monetary amount can be withdrawn from an ATM without requiring a bank account.

Attendance is recorded biometrically and a minimum 80% attendance in tutorials is required for students to continue.

After 70 days, students are sent for on-the-job-training where they obtain first-hand experience of work life and are trained by employers for about 15-20 days. After this leg of training is complete, there is an independent certification and assessment of the trainees by a third party which is acceptable to industry/employers. Trainees are placed in jobs in the formal sector only, so to ensure that they are eligible for social benefits such as Provident Fund and Employee State Insurance.

Post placement support

A key feature of Himayat is its extensive post-placement support mechanism. Each training centre has a contact person in whichever city its trainees are placed. The contact person is responsible for providing assistance to trainees and facilitates the opening of bank accounts, finding accommodation and payment of post-placement support. Post-placement support involves the payment of Rs. 2,000 per month for six months to the trainees-turned-employees, which is given because their initial salaries are not always adequate. These post-placement funds are provided only after salary slips are submitted by the employees to ensure funds are given to genuine trainees. To hasten the process of adaptation to their environment, trainees from new batches visit the workplace of their alumni and learn from the experiences of their peers.

People speak...

Fayyaz Ahmed Shaikh, Batmaloo, Srinagar

"I am the mohalla president of SD Colony in Batmaloo. I was approached by the CAP Foundation in 2012. They sought help in mobilising the community for Himayat. I was overjoyed to hear that such a scheme was being implemented and immediately conducted a survey of the unemployed youth in my locality and assisted in their mobilisation and enrollment. I was so impressed with the scheme that I enrolled my own son into it. I now make it a point to inform any needy candidate I come across about the 'Himayat' initiative.

The training is free, there is a daily allowance, there is a post placement allowance and a job is assured. What more can one ask for? The only thing I would request is that this scheme be continued for at least another 15 years for ensuring qualitative impact."

Monitoring and evaluation

Non-monetary post-placement support continues for a year after the trainee starts working. Phone calls are regularly made through the NIRD call centre to ascertain whether any difficulties are being faced and physical visits are made by its monitoring officials.

PIAs are monitored to assess whether fund utilisation is taking place correctly and are visited at least once a month. There is also an extensive Management Information System (MIS) on which all the project data, particularly the assessment data of students is constantly uploaded, enabling implementing officials to keep track of overall progress.

For grievance redressal, trainees can contact the Himayat call centre within the state, which is maintained by the NIRD. A helpline number is prominently displayed at each training centre and at the NIRD project offices.

Resources Utilised

In terms of funding, the training cost per student is Rs. 18,500 per month for the three-month certificate

Table 1: PIAs implementing 'Himayat'

PIA Name	Total Training Centres	PIA Name	Total Training Centres
DON BOSCO	23	JSL-LIFE	3
IL&FS	38	REDOX LABS	2
INDIA CAN	14	AIDE ET ACTION	4
CAP FOUNDATION	11	IKYA HUMAN CAPITAL SOLUTIONS LTD.	5
MASS INFOTECH SOCIETY	6		

Source: Himayat.org

programme and Rs. 28,000 per month for the six-month diploma programme. These costs are met by the Central government.

Impact

High placement rate: As of March 2014, a total of 19,811 youth have been trained and 15,489 have been placed in jobs by the Himayat scheme, giving it a 78% placement rate. Trainees work in various organisations ranging from local businesses in J&K to large corporations like Kentucky Fried Chicken (KFC), Chick Inn, Cafe Coffee Day, McDonald's and Reliance.

Upward mobility in careers, exposure to other cultures, working environments: As these youth work in the private sector which instantly rewards initiative and hard work, several trainees have seen rapid career growth, outstripping the salaries of their former teachers in a matter of months. Also, those placed outside the State are exposed to new cultures and new styles of working, thereby widening their horizons. Many trainees of Himayat have started their own enterprises after gaining work experience.

Improved communication skills, greater confidence and independence: Trainees report a huge increase in their confidence and communication abilities after they join the programme, and feel confident of meeting the demands of work life. Women in particular have been significantly empowered by the scheme, expressing a strong desire to be independent, pursue their studies, support their families and continue working after marriage.

Initiative from local youth to undergo trainings: The popularity of Himayat can be gauged by the fact that the training centres are now seeing walk-ins and candidates do not need to be mobilised. Every candidate enrolled as a trainee makes it a point to spread awareness about the scheme to his/her friends and, a large number of trainees have joined Himayat through this informal peer referral process.

Support from locals and employers: There is lot of support for the scheme, particularly in remote areas, as people feel they are being reached out to for the first

Image 4: (Left) Students of Customer Relations and Sales carry out a mock exercise with one playing buyer and the other the seller in Sonwar, Srinagar; (right) Students practicing typing skills in the IT lab in Lal Bazar, Srinagar

Source: CAP Foundation, and IL&FS 2014

time. The satisfaction level of employers also is so high that certain employers now ask their other employees to get Himayat training and certification.

Himayat has thus set off a virtuous cycle, which has the potential to bring prosperity and peace to the region. Unemployed youth who are potential targets for militants and anti-social elements are now provided with jobs and skills, increasing their individual and familial prosperity and indirectly the community's prosperity.

Highlights of facilities available at training centres

1. Biometric devices available with General Packet Radio Service (GPRS)
2. Activity Planner - hourly training modules which includes 60 hours of hands-on practice on a computer for every trainee
3. Trainers-
   a. One soft skill/communicative English trainer
   b. One IT trainer
   c. Number of domain trainers equal to number of domains run at centre
4. Training material:
   a. Trainer's manual
   b. Equipment related with the course
   c. Printed course material for students
   d. Workbooks
   e. Stationary
5. Practical lab for each domain
6. Computer lab with systems that match domain strength
7. Typing tutor software
8. Projector
9. Entitlement banner put up at two conspicuous places
10. Gensets for power backup
11. Printer and scanner with photocopy features
12. Laptop
13. Digital camera
14. Local Area Network (LAN) with broadband

Key Challenges

Low retention rates was the main challenge faced initially as trainees who went out of the state would return home because the salary provided would often be inadequate to sustain themselves. Interviewees also spoke of discrimination, especially when finding accommodation. Also, the opening of bank accounts for trainees was difficult due to the absence of necessary documents. Thus, during the initial stages of implementation, the dropout rate was as high as 70%. To resolve this problem, monetary and non-monetary post-placement support was introduced. Following this, dropout rates reduced to 30% but remain a challenge.

Effective community mobilisation was also a big challenge. People's fixation with only taking up jobs in the public sector, which was especially strong in rural areas, had to be broken. This was solved by explaining that the comparatively low-qualified trainees of Himayat are assured a minimum salary of Rs. 4,000 in the private sector, which is more than what higher-qualified applicants are offered in the public sector.

The lack of trust in the state was also a challenge. People in the Kashmir valley are often cynical of government interventions. The Himayat initiative was initially perceived as just another showpiece, which would not be effectively implemented. There was also a fear that it was an NGO-driven initiative that was a proxy for conversion by Christian missionaries. These apprehensions were addressed by highlighting the fact that it was a government initiative, more importantly a Central government initiative which carried more credibility in the eyes of people. Trainees who had completed the training would also speak in support of the initiative, and the involvement of local people at all levels earned Himayat a lot of acceptability and trust.

The use of external agencies for carrying out community mobilisation also posed challenges. External agencies would provide incorrect information and make false promises to the trainees, leading to a loss of credibility of Himayat. Fixing accountability became difficult as villages were not always saturated and comprehensively mobilised. Moreover, multiple agencies carrying out mobilisation in a single village also led to several problems. To solve this, the responsibility of mobilisation was given to the training agencies which ran the training centres.

Most importantly, in cases where trainees went out of the state alone or in small groups, they were easily demoralised in the new city, and dropped out. This issue was resolved by ensuring that a minimum of eight candidates from each village go out of the state together so that they form a support system for each other, thus enabling better retention.

Replicability and Sustainibility

Himayat is to be in operation only for five years, and is slated to end in 2016. There is a strong demand from the grassroots – the beneficiaries themselves, project implementers and local elected representatives – for the scheme continue for the coming 15 to 20 years, so that it has a truly transformative impact. An initiative such as Himayat is necessary, at least till the time a favourable climate for private investment and entrepreneurship is created.

People speak...

Abdul Basit Mir, Pulwama district

"All of us here are school dropouts. We did not know where we were going in life and were a depressed lot. Our parents were upset as we were doing nothing. The 'Himayat' mobilisation team came to my house and told my parents that a future can be made at these training centres. Our parents are now very happy as they know that now we have a future. We also receive travel allowance for coming to the training centre. All of us here want to do jobs, get experience, continue our education at the first opportunity and also setup our businesses in future in Kashmir itself. We will be able to help others like us and provide them employment. There is this obsession with government jobs owing to a minimum presence of the private sector but if we can establish businesses here, then this generation can move forward."

As mentioned earlier, Himayat targets the most needy and deserving candidates so that the human capital investments yield maximum returns. This idea must be placed centre-stage in efforts toward its replication. For such an initiative to be successfully replicated, several constructive steps are necessary. Such an initiative must be implemented by locals, wherever possible, for it to have acceptability and secure the trust of the community.

The area of implementation directly affects the efficacy of monitoring, making replication in larger areas more challenging. Therefore, wherever possible, the need was felt for emphasis on small units. Robust grievance redressal and monitoring mechanisms are crucial for quick redressal of problems and course-correction. Himayat has wisely deployed multiple channels of monitoring with training agencies, NIRD and the beneficiaries, all keeping an independent check on performance. Such a robust system must be replicated for successful monitoring.

People speak...

Tausum Ishtiaq, Nasipora village, Budgam block, Srinagar

"After completing my 10th (Class), I could not continue my education owing to financial difficulties. It was then that a friend from my school-days informed me about the 'Himayat' programme, telling me that even with my basic education, I would have the opportunity to get a job and earn a living. I was very motivated at the thought of being independent and supporting my family.

I come from a village which is 19 km away from the training centre. Every day, I walk 5 km and catch a bus to get here. Before joining this programme, I did not know much about jobs, emails and computers. I was so shy that I could not even speak in front of two people. 'Himayat' has made me such that I can now speak in front of even a hundred. I now feel confident that I can handle any type of job."

Sustainability of the scheme was enhanced by post-placement support to enable trainees to adapt to their new environment. Going forward, placement outside the state should be preferred as it provides enhanced opportunities.

The presence of a major employment generating city nearby is also important so that candidates have the choice to forgo higher paying jobs for lower paying ones if it is important for them to be closer to their families. An opinion expressed in the field was that the IEC campaign would need to be continuously updated to be in tune with the times and should be accompanied with exposure visits and alumni meets to get parental support.

Conclusion

Himayat has now stabilised with training centres on auto-pilot mode, and its IEC campaign has been effective to the extent that candidates are now proactively coming

to the centres without need for mobilisation. However, focus must be maintained on enhancing reach to the truly backward and remote regions and increasing retention of trainees from such regions. Himayat offers hope to other beleaguered and violence affected areas. It could be a way forward for areas such as Manipur and the Red Corridor that are home to an alienated populace with few livelihood opportunities, suffering from damage due to violence, low private investment and rampant corruption at the local level.

Fact Sheet

Theme	Social Security
Nodal Implementing Agency	Ministry of Rural Development, Government of India and National Institute of Rural Development
Geographical Coverage	All districts of Jammu and Kashmir State
Target Groups	Unemployed youth in Jammu and Kashmir between the ages of 18-35 years
Years of Implementation	2011 - Present

2.33 Samarpan: Early identification and intervention to check disability in Madhya Pradesh

Samarpan, in Madhya Pradesh, is a unique intervention conceptualised for the early identification, screening, treatment and rehabilitation of children with developmental delay or physically disability. Led by the Hoshangabad district administration, Samarpan's Early Intervention Clinic (EIC) realises a convergence model of the Departments of Public Health & Family Welfare (PHFW), Women and Chilld Development (WCD), and the District Disabled Rehabilitation Centre (DDRC). Every month, 1,500 children are examined in a coordinated exercise involving a vast number of health officials and converging existing schemes such as the National Rural Health Mission (NRHM) and the Mukhya Mantri Bal Hriday Upchaar Yojna. The relevance of this initiative was established in February 2013, when the NHRM launched the Rashtriya Bal Swasthya Karyakram, modelled on Samarpan. A total of 1,05,550 children were screened by Anaganwadi Workers using the 'Samarpan' screening test, and 2,311 children were identified with delays-in-developmental milestones as of March, 2014.

Rationale

The issue of comprehensive child health was brought into sharp focus through the NRHM. Apart from highlighting the need to arrest the glaring Infant Mortality Rate (IMR) in the country, such a focus also raised issues such as malnutrition, stunting etc. for policy and programmatic intervention. However, till February 2012, the NRHM did not address the issues of birth defects.

Globally, birth defects occur in six to seven out of every 100 babies born annually. In the Indian context, birth defects account for 9.6% of all new born deaths. There is a clearly visible policy gap in addressing issues of disability among children in India. Samarpan emphasises the criticality of employing twin concepts in guiding any policy initiative in this direction: one, the critical period of development of a child, and two, the role of specialist disciplines like neuroplasticity, which refers to the changes in neural pathways and synapses which determine brain development.

Image 1: Samarpan's Early Intervention Clinic (EIC), Hoshangabad district Madhya Pradesh

According to critical period of development, the earliest signs of delayed development are identified in an under-5 child (U-5). The U-5 mark is critical, as within this span, specialised intervention offers a possibility of bringing the child almost to the normal curve of development. According to neuro-biological research, early experiences and stimulation are critical for optimal brain development of a child, suggesting that early intervention has the most critical impact.

These twin concepts guided the search for a plan of action to put these ideas proactively on the health map of the Hoshangabad district. The result was the launch of the Samarpan initiative, focussing on early identification and intervention in U-5 children in the district. This initiative and the impact that it has generated have also helped in addressing the policy gap at the national level by placing disability and early intervention on the agenda of the National Health Policy through the Rogi Bal Swasthya Karyakram (RBSK).

Objectives

The main objective of the initiative was to identify early signs of development delays in U-5 children in Hoshangabad district en masse, by conducting screening tests based on development milestones for the newborn and U-5 children.

The initiative also aims to have a comprehensive facility under a single roof for the specialised and multi-disciplinary evaluation of children's social development,

visual development, speech and hearing development, mental development, and growth. It also endeavours to provide comprehensive and specialised intervention to remove or reduce development impediments at the Samarpan EIC. The initiative also strives to make society aware of the potential development issues children could face, in a bid to involve people in society-based and home-based identification. Another related objective of the initiative is to facilitate acceptance in the family about the onset of development delay in the infant, so that appropriate interventions may be sought and/or accepted.

Key Stakeholders

The nodal implementing agency was the district administration of Hoshangabad District, in convergence with various departments in the district such as Department for Women and Child Development (WCD), District Health Department, District Disability Rehabilitation Centre (DDRC), Department for Social Justice & Empowerment, and Revenue Department. The prime beneficiaries of this initiative were children between the ages of 0-5 years, their parents and their families. This initiative was supported by the United Nations Office for Project Services (UNOPS)-Norway India Partnership Initiative (NIPI).

Figure 1: Key stakeholders

Beneficiaries

- Children between 0-5 years and their parents

Government Departments

- District administration
- Department for Women and Child Development
- District Health Department
- District Disability Rehabilitation Centre
- Department for Social Justice and Empowerment
- Revenue Department

Other Supporting Organisation

- UNOPS-NIPI

Implementation Strategy

In August 2010, a national seminar on early identification and intervention was organised with representatives of national institutes working in the field of disability, with the purpose of ideating for the development of a blue print for effective intervention. Premier institutes such as the National Institute of Mental Health and Neurosciences (NIMHANS), the National Institute of Mentally Handicapped (NIMH), the National Institute of Orthopaedically Handicapped (NIOH), the National Institute of Visual Handicapped (NIVH) and Composite Regional Centre for Persons with Disability (CRC) participated in the workshop. The workshop helped develop a sound perspective for the initiative and helped secure commitments in action from partners. For example, the Institute of Postgraduate Medical Education & Research (IPGMER), Kolkata, provided technical support and guidance in designing facility-based protocols, and later trained specialists of the Samarpan facility at IPGMER itself. Likewise, Secunderabad-based NIMH shared their screening test for community level application- Reaching and Programming for Identification of Disabilities (RAPID).

A district level convergence model for facilitating implementation was worked out over a series of meetings. The groundwork before implementation involved various activities including: contextualising RAPID to local needs to create the Samarpan Screening Test; preparation of training material and literature for sensitisation of local surveyors such as Anganwadi Workers (AWWs) and Accredited Social Health Activists (ASHAs); sensitisation of local surveyors to disability and the importance of early identification and training for conducting door-to-door surveys.

Following this, in September 2011, AWWs and ASHAs conducted door-to-door survey for identifying children with development delays. Apart from the above mentioned activities, the survey data was fed into a software called Vatsalya, which was developed through the resources of the WCD Department in 2009-10. The Vatsalya software enables collation of a monthly measurement history of each and every child of the district and calculates Age-To-Weight, Wasting, Stunting and Mid-Upper Arm Circumference (MUAC) grading automatically. This data is very useful for any clinical examination and available at a mouse click. This is an example of leveraging the resources (Vatsalya) from one

Image 2: Training of AWWs and ASHAs in Hoshangabad

Source: Samarpan, Hoshangabad

department of the government (in this case, the WCD Department) for the benefit of the Samarpan initiative. Among other steps, the Vatsalya software was linked to the Samarpan software, which was specially designed in order to store case specifics such as parental history, detailed birth history of the baby, developmental assessment, assessment of hearing and visual functions, intervention strategy and periodic evaluation, to aid identification of children in the entire district showing signs of delayed development.

Also, the convergence between various departments helped in setting up a facility for intervention at the DDRC. The reluctance of families towards bringing their children to the DDRC and resistance within families to accept possible disability in their child led to renaming DDRC with a more positive sounding name Samarpan, which, in Hindi, means dedication, thereby implying dedication of DDRC to the cause of early identification and intervention in cases of disability.

The Samarpan facility was set up to provide a comprehensive range of services including medical services for preventive health and immunisation to women, along with child services for ensuring proper nutrition and development of children. The facility also provided services such as neurological assessment, physiotherapy, occupational therapy, psychological services, and cognitive development support for socialisation, vision, speech, language and hearing. The Samarpan facility needed equipment, infrastructure and manpower enhancement to meet the needs of its new role. Institutions such as UNOPS-NIPI, the Red Cross Society, Rotary International, and the State Bank of India supported various components of the intervention facility. Further, the available resources of various district level departments were converged to set up this facility.

a. Innovation

The critical innovation of Samarpan was to bring the twin concepts of critical development period and neuroplasticity on the policy agenda for the first time. It devised a comprehensive multi-disciplinary approach to intervention. The structure of the intervention was also aimed to capture any allied disability that might develop as a result of the prominent disability.

b. Training

Since the initiative needed identification of development delays in U-5 children en masse, it was critical to conduct a preliminary survey to identify potential cases for detailed investigation at the facility. The services of the AWWs and ASHAs were harnessed for this purpose. Through ASHAs the new-borns and premature children could be identified and tracked, while AWWs had presence down to the sub-village or hamlet level and were in daily contact with children U-5. Trainings were conducted for the initial survey, contextualised from RAPID to suit the local needs. After development of the Samarpan survey, training booklets in Hindi were prepared to train the surveyors in conducting the Samarpan Test. To accommodate all the AWWs and ASHAs, cinema halls were hired for conducting the trainings. In all, 25 trainings were conducted for this purpose.

Apart from this, Samarpan specialists underwent advanced trainings at IPGMER, Kolkata. Consequently, the physiotherapist, child psychologist and special educator, audiologist, speech and language pathologist, nurses and auxiliary nurses and midwives were also trained at IGPMER in 2011.

c. Awareness generation

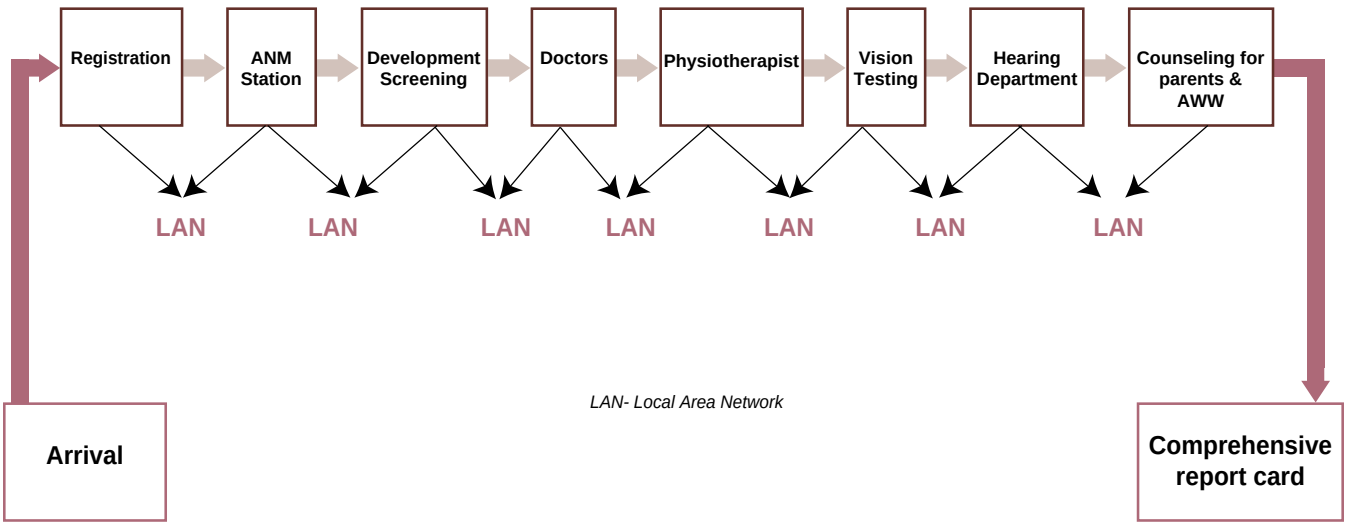
Since this was a first of its kind initiative, a lot of stress was placed on awareness generation through Information, Education and Communication (IEC) activities. The project engaged with artists from the Social Welfare Department to generate awareness through *nukkad nataks* (street plays) on the issues of disability. Wall paintings related to disability were placed at strategic locations. Traditional means of *duggi pitna* (announcements) in villages were undertaken to sensitise the community on the issues of disability. Pamphlets and advertisements were also used to spread consciousness. Panchayat secretaries, ASHAs and AWWs were trained and encouraged to spread consciousness through word of mouth due to their strategically advantageous position in the community.

d. Process flow

After the survey was conducted, the data was uploaded on the Vatsalya software and potential cases of development delay were identified. The next step was to bring these identified cases to the Samarpan facility to conduct diagnosis by specialists and suggest intervention. In order to enable the children and their parents to visit the Samarpan facility, transportation for children and their parents was also arranged.

Each day, a route chart for the ambulance was prepared according to the capacity of the Samarpan facility to screen children for investigation in the course of a working day, and accordingly, AWWs were informed. The AWWs communicated the same to the parents and accompanied the child and parents to the facility.

Figure 2: Process flow of screening U-5 children in Samarpan centre



Source: Samrpan, Hoshangabad

The process at the facility started with the registration of the child, followed by a detailed screening for any signs of development delay. *Figure 2* provides details of the process flow at the facility.

The initiative developed a comprehensive multi-disciplinary approach to interventions bringing various specialists under one roof. The identified children were then recommended for specialised intervention with training given to their care-givers, as well as mothers and AWWs as required, for ensuring that home-based interventions are also provided.

e. Monitoring

The initiative had an inbuilt mechanism of monitoring as the entire process was digitised. The details of the survey were fed into the Samarpan software and the experts reassessed development delays in all the children surveyed. Identified potential cases were registered at the facility with corresponding details entered in the software system. The software ensured smooth monitoring as the details of the facility's functioning and cases were a mouse-click away. Further, the Samarpan website, www.samarpanhoshangabad.org provided all relevant information to the public.

Resources Utilised

The initiative was an innovative effort on part of the district administration. No clear budget was assigned for the implementation of Samarpan, and it depended heavily on the convergence of available funds from various departments such as the WCD Department, the District Health Department, the DDRC, and the Social Justice Department. Some private entities also assisted in small measures. The Red Cross Society financed the development of the Samarpan software. The State Bank of India donated a bus from their corporate social responsibility fund to the Samarpan facility for picking up and dropping children. Similarly, UNOPS-NIPI financially assisted in developing the Samarpan facility at DDRC at Hoshangabad.

The estimated cost for upgrading the DDRC to a Samarpan facility was Rs. 21 lakh approximately. This facility required experts in various disciplines. Human resources from various departments were pooled in to this end, in order to ensure smooth running of the facility as conceived. Previously the DDRC had one physiotherapist, one psychiatrist, one child psychologist, a special educator, an audiologist, a speech and language pathologist, occupational therapist, and an optometrist. To add to this, the district hospital provided one pediatrician from the Sick Newborn Care Unit (SNCU, District Hospital), an Ear-Nose-Throat (ENT) specialist, an ophthalmologist, two nurses and three ANMs. Further, other doctors from the district hospital contributed to the Samarpan facility when required.

Impact

Coverage of U-5 children and provision of treatment: The initiative aimed to cover all U-5 children in the district in the initial phase, which was a huge task given the difficult terrain of the district.

Image 3: Three-year old Vikki with his mother after his cleft lip surgery in March 2014 in Hoshangabad

Source: Samarpan, Hoshangabad

As of March 2014, a total of 1,05,550 children were screened by AWWs using the Samarpan screening test in Hoshangabad. The process helped identify 2,311 children with delay in attaining development milestones. Under this programme, 941 children were examined in the Samarpan facility out of which 599 children were identified as requiring intervention by the specialists. Sometimes, while undertaking interventions to address identified developmental delays in particular cases, other types of disabilities were also observed in the individual and suitably dealt with.

A follow up through special education at block level was done for 606 cases of mental retardation by March 2014, which found that 50-60 of such children have responded well to the intervention and are showing signs of up to 70% recovery. 572 physiotherapy cases were also identified and followed by suitable interventions. Apart from this, as of March 2014 audiology counselling was made available to 113 cases and around 312 cases with the requirement of speech therapy were also assisted.

By the same date, suitable interventions were provided in 145 cases related to vision services, 48 cases related to hearing aid, 14 cases related to Congenital Talipes Equinovarus (CTEV) surgery (for club-foot), 61 cases related to shoe arch, four cases related to Coronary Heart Disease (CHD) surgery, and 10 cases related to Portable Powered Ankle-Foot Orthosis (PPAFO) surgery. In two cases, callipers were distributed while modified shoes were provided in five other cases. In six cases, gaiters were also made available through this initiative.

Data as of March 2014 also shows that the initiative provided self-help skill training in 570 cases and parents' counselling in 941 cases.

Increased acceptance of disability and treatment-seeking behaviour: The social impact of the initiative was significant, especially as it led to an increased acceptance of disability in society, and encouraged people to seek required treatment. Samarpan made positive efforts to mainstream people with disability. A small child with mental retardation was invited to inaugurate the Samarpan facility with the aim to ease the stigma attached to disability.

Societal sensitivity to persons with disabilities and mainstreaming: Consistent IEC activities ensured that society was encouraged to be more sensitive to disability. Apart from therapeutic and specialised interventions, the Samarpan team also provided assistance and support to enroll these children in schools. This worked positively in main streaming them in society.

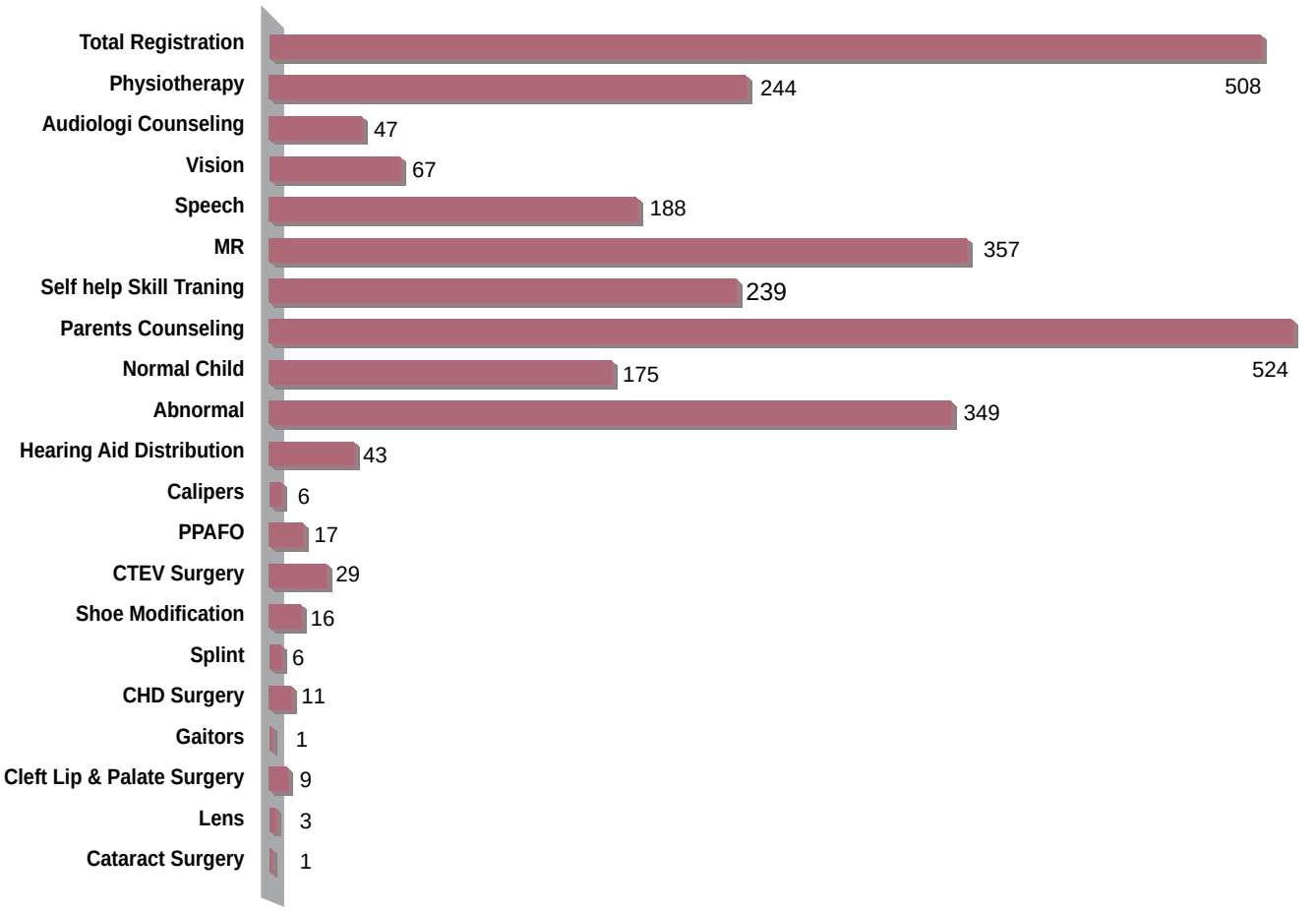
Key Challenges

A total lack of any policy direction to guide the practical roll-out of the initiative was a big challenge. There was no policy in India that took a preventive perspective on disability, especially in the case of children. Hence, the initiative took a long time and research to take shape.

Another big challenge was the lack of adequate awareness and sensitivity about the issues of child disability such as critical development period, and neuroplasticity among the local doctors and other health workers. Lack of funds available with departments to contribute towards implementing the Samarpan initiative was also a stumbling block.

Image 4: Five-year old Muskaan Patel had heart surgery in November 2012 in Hoshangabad

Figure 3: Kinds of interventions undertaken by Samarpan Facility



Source: Samarpan, Hoshangabad

Resistance among parents to accept disability in their children is also an impediment along with social resistance towards accepting disability. Also, resistance to bring identified children for periodic follow-ups by parents from economically weaker sections also poses some challenges. There was also a lack of tertiary link-ups, i.e. the DDRC had no linkages with larger medical centres providing a wider range of specialised services, and this limited its ability to treat cases requiring extremely specialised interventions.

Replicability and Sustainability

The initiative was highly successful and the District Collector spearheading it was invited to be an adviser to the national level programme (i.e. RBSK) that aimed to fill the policy gap related to disability in children. With the launch of the RBSK at a country-wide level under the NRHM in February 2013 for early detection of health conditions in children, the Samarpan initiative has effectively been scaled up to cover the entire country.

The experience and learnings from the initiative critical to the successful implementation the RBSK in India. The Samarpan facility in Hoshangabad, Madhya Pradesh, serves as a model for the RBSK. This is demonstrated by the fact that other states have visited the Samarpan facility in Hoshangabad to learn from their experiences.

Conclusion

With the launch of the RBSK, many new additions have been introduced in Samarpan. The Samarpan DDRC facility continues to function with additional features – there is now a district RBSK coordinator to ensure smooth convergence between DDRC and District Hospital and also address any grievances that might arise. In order to improve accessibility to the Samarpan facility, the concept of Mini Samarpan is being implemented in Hoshangabad district on an experimental basis. This involves the establishment of one small Samarpan facility called Mini Samarpan for every two blocks. The Teaching Learning Material kit is also being distributed to various needy

children after the launch of RBSK. Further, a hostel is being constructed for severely disabled children on the premises of the Samarpan facility in Hoshangabad. The idea is to provide intensive training to the child and care-giver for 10 days at the Samarpan centre, following which the children will be monitored by the specialists stationed at the Mini-Samarpan. This intensive training will be followed up with a further 10-day refresher training for the children and their care givers after six months.

The initiative has achieved more than it had expected by facilitating the evolution of a new policy addressing the existing gaps in children's health and disability. Even though the implementation of the policy is at a nascent stage, Samarpan Plus has been initiated after the launch of RBSK in Bhopal District as another initiative to take care of policy gaps that still exist. Samarpan Plus aims to learn from the challenges faced in the Hoshangabad pilot, especially providing the tertiary links in cases requiring surgery. Samarpan Plus differs from RBSK as it caters to the largely urban population that does not fall in the ambit of the new policy that caters only to the rural population. Thus, this initiative continues to direct policy intervention wherever there is a policy gap.

Fact Sheet

Theme	**Social Security**
Nodal Implementing Agency	**District administration of Hoshangabad District**
Geographical Coverage	**Hoshangabad district of Madhya Pradesh State**
Target Groups	**Children in the age group of 0-5 years**
Years of Implementation	**2011 - Present**

WATER AND SANITATION

2.34 Community Managed Water Supply Programme: Bringing drinking water to the doorsteps of people in rural Gujarat

The state-led Water and Sanitation Management Organisation (WASMO) has successfully implemented a unique rural water supply programme to ensure adequate, quality drinking water supply at an affordable cost in all rural areas of Gujarat. The programme is distinctive because the State government has adopted a demand-responsive adaptable approach involving strong community participation. The programme is based on a unique cost-sharing model, where the community partially shares the cost, owns the drinking water assets and holds the operation and maintenance responsibilities. It has successfully brought drinking water supply to the doorstep of rural Gujarat while establishing a financially sustainable water system.

Rationale

Diverse geological, hydrological, climatic and soil conditions adversely affect the surface and groundwater resources in Gujarat. As much of the state lies in a scarcity-prone area, it faced a wide range of water-related problems, such as drying up of sources, recurrent droughts, repeated failure of tube wells, water quality issues, mass migration of humans and cattle, drudgery of fetching water from long distances and waterborne diseases. Excessive fluoride and nitrate content affected the water quality in many districts of the State. Water supply, too, was erratic, and there were no fixed hours for water supply, which would run for two to three hours daily. This scenario compelled residents to use water from tankers and bore-wells. This state of affairs has contributed to migration from the State, livelihood insecurity and health problems.

The persistent and pervasive scarcity of potable water necessitated augmentation of Gujarat's water supply system. Aiming to replenish water resources in Gujarat and achieve sustainability in rural water supply, the Government of Gujarat established an autonomous organisation known as WASMO in 2002. WASMO was tasked with facilitating a community-managed water supply programme in all 26 districts of the State.

WASMO took a demand-driven decentralised approach and worked closely with the village communities and their representatives to identify needs and design the programme and its implementation process. While the village community contributed to the planning, implementation and maintenance of the village water supply system, the government took up the responsibility for policy formation, monitoring and evaluation and financial support.

Highlights of the WASMO programme

WASMO adopted a unique cost-sharing model to connect rural areas of Gujarat to the water supply network. It facilitated the village communities in planning, designing, selecting the site and implementing the scheme under a community-managed, demand-driven decentralised system. The community was encouraged to share the partial cost (10%) and look after the maintenance and operation of the scheme with the help of the money collected as water tariff from users. The government and WASMO provided continuous support in response to the requirements of the community. The government has worked to ensure improved services and satisfaction of the community. The programme has provided close to 76.84% households with tap water facility and collected water tariff from approximately 6,787 villages.

Objectives

Gujarat's rural water supply programme aims to supply the village community with adequate, regular and safe water through household-level tap water connectivity, including households of persons from backward communities. The programme strives to build a sustainable model through capacity building of village communities and empowering them to manage water resources themselves.

Key Stakeholders

The village community, working through its 18,185 Pani Samitis (local water committees) spread across the state, is involved in the planning, implementation, arrangement, operation and maintenance of the village water supply system in 18,185 out of 18,478 villages of Gujarat. The village community provides 10% of the funds for the programme.

About 75 Non-Governmental Organisations (NGOs) are actively involved in the programme and extend support to the village communities in planning and executing work. International organisations such as the United Nations Children's Fund (UNICEF), Water Sanitation and Hygiene (WASH) and the World Bank are extensively involved in awareness generation and capacity building initiatives for all stakeholders of the programme.

Figure 1: Key stakeholders of the WASMO programme in Gujarat

Community through its 18,185 *Pani Samitis*	❖ Planning, implementation, arrangement, operation and maintenance of the village water supply system
NGOs	❖ Support community in planning and execution of work
International Organisations (UNICEF, WASH and the World Bank)	❖ Awareness generation and capacity building of the stakeholders
WASMO	❖ Technical assistance, financial support

WASMO, Government of Gujarat, provides technical assistance and guidance and extends necessary financial support by contributing 90% of the funds.

Implementation Strategy

WASMO adopted a community-managed, demand-driven, decentralised approach for the rural water supply programme. The programme has been implemented in three cycles. The first cycle, lasting three to six months, involved mobilising the community; the second cycle involved execution and completion of the project, which takes 12 months; and the third cycle is the post-implementation and follow-up phase, lasting 12 months as shown in *Figure 2*.

In the first cycle, the programme is introduced at the village level as an initiative for providing adequate and safe water supply to the village community. The community is asked to share its concerns so as to seek an appropriate solution for water and sanitation-related problems. Meetings and workshops are organised to bring awareness about the components of the programme, including community participation and the concept of cost-sharing. Since the programme requires the community to contribute 10% of the cost, the community's participation and a sense of ownership are automatically built-in from the beginning. These processes of interaction are facilitated by NGOs and there is a strong emphasis on community contribution for structures and assets so that every member can share views on implementation, check accounts and procedures, and play a role in ensuring that quality equitable systems are put in place.

The collaborative institutional framework bringing together NGOs, WASMO and other public authorities is an inherent feature of the programme, reflecting

Figure 2: Project cycle for the WASMO programme in Gujarat

Mobilisation (3-6 months)
- ❖ Introduction of programme
- ❖ Formation of Pani Samiti
- ❖ Use of Participatory Rural Appraisal (PRA), need assessment and resource mapping
- ❖ Development of the Village Action Plan (VAP)
- ❖ Approval of VAP by the Gram Panchayat
- ❖ Planning for work execution

Execution (12 months)
- ❖ Implementation of VAP under Pani Samiti
- ❖ Technical support provided to Pani Samiti by WASMO team
- ❖ Monitoring of programme
- ❖ Approval of water traiff in Gram Sabha
- ❖ Operation and maintenance of systems and services by the community

Post-Implementation (12 months)
- ❖ Handholding approach for sustainability of water supply system
- ❖ No withdrawal from the village "Wait, Watch and Support for Sustainability Strategy"
- ❖ Financial and technical training provided to the Pani Samiti and community
- ❖ Coordination with block and district centres
- ❖ Interaction with other functioning Pani Samiti

Source: WASMO and OneWorld Foundation India, 2014

WASMO's recognition of the importance of involving various stakeholders. NGOs also play a significant role in handling social issues. For example, they ensure the involvement of Dalits and the representation of women in the Pani Samitis. Most importantly, they play an important role in bringing about the initial agreement on the issue of the community's contribution to the tariff.

WASMO, based on their assessment of requirements to address water issues expressed by the village community, calculates the amount required for programme implementation in each village. 10% of this sum is then collected from residents of the village as their contribution (to which WASMO adds the remaining 90%), after which WASMO and the concerned implementing agency develop the Village Action Plan (VAP) with the community through Participatory Rurual Appraisal (PRA).

VAP is a structured plan prepared by the community and carries details of the work to be done at the community level. The VAP reflects the needs and concerns of the local people with the objective of providing clean drinking water to everyone in the village, including the deprived and weaker sections. Once the VAP is approved by the Gram Sabha, the Pani Samiti is given the responsibility of planning and implementing the programme to suit their needs and requirements.

The second cycle involves formation of a Pani Samiti, which is headed by the Sarpanch and consists of 10-12 members. As the programme takes a community-managed approach, these Pani Samitis manage planning and implementation of the water supply programme within the village, and handle programme funds at the village level, which they maintain in a separate bank account. This account contains funds transferred by WASMO as well as funds generated by the water tariff collected by the Pani Samitis from village households.

A logo of WASMO on programme assets and infrastructure prevents misappropriation of the structures created. For all structures costing over Rs 25,000, details of the sanctioned cost, actual cost, completion date and name of implementing agency are announced.

At the end of this process, it is ensured that community gets access to safe and regular water. A comprehensive Information, Education and Communication (IEC) campaign including publications, folk media, electronic media, rallies, campaigns and workshops is undertaken to promote responsible water use and water conservation. In addition, capacity building for monitoring and supervision is undertaken to ensure that the community takes charge of implementation, sustainability and maintenance of the scheme. It looks after collection of water tariff, delivery of water in the villages, testing of water quality and ensuring proper utilisation of resources at the village level.

The third cycle after the project involves hand-holding of the Pani Samitis through the year to ensure that programme efforts are sustained. This involves financial as well as technical trainings and building their rapport with the district and block centres besides interaction with other Pani Samitis.

The handholding process ensures Pani Samitis are eventually capable to independently run, manage and sustain the benefits of the earlier two cycles so that the community has access to safe and regular water. The IEC and capacity building activities that were undertaken in the previous two cycles enable the community to cooperate effectively with the Pani Samitis after the exit of WASMO and its partner organisations.

The Pani Samiti proposes a water and sanitation tariff to the users in a clear, logical and transparent manner, taking into account the costs of operation and maintenance, depreciation costs of hardware, contingency funds and the tariff to be paid to the government agency for supplying water. The Pani Samiti also decides the frequency of collection and if the tariff is calculated per household or per person. The Pani Samiti then presents the proposed tariff to the Gram Sabha for approval.

Table 1: Number of trainings and participants in Gujarat

Particulars	No. of trainings	No. of participants
Orientation for WASMO staff/ Community Training (CT)/ Community Management Support Unit (CMSU)/ Gujarat Water Supply and Sewerage Board (GWSSB)	22	272
Orientation for Implementation Support Agency (ISAs)	12	153
PRA exercise and social mobilisation	42	666
Technical training for all partners	30	248
D & C training for ISA/ CT/ CMSU	6	29
Training of trainers	26	357
Other trainings on team work for ISA/ CT/ CMSU	15	204

Source: WASMO

Resources Utilised

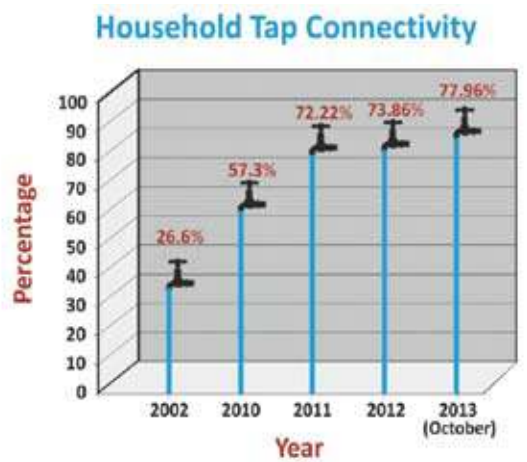
The rural water supply initiative in Gujarat is a community-managed programme where 90% of the funds are provided by the state-supported organisation WASMO, and 10% of the funds come from the village community. Funds contributed by the community are returned once the programme is implemented. An estimated amount of Rs. 800 crore has been spent on infrastructure development for ensuring water supply in villages (including the contribution of the village communities). The responsibility for maintenance and operation of the system is borne by the village community. Approximately 6,787 villages collect water tariff from users to ensure financial sustainability of the programme.

WASMO has also provided all the technical assistance and guidance required and built the capacity of the community to handle the programme. The entire programme was driven by augmenting internal human resource capacities. Pani Samitis were provided training on construction, management and operation. Training was also imparted to the community on a wide array of subjects, from programme planning to post-implementation operation and maintenance. Workshops were conducted to help them in maintaining records, documents, bank accounts etc.

Impact

Financially sustainable system of providing clean water to rural households: The programme has successfully met its objective of bringing drinking water supply to the doorstep of rural Gujarat. WASMO has established a financially sustainable model for water provision that is successful in providing reliable, efficient and regular operations, by facilitating the development of in-village water supply systems. The programme has been successful in maintaining good quality of water, providing household-level tap water connection and promoting sustainable use of water resources.

Figure 3: Percentage of households having tap water connectivity in Gujarat



Source: WASMO

High coverage of villages in Gujarat: The rural water supply project is providing high quality, potable drinking water to all the 26 districts of Gujarat through a community-managed water supply system. As of December 2013, approximately 9,809 village schemes have been completed at an investment of Rs. 800 crore; work is under progress in 3,310 more communities; and 76.84% households have access to safe tap water. Some of the other major achievements of the programme so far have been formation of Pani Samitis in about 18,185 out of 18,478 villages in the state; formation of water quality teams in 16,860 villages; distribution of field test kits in 14,216 villages; and fixing and collecting water tariff by 7,131 villages.

Awards & Recognition

1. **Prime Minister's Award for Excellence in public administration for drinking water management with community participation – 2008**
2. **UN Award for fostering community participation – 2009**
3. **Commonwealth Association for Public Administration and Management award for engagement of rural community – 2010**

Incentives to Pani Samitis through awards: WASMO is playing a crucial role in strengthening the community's capacity for managing water supply services efficiently and adequately. To encourage this, WASMO has introduced a Pani Samiti award. The decentralised participatory approach is one of the major reasons for the success of the water supply programme in Gujarat. The process of planning and implementation has also been

inclusive, given the active participation of the people, the community, NGOs and other stakeholders.

Human development benefits: The safe and adequate water supply has brought about a significant improvement in the human development index through increased opportunities, especially for girls, to continue their education instead of fetching water from long distances; reduction in waterborne diseases; better sanitation facilities; improved overall health status and better living standards of the local community.

Key Challenges

The programme has performed very well in almost all the districts of the State. It did, however, face challenges from time to time, such as capacity-related issues in adapting to new changes, administrative challenges, issues in standardisation of relevant information and inadequate coordination between the community and the implementing agency.

Adding to these challenges were the other problems including difficulties in reaching remote locations, lack of support from the community or other stakeholders involved in the project and other social constraints.

The community's interest and participation were seen to differ from site to site. People's participation at different stages of the programme is important as it builds community ownership, enhances the performance of the community and ensures effective implementation of the programme.

Replicability and Sustainability

The strength of the programme lies in its strategy of establishing a demand-driven community-managed water supply system. The Government of Gujarat has managed to perform exceptionally well in engaging the community in this programme. After receiving financial assistance from the Government of India for 13 districts, the programme was later scaled up to other remaining 13 districts by the Government of Gujarat.

Image 1: Community meeting in process in Motipura village

Source: WASMO

Financial assistance was received during 2008-09 in the shape of budgetary provisions of the Accelerated Rural Water Supply Programme (ARWSP) for taking up rural water supply schemes.

For sustainability of the programme, people of the village must be involved in its implementation and participate at every level of planning. Over time, the programme has received high participation from Pani Samitis and the community in planning, execution and maintenance of the village water supply system.

A case study of Motipura village

A field trip to study the assured drinking water supply programme in Motipura village, Gujarat, found the programme was a kind of participatory reform model of the Government of Gujarat and was functioning well. The programme had been successful in facilitating water supply and enhanced the quality of water in addition to providing household piped water connection.

Under this programme, the community was encouraged to bear the operation and maintenance cost (10%), while the state funded the rest of the programme. Since the community plays a very important role in the project, various meetings and workshops were conducted to build the capacity of the community. The village was successful in collecting more than the targeted funds necessary to meet the requirements of the project.

As of December 2013, approximately 3,790 villages have managed to run the system efficiently and effectively without any government support. Equitable access to water resources, including for backward and deprived sections of the population, is a significant aspect of the programme. By engaging the community and the Pani Samitis in the implementation process, the programme has managed to provide equal benefits to the community, thereby ensuring social sustainability of the programme.

Conclusion

The programme has been a successful and pioneering initiative in providing assured drinking water supply in all the rural areas of Gujarat. WASMO has collaborated with communities and employed the existing infrastructure to ensure that people have adequate, regular, safe, sustainable and convenient water supply at their doorsteps. In the coming time, the programme aims to also enhance sanitation facilities at the household level.

Fact Sheet

Theme	Water and Sanitation
Nodal Implementing Agency	Water and Sanitation Management Organisation (WASMO) - A state led water and sanitation management organisation established by the Government of Gujarat
Geographical Coverage	All districts of Gujarat State
Target Groups	Rural citizens of Gujarat
Years of Implementation	2002 - Present

2.35 Open Defecation Free Villages: Creating and sustaining Nirmal Grams through community participation in Jharkhand

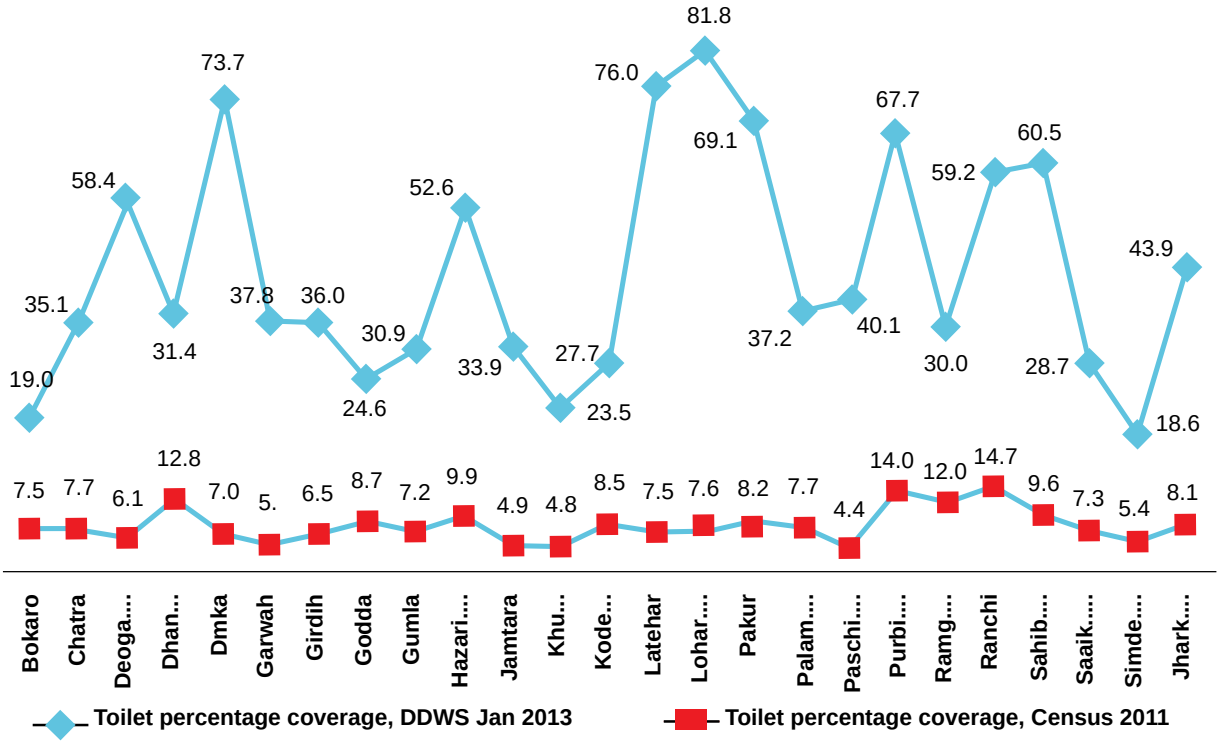
The Government of Jharkhand has successfully established a workable strategy for creating and sustaining Nirmal Grams (clean villages) through a people-centric, participatory and demand-driven approach. This initiative aims to create Open Defecation Free (ODF) villages through the construction of a functional toilet in every household. Having been successfully piloted in Gadri village, the initiative is being scaled up across the state, with convergence and community involvement as its underlying principles. The initiative has created a ripple effect as neighbouring villages have emulated the process and the State government has upscaled the initiative, beginning with the direct transfer of Rs 30.46 crore to the Village Water and Sanitation Committees of various Panchayats.

Rationale

Sanitation has emerged as a major issue since the 2011 Census threw up glaring data on India's "missing toilets". With only 35% of the rural population using functional toilets, the data highlighted sanitation as one of the biggest social sector service delivery challenges in India. These figures came as a surprise as the Ministry for Drinking Water and Sanitation, Government of India, had estimated the figure to be approximately 65%. The gap in estimation of rural population using functional toilets was even wider for the state of Jharkhand, with divergent figures of 8% (Census data) and 42% (Government of Jharkhand data). *Figure 1* depicts the difference between the data from the Census of 2011, Government of India, and data as shown on the website of the Department of Drinking Water and Sanitation (DDWS), Government of Jharkhand (GoJ).

The gap between the two sets of data revealed that the toilets that were being recorded on paper were not operational on the ground, triggering a critical reassessment of the Total Sanitation Campaign (TSC), the sanitation programme initiated by the Government of India in 1999. The learning from TSC was incorporated

Figure 1: Toilet coverage in rural Jharkhand - Comparison of DDWS and Census 2011 data demonstrating access of households to sanitary toilets in Jharkhand



Source: Department of Drinking Water and Sanitation

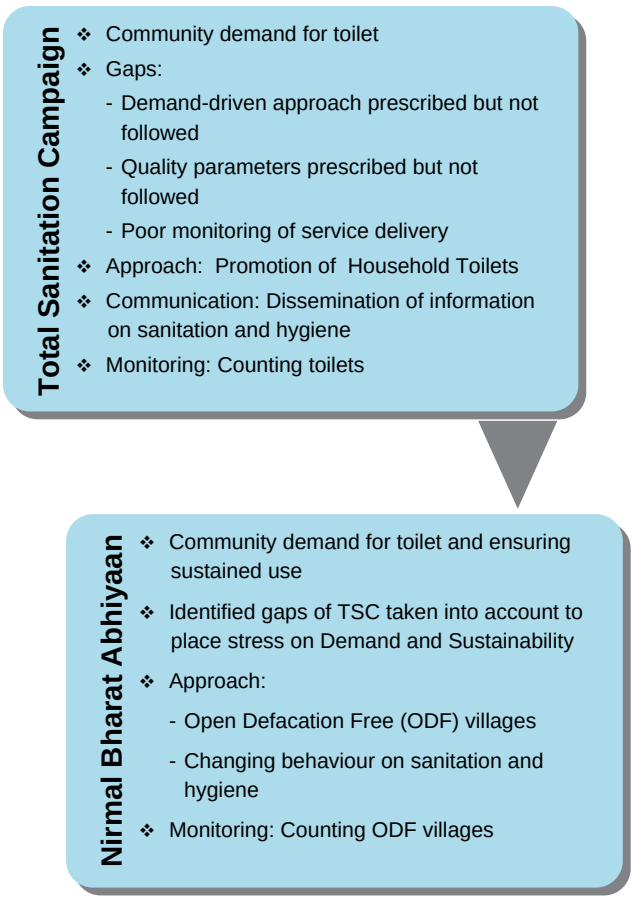
into the Nirmal Bharat Abhiyan (NBA), launched in 2012 to correct this 'slip back' phenomenon. Renewed emphasis was placed on having a 'community-led, people-centred, demand-driven' approach that could achieve 'sustainability'. Focus was placed on bringing about behaviour change. Recognising the need for a new approach, DDWS, GoJ, in collaboration with UNICEF, embarked upon an introspective exercise to identify the lacunae in TSC implementation and to draft a new strategy. The new strategy was sensitive to contextual problems, such as abundance of forests, lack of communication infrastructure and perennial water sources and low population density.

Image 1: Gadri - Open Defecation Free village

Objectives

The DDWS, GoJ, seeks to establish a workable implementation strategy for creating and sustaining Nirmal Grams through community involvement. The aim is to enhance sustainable sanitation solutions to 80% of the rural households, and rural piped water supply to 45% of the rural households by the end of the 12th Five Year Plan period (2017). The guiding principles in this mission are innovation and convergence.

Figure 2: Transition from TSC to NBA



Source: Department of Drinking Water and Sanitation, and OneWorld Foundation India, 2014

Key Stakeholders

The initiative is being run by the DDWS, Government of Jharkhand, and United Nations Children's Fund (UNICEF) on the basis of the recommendations of various national flagship programmes like NBA, Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme and National Rural Livelihood Mission (NRLM). The primary and secondary stakeholders are local civil society organisations, suppliers of goods, masons, village water sanitation committee and the community.

Figure 3: Key stakeholders in the Open Defecation Free village initiative

Source: Department of Drinking Water and Sanitation, and OneWorld Foundation India, 2014

Implementation Strategy

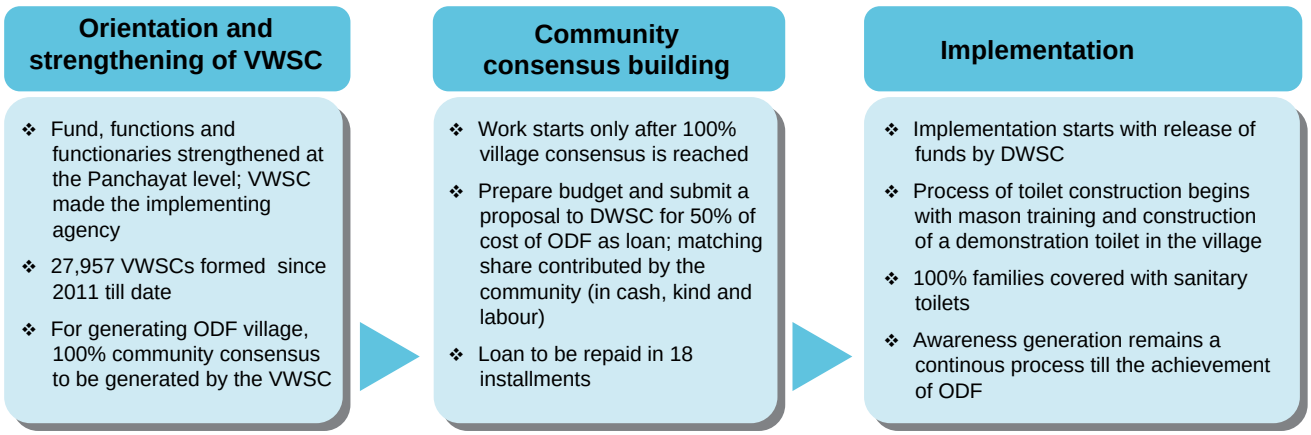
The DDWS has adapted NBA recommendations to the context of the State to develop its own unique strategy for the creation of ODF villages. The delivery mechanisms for ODF villages in Jharkhand are the following: The Panchayats have been empowered to implement NBA and the National Rural Drinking Water Programme; every revenue village has a Village Water and Sanitation Committee (VWSC) with 12 members (comprising 50% women) with a bank account; the VWSC is the implementing agency; the *Mukhiya* (village head) is the president of VWSC and the *Jal Sahiya* (village-level foot soldier of NBA) is the treasurer; and NBA funds are transferred to VWSC. The loan for toilet construction is provided to VWSC and not to individual families. Likewise, the subsidy accruing to the community is made available to the VWSC. Also, Block Resource Centres (BRCs) are set up to facilitate and monitor the activities of the initiative. The eligible NGOs in the district are selected after a screening at the State level to manage BRCs. Depending upon the size of the block, a BRC comprises one Block Coordinator and two or three Cluster Coordinators. They engage with the Panchayats from the initial stages for planning and implementing the programme. After the achievement of the ODF status, they continue their constant engagement with VWSC to ensure the continued sustainability of the programme.

The strategy for implementation of the State Water and Sanitation Mission (SWSM) is six-fold: 1) devolving power to the Gram Panchayat; 2) adopting a saturation approach in implementation, considering the entire village as one unit; 3) using the 'revolving funds' available in NBA guidelines to give loan to the village community to initiate the process of ODF village[1]; 4) seeking community contributions as matching share of funds made available as loan; 5) subsidy accruing to eligible families calculated only after the village achieves ODF status and transferred to the VWSC after adjusting with loan amount; and 6) identifying a distinct post-construction phase to ensure sustainability of the ODF village. The strategy involves inter-departmental convergence between the Departments of education, social welfare, health, Panchayats and rural development.

The stress on demand generation and behaviour change has been a priority from the very inception of the initiative. Formal elections to the Panchayats (in 2010 after a gap of 32 years) and more than 50% women representation in the Panchayati Raj Institutions (PRIs) strengthened the process of rolling out this strategy. The consensus building exercise is extensive, ranging from demand generation to ensuring contribution in cash or kind for the toilets to be constructed. Once 100% community consensus is generated, the focus is on building toilets for every family. The saturation approach ensures that the 'slip back' cases (families who had earlier had a toilet under TSC but are currently not using one) are not discussed in isolation. After community consensus on ODF, the BRCs organise mason training (often women masons are part of this) and construct a demonstration toilet to enhance community involvement.

The issue of subsidy is never mentioned upfront to ensure that subsidy is not projected as an attraction for toilet construction. Rather, issues of women's dignity, health and convenience are highlighted and the quintessential

Figure 4: Process flow for achieving ODF villages in Jharkhand



Source: Department of Drinking Water and Sanitation, and OneWorld Foundation India, 2014

[1] *According to NBA guidelines "a revolving fund may be given to cooperative societies or self-help groups whose credit- worthiness is established for providing cheap finance to their members. These loans are to be recovered in 12-18 installments. The terms and conditions for the sanction of this loan are flexible and can be decided by the NBA projects. This revolving fund can be accessed by APL households not covered for incentives under the guidelines. Loan can also be given to the owner of the household where Anganwadi center is located for construction of baby friendly toilet provided the ICDS authorities agree to refund the loan from the rent paid to the house owner. 5% of the district project outlay subject to a sum of up to Rs. 50 lakh, can be used as revolving fund. The revolving fund is shared between Centre and State on an 80:20 basis". Web Accessed on 12.04.14 from http://hptsc.nic.in/NBA_Guidelines_Final.pdf*

need for 100% coverage (comprehensive public health security is achieved only through 100% coverage) of households with toilet facilities is emphasised. Subsidy is discussed only after achieving the ODF status. The total sum of subsidy money accruing to the village is adjusted with the loan amount and handed over to the VWSC if the subsidy amount is in excess of the loan amount. If the loan amount is in excess of the subsidy amount, the balance is paid back by the VWSC in 18 monthly installments. Post-construction, reinforced community interactions continue to ensure use of facilities for at least one year. Also, mini piped water supply schemes are then implemented in revenue villages, again using the saturation approach, i.e., for every household to have a tap connection.

The key innovations of this approach are: use of the saturation approach, which makes the community and not the individual household the focus of the initiative; use of revolving funds with matching contributions from the community; active role of Panchayats; outsourcing of BRC management to NGOs; presence of a *Jal Sahiya* in every village; minimising the subsidies loop; continued community engagement in the post-construction phase; and priority for piped water supply to ODF villages.

With a view to facilitating better monitoring and keeping communication lines open, DDWS has developed its own website (ww.dda.jharkhand.gov.in) which is updated regularly. A call centre has been established under the e-Governance initiative to address sanitation issues in Panchayats and to disseminate information on sanitation to *Mukhiyas* and *Jal Sahiyas* through SMS. Transparency and efficiency are enhanced by using core banking services to transfer NBA funds directly to the Panchayat's VWSC account. Further, a real-time monitoring system is placed at the SWSM's headquarter with a field-based mobile input facility from field locations, thereby enabling real-time monitoring of programmes, infrastructure and assets related to sanitation and allowing villagers to verify the progress by feeding their comments in the local language.

Figure 5: Implementation strategy for ODF villages in Jharkhand

- Devolving power to the Gram Panchayat
- Adopting a saturation approach in implementation considering the entire village as one unit
- Using the 'revolving funds' available under NBA guidelines to give loan to the village community to initiate the process of ODF village
- Seeking community contributions as matching share of funds made available as loan
- Subsidy accruing to eligible families calculated only after the village achieves ODF status and transferred to the VWSC after adjusting with loan amount
- Identifying a distinct post-construction phase to ensure sustainability of the ODF village

Source: OneWorld Foundation India, 2014

Resources Utilised

The ODF initiative is implemented by utilising the existing resources of the NBA. As convergence is a priority, resources of the NRLM and MGNREGA are utilised in the implementation of the programme. Convergence between the various government departments and civil society organisations has been institutionalised to ensure optimal use of resources.

The option of utilising corporate social responsibility (CSR) resources for organising mason trainings has also been explored by involving UltraTech Cement to sponsor these trainings.

Impact

Positive ripple effect in achieving ODF status: The successful pilot at Gadri village has created a ripple effect. Three other villages in the same Panchayat are in the process of achieving ODF status soon, as the construction of toilets for every household in these villages is in its final stages. Work is continuing in all six villages of the Nehalu Kadadia Panchayat. Many other Panchayats have also started the process and as many as four villages are nearing the ODF process as of 8th February 2014.

Scaling up of initiative to cover entire state, supported by convergence in funding: The success of Gadri has encouraged the government to scale up this initiative in the rest of the state, with special focus on another five Panchayats in four districts. A proposal for constructing 1.5 lakh toilets under MGNREGA has been approved. The most significant impact is the direct transfer of Rs. 30.46 crore to the VWSC accounts of various Panchayats. The DDWS has proposed to construct 2-2.5 lakh toilets in Jharkhand, thereby putting sanitation high on the state agenda. Functional and funding convergence with NRLM is expected to further strengthen VWSCs/ Panchayats and the women community to push water and sanitation initiatives at the grassroots.

Additional infrastructural measures: Meanwhile, Gadri is now working on the piped water supply initiative, for which various sanctions have been obtained. As a

People speak...

Naori Oraoin, Gadri village

She was attacked by a bear when she had gone to relieve herself. Naori narrates, "As I saw the bear rushing towards me I screamed for help and then I just lay holding my breath. I was unconscious after the attack. The villagers brought me home as I was bleeding. The *mukhiya* rushed me to the hospital."

Birsa Oraon, Teacher, Gadri village

"We started to convince people by explaining the difficulties arising due to wild animals. Then we explained about the convenience of having a toilet in the house. We also explained that diseases are caused due to faeces lying in the open."

Sanika Oraon, *Mukhiya*, Gadri village

"All of us knew that open defecation was bad but there was nobody to take an initiative. It was difficult to achieve the initial consensus but once convinced, everyone cooperated."

follow-up on the ODF status, the BRC in Gadri has also undertaken the task of covering drains and digging pits for household water discharge.

Key Challenges

The implementation rate was slow initially due to the adoption of the saturation approach and use of loans through revolving funds. Also, multiple approaches are evident on the ground, with some districts advancing subsidies to VWSCs or not following the saturation approach, creating differences in implementation patterns.

Pilot project – Gadri village

The pilot project was implemented in Gadri village in Bero block, Ranchi district. The village has 70 households. Awareness generation was critical to make the village inhabitants aware of the link between unsanitary practices like open defecation and disease. The Information, Education and Communication (IEC) strategy used was organic and involved regular and intensive interaction between the BRCs and the village community, explaining the need for toilets, hazards of open defecation and generating a genuine demand for toilets. The consensus generated in the village was primarily the result of this sort of focussed and continuous IEC. The second step of the IEC strategy was the demonstration toilet, which was constructed during a practical masons' training within the village. The masons' training generated curiosity in the village and demonstrated what the finished product would look like. This reasserted the value of toilets in the community. The *Jal Sahiya* and local self-help groups, Accredited Social Health Activists (ASHAs), Anganwadi Workers (AWWs), teachers and Auxiliary Nurse Midwives (ANMs) were involved in awareness and consensus generation. Interestingly, such convergence was made possible as the leadership was with the *mukhiya* (village head). Gadri village achieved ODF status on May 14, 2013, and has now become a role model for neighbouring villages.

The pilot at Gadri village has highlighted the need for focus on sustainability, which was the most glaring shortcoming of previous experiences. It has also shown the need for making a provision to provide funds to PRIs from the revolving fund in NBA; bringing 'slip-back' toilets within the ambit of NBA; and viewing water and sanitation as inputs for community empowerment, hence calling for convergence between National Rural Livelihoods Mission (NRLM) and NBA funds.

The slow release of MGNREGA scheme funds, dependent as it is on the initiative of the district administration, has posed a challenge. Also, the MGNREGA scheme fund distribution does not follow the saturation approach Importantly, monitoring indicators are still focussed on counting toilets instead of ODF villages.

Replicability and Sustainibility

The preliminary focus of this initiative is to generate a genuine demand for toilets and not be "a programme for counting toilets owned by none". Its strategic focus, then, makes it a community-led, demand-driven initiative. Although the prerequisite of obtaining 100% consent and raising the community's contribution involves hard work and takes time, the awareness generated and the mobilisation of the community in the initial phase as well as continuing serious engagement with the community through BRCs and VWSCs post-ODF status ensures that the behaviour change is sustainable.

Image 2: VWSC meeting in progress in Gadri village

Source: Department of Drinking Water and Sanitation

The initiative is also highly replicable as it harnesses the resources of national programmes like NBA, NRLM and MGNREGA and utilises the plan funds of DDWS. The Gadri experience has shown that the process of community involvement and sustainable behaviour change may be slow but it brings success. The eagerness with which the surrounding villages have replicated the model shows that the goal of achieving ODF is not impossible. Interest has been generated outside the State as well. An Agha Khan Foundation team from Muzaffarpur, Bihar, has already undertaken an exposure visit to Jharkhand.

Conclusion

The Gadri pilot has started a process of change in Jharkhand, and its success has resulted in the strategy being scaled up in the rest of the State. This scaling up has brought forth new challenges. With more than a thousand villages in hilly areas with accessibility issues, the DDWS is looking at pre-fabricated toilets as an alternative. The Department is also encouraging socio-technical innovation in sanitation; aerobic bio-toilets have already been piloted and anaerobic bio-toilets will be piloted next. Further, following the Sulabh model, pay-and-use community toilets have been experimented with in rural areas and, more importantly, in marketplaces.

Attempts are also being made to involve more than 25 corporate houses (through CSR funds) in sanitation initiatives within the State. The World Toilet Day 2014 was celebrated with focus on PRI representatives to take up community-based WASH (water, sanitation and hygiene) programmes. The most inspiring aspect of the World Toilet Day was the declaration made by the Chief Minister of Jharkhand that candidates without a household toilet shall not be allowed to contest Panchayat elections.

Fact Sheet

Theme	Water and Sanitation
Nodal Implementing Agency	Jharkhand State Water and Sanitation Mission, Government of Jharkhand
Geographical Coverage	Select villages across all districts of Jharkhand State
Target Groups	The communities in the villages of Jharkhand
Years of Implementation	2010 - 2011

WOMEN'S EMPOWERMENT

2.36 Ghar Doghaanche Abhiyan: Joint ownership of housing by husband and wife in Maharashtra

Mahila Arthik Vikas Mahamandal (MAVIM), the women's economic empowerment organisation of the Government of Maharashtra, has undertaken an awareness generation campaign that seeks to make women aware of their rights to their husbands' house and property. The initiative stands out for addressing a challenging issue that has often been cited as a reason for the vulnerabilities of many married women. 1,065 women from 29 villages in Parbhani district have become co-owners of property since June 2013. Besides a sense of security, they have been able to resist domestic abuse with the knowledge that they cannot legally be thrown out of their houses. Women members of Self Help Groups (SHGs) are even more empowered owing to their increased awareness and economic independence.

Rationale

Property rights of women in India are governed by a complex set of personal laws with separate provisions for Christians, Muslims, Tribals and Hindus (which include Buddhists, Sikhs and Jains). There is, therefore, no single right to property law for women in India. This diversity of laws further increases due to the fact that both the Centre and States legislate upon this topic. These rights are weakened by lack of constitutional protection for women.[1]

This complex legal structure results in lack of clarity as to which authority is accountable for enforcement. The problem is further aggravated by a largely patriarchal social structure in India where men are the default heads of the family and women are treated as subordinate. This is reflected in the pattern of land ownership as well – as of 2007, a mere 10.9% of agricultural land owners are women.[2] The lack of ownership of property and other assets makes women vulnerable, forcing them to tolerate instances of domestic abuse and depriving them of decision-making power. It also makes them vulnerable to poverty and destitution in the event of their husband's death or divorce. To address these issues, the Government Resolution 1094/3625/10-08-1994 was passed, declaring that every married woman has the right to an equal share in her husband's property. However this rule is not properly implemented – both in rural as well as urban areas.

Image 1: Women outside the Mooli village sabhagrah

This lacuna was highlighted by MAVIM[3] in Maharashtra, and it was decided to focus on creating awareness among women in Maharashtra regarding their rights to their husband's property. Thus began the initiative known as Ghar Doghaanche Abhiyan or the Home of Two campaign, beginning in May-June 2013 in Maharashtra's Parbhani district. The initiative is unique in that the State has taken an active and targeted approach towards the enforcement of women's property rights, an approach that is unparalleled elsewhere in the country.

Objectives

The aim of this initiative is to enforce the right to property for women by increasing awareness and registering of joint ownership of the house between husband and wife.

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[1] *Shruti Pandey. Property rights of Indian women. http://www.muslimpersonallaw.co.za/inheritancedocs/Property%20 Rights%20of%20INdian%20 Women.pdf*

[2] *Food and Agricultural Organization. http://www.fao.org/economic/es-policybriefs/multimedia0/female-land-ownership/en/*

[3] *MAVIM is the State Women's Development Corporation of Government of Maharashtra, established to implement women empowerment programmes through SHGs and enable social, economic and political justice for women.*

Key Stakeholders

The nodal implementation agency at the State level is MAVIM in convergence with the District Coordinating Officer, CMRC, Village Level Committee (VLC), local bodies and SHGs. The ultimate beneficiaries of the initiative are the married women.

Figure 1: Key stakeholders

MAVIM

- Nodal state level implementing agency. Provides overall direction, funding, support and monitoring and evaluation.

District Coordinating Officer

- District level executive head
- Strengthens and supports SHGs and Community Managed Resource Centres to become self-sustaining
- Conducts awareness generation, training and capacity building

Community Managed Resource Centre

- Cluster level body
- Nodal field level implementing agency consisting of federation of 150-200 SHGs formed in a cluster of 20 villages
- Provides basic services to SHGs such as capacity building, need assessment, bank linkages, gradation, convergence with government schemes and audit

Village Level Committee

- Body representing all SHGs active in the village. Empowers SHGs and forwards village development agenda.

Self Help Groups

- Primary unit for community mobilisation and women empowerment. Promotes awareness and advocacy campaigns in terms of legal, policy and programmatic provisions

Local bodies

- Gram Sabha, village Sarpanch and Gram Sewak are involved in community mobilisation and registration

Beneficiary

- Married women are the ultimate beneficiaries of this initiative

Implementation Strategy

MAVIM had a rural women empowerment programme called Tejaswini, which is implemented in Maharashtra's 33 districts, including in Parbhani. The programme was built on four work components:

1. Grassroots institution building
2. Micro financial services
3. Livelihood and micro enterprise development
4. Women empowerment.

The Ghar Doghaanche Abhiyan was taken up as an initiative by the Parbhani district chapter of MAVIM under the women empowerment component of Tejaswini, a sub-theme of which is property rights. The initiative was taken up only in Parbhani as this district chapter had already had a successful experience in mobilising women through the SHG network and could consider this as next step.

While awareness generation on the right to property was being created in other districts as well, what differentiated the Parbhani experience was its campaign mode and outcome-oriented approach which focussed not just on generating awareness but on taking the next and crucial step of translating it into actual registration of joint ownership.

However, the challenge of tackling patriarchy by attacking one of its foundations - male ownership of private property - was formidable. There was also a clear relationship between the size of property involved and the difficulty in ensuring registration, with zamindar[4] families having stronger feudal mindsets and reluctance to share property with women. Even in cases where property would be registered with women, it would be generally for the purpose of avoiding taxation and not for real empowerment. Therefore, the implementation strategy adopted was to focus on families with small property holdings as the assumption was that these would be more receptive to the initiative.

Owing to the caste system, the families with small property holdings showed a clear pattern: they invariably belonged to the Scheduled Castes, Scheduled Tribes, Other Backward Castes and minority communities. There was also a significant overlap between them and Below Poverty Line families. Accordingly MAVIM focussed its initiatives on these communities. Villages were selected where there was a strong presence of SHGs. The pilot of Ghar Doghaanche Abhiyan was implemented in 29 villages with some of them being Mooli, Sunegaon, Pimpri and Brahmangaon.

[4] *Landlord*

a. Awareness generation

The actual implementation of the initiative only required that the husband and wife register their property as co-owners at the Panchayat office. The main challenge was in generating the demand for this and in getting both parties to agree to it. This required significant and sustained awareness generation and, therefore, villages with a strong presence of SHGs were selected for the trust the people had in them. SHGs had a reputation of contributing positively to the society and this made it easy to disseminate information for gender awareness.

Gender awareness training was given to women members through the Sahyogini, a field-level SHG functionary. The Community Managed Resource Centre (CMRC) provides such training as well, at both the cluster level and at the district levels. As part of these trainings, women would be made aware of the unpaid labour they perform, such as domestic chores and agricultural labour, thus bolstering their self-esteem and countering the perception that housewives 'do nothing'. The campaign was also designed to make women aware of their vulnerability. Men typically control the household income and retain ownership of housing and land. Even jewelery and utensils, which are used almost exclusively by women, are ultimately owned by men. This makes women extremely vulnerable and leaves them with little say in how resources are utilised. Women are thus made aware that despite contributing equally, if not more, to the family income, they are left thoroughly vulnerable and have no security. They are then introduced to the Government Resolution, which gives them a right to joint ownership of their husband's house and land. The campaign creates demand through sustained awareness generation along these lines.

b. Strategy

Male members of the village are also involved in these meetings and encouraged to empathise with the plight of their mothers and sisters who are disempowered. The need for joint ownership to secure their future is highlighted. This softens their approach and sensitises them to the need for women's empowerment even in the case of their own wives. The advantages accruing from empowered women to the household and community are highlighted to consolidate male participation. They are also complimented for supporting their wives in SHG endeavours and are exhorted to continue the good work and make their wives co-owners of property. Key officials such as Sarpanchs and Gram Sewaks are also given training and made aware of the Government Resolution and its legal status. The communication strategy is informally referred to as 'slow poisoning' by the implementing officials because it is given in small doses over time. In addition to meetings of SHGs, the Ghar Doghaanche Abhiyan is also publicised at Gram Sabha meetings.

Once demand has been generated and there is an agreement from both sides, the husband and wife have to jointly register as co-owners of the house at the village Panchayat office. The registration is carried out by the Gram Sewak in Form 8-A, after which both husband and wife become joint owners of the house. Women then put up name plates on the house, proclaiming their equal status as owners.

Image 2: Advertisements in local newspapers

All positive behaviour is rewarded by reinforcement. Husbands who register along with their wives, along with supportive Sarpanchs and Gram Sewaks, are felicitated at public functions and given a Jyotiba Phule[5] award which honours their progressive and inclusive efforts. As Maharashtra has had a legacy of many famous social reformers who are revered by the people, such awards are seen as a mark of high respect.

The initiative also undertakes study tours/exposure visits to successful villages to afford an opportunity in peer learning. When SHG members share their successes, it motivates women from other villages to replicate the initiative. Similarly, experience sharing meetings are arranged among villages where strategies, problems and solutions are discussed. Cluster level meetings at the CMRC are also held where such best practices are shared. Even the local newspapers have covered the successes of the initiative.

c. Monitoring and evaluation

A monitoring application is used by MAVIM, which provides consolidated data on the functioning of the initiative. Monthly review meetings are held at the district level where problems are identified and action is taken by block authorities such as Block Development Officers. The CMRC is also involved in monitoring.

[5] *Jyotiba Phule was a famous social activist in Maharashtra who fought for the rights of women and backward castes.*

Resources Utilised

The Ghar Doghaanche Abhiyan is implemented through the Tejaswini system and so does not require any additional resources for implementation. The Tejaswini system is funded by the Government of Maharashtra and International Fund for Agricultural Development (IFAD). Efforts are on to make the CMRCs self-sustaining by making them charge fees from SHGs for the training and monitoring services they provide.

People speak...

Maidabi Hassan Syed, Mooli village, Gangakhed block, Parbhani

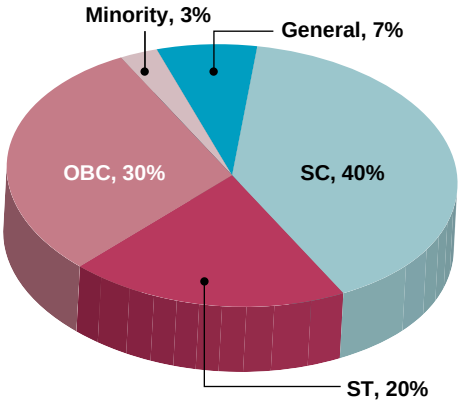
"Before I joined an SHG, I knew nothing but cooking and taking care of children, and barely stepped out of the house. However, after joining I began working on various issues, starting with water supply. This led us to Ghar Doghaanche Abhiyan. We mobilised women in the village and a majority of men supported us. Their initial resistance was countered by our assurances that what we were doing was for the benefit of the family and our children. Now when our husbands are asked by other men why our name plates are on the house, they reply that is so because we are the mards (men) of the family."

Impact

Husbands and wives as joint owners of property: Since June 2013, 1,065 women from 29 villages in Parbhani district have registered their names on Form 8-A, making them co-owners of property. This has provided them a sense of security and increased their self-confidence.

With the security that they have a right to the house they reside in, they are empowered to stand up for their rights in other spheres and challenge discrimination and unfair treatment including domestic abuse. SHG Women experience greater empowerment and enjoy greater confidence, owing to their increased awareness and economic independence.

Figure 2: Social profile of beneficiaries



Key Challenges

Initially, it was very difficult to explain the concept of joint ownership as a 'right' to men. The request for registration of joint ownership would be immediately interpreted as a lack of trust in the husband and his family. This was addressed by gender sensitisation training for men. After the implementation, other men in the village or from neighbouring villages would find it strange to see the wife's name on the house. However, as the sight became more and more common, they became used to it.

It was also observed that during the process of SHG formation, the men were reluctant to 'allow' their wives to participate. They would fear that their wives would neglect their household duties. This was addressed by convincing them that family life would not suffer and by recounting the good work done by SHGs. The men would gradually relent and come on board.

At the beginning, women were extremely shy and lacked self-confidence. This was overcome with sustained awareness generation and gender sensitisation training. Another challenge was lack of support from Gram Sewaks in nine villages. This required intervention from the district office after which the problem was resolved. Certain villages were non-responsive to the initiative. This was addressed with repeated IEC campaigning and frequent Gram Sabha discussions. Corruption in the property registration process was also widespread and posed a major obstacle as well.

Replicability and Sustainability

Registration is a one-time process. However, the challenge is to ensure that the culture of registration of joint ownership seeps into society and over time begins to disseminate by itself through peer learning as an accepted norm. This requires sustained IEC support from the implementing agency and learning between villages through exposure

visits. Currently the Ghar Doghaanche Abhiyan is still at the district level and has not been upscaled to the entire State. This also poses questions regarding long-term viability.

Successful replication requires several preconditions. One, SHGs must be present in large numbers and must have a history of successful initiatives. This will help them gain the community's trust and make it possible for them to initiate the dialogue on women's right to property. The success of the initiative largely depends on the credibility of SHGs. Two, women in the village must be actively mobilised through SHGs or other means and must be aware of their rights. This is an essential requisite as only then will there be the demand generation for taking the campaign forward. Three, men too must be involved in awareness generation. They must be seen as partners in the process and not opponents. They must be made to appreciate the issue from the point of view of their mothers and sisters so that they understand the subject of women's vulnerability and exploitation from a position of empathy. This will make them more willing to support the initiative with respect to their wives as well. It is important to note that negative communication that accuses men of villainy and exploitation, or takes a threatening and legalistic approach to the enforcement of joint ownership of property has a low chance of success as it might have the counter-productive effect of antagonizing men. Therefore, constant positive reinforcement of good behaviour, especially of men, through community felicitations and rewarding will also help soften opposition and secure their cooperation. Four, local government machinery must be involved in the entire process. Efforts must be made to maintain maximum coordination between the Village Level Committees (VLCs), Gram Sewaks and Sarpanchs. The latter two entities often face obstruction from powerful local vested interests and, therefore, must be assured that they have State level or higher level administrative support. Five, the government will also have to ensure that monitoring and evaluation is a very important component and strong systems must be set which provide regular feedback on programme performance and bottlenecks.

People speak...

Vandana, Mooli village, Gangakhed block, Parbhani

"Prior to my involvement with an SHG, I lacked confidence to speak in front of anyone. Now my confidence has risen to the extent that now I feel I have to stand up when I speak. We ensured that in addition to the house, even the taps procured for water supply were put in the wife's name."

Kushavartha Bhosale, Mooli village, Gangakhed block, Parbhani

"In this entire village no one has had to endure as much domestic violence as I have. In addition to registering my name, I saw to it that we shut down the local liquor shop. If I had to motivate another woman for this initiative, I would tell her that this is not just for her security, but for the security of her children and security against domestic violence."

Conclusion

The initiative is set to extend to 60 more villages where registration of joint land ownership will take place as well. As land ownership is a fundamental issue, associated challenges, and consequently the requirement for such an initiative, are only expected to increase in the future.

Fact Sheet

Theme	**Women's Empowerment**
Nodal Implementing Agency	**Mahila Arthik Vikas Mahamandal, Government of Maharashtra**
Geographical Coverage	**Parbhani district of Maharashtra State**
Target Groups	**Married women**
Years of Implementation	**2013 - Present**

A women displays rice produced on her farm as part of a MAVIM initiative on 'Organic Rice Production by SRI: Empowering Women in Maharashtra'. The initiative has strengthened grassroots level institutions through the formation of women SHG-led business groups and has helped in reduction in women's drudgery while increasing their participation in decision-making matters of the household.

2.37 Organic Rice Production by SRI: Empowering women in Maharashtra

The Tejaswini Rural Women's Empowerment Programme, implemented by the Mahila Arthik Vikas Mahamandal (MAVIM), Government of Maharashtra, has empowered marginal women farmers by helping them improvise upon existing agricultural practices through organic farming and System of Rice Intensification (SRI) methods and, in turn, increasing their yield. The emphasis on the role of women in agriculture has helped in elevating their status as stakeholders in agricultural activities. SRI, is a low water, labour-intensive method for organic rice production. Evidence from the six blocks in which the project is under implementation has shown that the costs of production have reduced by 30 percent, increased women's participation in decision-making matters of the household and reinforced faith in the capacity and potential of women-related government schemes in agriculture, besides popularising crop insurance.

Rationale

Agricultural activities in the field are carried out by both men and women in the household. Women perform activities such as seeding and weeding, which require them to bend and work for long hours in the field. This causes considerable amount of drudgery for women who, aside from farming, also perform household activities on a daily basis. The harsh conditions of women farmers prompted Mahila Arthik Vikas Mandal (MAVIM)[1] or the Women Economic Development Corporation, Maharashtra to initiate reforms in Chandrapur district to address the drudgery of women. As rice/paddy cultivation is the main agricultural practice in Chandrapur, it was decided after consultations with the Department of Agriculture and the Krishi Vigyan Kendra that a new methodology for rice cultivation, SRI, would be implemented here.

In the trial phase, it was found that while the introduction of SRI considerably reduced work and expenditure, it increased productivity and provided an ideal platform for imparting knowledge on agricultural practices through MAVIM's women's network. This programme, which was piloted in three blocks of Chandrapur in 2010, has now been expanded to cover 18 villages across the district.

Objectives

The programme had clear objectives to reduce the drudgery for women, empower women farmers by using modern agricultural technologies, introduce organic farming in agriculture, encourage sustainable livelihood practices and also improve the quantum and quality of production in agriculture.

Key Stakeholders

The key stakeholders in the programme are MAVIM, Department of Agriculture, Krishi Vigyan Kendra, District Coordinating Officer, Community Managed Resource

Figure 1: Key stakeholders

Mahila Arthik Vikas Mandal (MAVIM)
- Nodal state level implementing agency. Provides overall direction, funding, support and monitoring and evaluation

Department of Agriculture and Krishi Vigyan Kendra
- Coordinate with MAVIM to administer project at the state level
- Provide technical knowledge to beneficiaries

District Coordinating Officer (DCO)
- District level executive head
- Strengthens and supports Self Help Groups and Community Managed Resource Centres to become self-sustaining
- Conducts awareness generation, training and capacity building

Community Managed Resource Centre (CMRC)
- Cluster level body
- Nodal field level implementing agency consisting of federation of 150-200 SHGs formed in a cluster of 20 villages
- Provides basic services to SHGs such as capacity building, need assessment, bank linkages, gradation, convergence with government schemes and audit

Village Level Committee
- Body representing all SHGs active in the village. Empowers SHGs and forwards village development agenda

Self Help Groups
- Primary unit for community mobilisation and women empowerment. Promotes awareness and advocacy campaigns in terms of legal, policy and programmatic provisions

Beneficiary
- Women paddy cultivators in Chandrapur district

[1]*MAVIM is the State Women's Development Corporation of Government of Maharashtra, established to implement women empowerment programmes through SHGs and enable social, economic and political justice for women.*

Centre (CMRC), Village Level Committee, Self-Help Groups (SHGs) and women paddy cultivators.

Implementation Strategy

MAVIM's rural women empowerment programme called Tejaswini is being implemented in 33 districts of Maharashtra, including Chandrapur. The programme is built on four work components:

1. Grassroots institution building
2. Micro-financial services
3. Livelihood and micro-enterprise development and
4. Women empowerment

MAVIM's intervention with women farmers began with a study that was conducted to determine the activities of SHGs and the reasons for the high rate of loan defaults. Agriculture was identified as the primary source of expenditure. On consultation with the Department of Agriculture and the Krishi Vigyan Kendra, it was also found that SHG-bank linkages are usually for crop loans. However, there were defaulters due to the uncertainty in climatic conditions and poor yields. Farmers take crop and kisan loans but not many avail of crop insurance despite the high dependence on nature.

The other observations were that expenditure on chemical fertilisers and pesticides are high, which can be controlled by adopting organic farming practices. Similarly, the cost of seeds can be controlled if agricultural practice allows for the use of less seeds. It was found that labour cost could be reduced with the use of mechanical agricultural equipment like a conoweeder, which would prove to be more efficient in carrying out farming tasks. On the basis of these observations and the high number of paddy cultivators among women farmers, the Department of Agriculture suggested the use of SRI method for organic rice cultivation to improve the condition of women farmers.

Image 1: Women farmers in Chandrapur village, Chandrapur district, Maharashtra

a. Pilot project

A joint programme by MAVIM and the Department of Agriculture was initiated in October 2010 after a meeting with 30 villages in Chandrapur district. Around 715 women were given training and capacity building on SRI on small plots of land called bandhis (approximately 1/4th of an acre). The training began with theoretical classes but important practical demonstrations on preparation of the soil bed, vermin-composting and preparing pesticides and organic fertilisers were given. Where 30-50 kg seeds were used in a one-acre plot initially, the new method required the use of merely 3-5 kg. This raised doubts in the minds of the beneficiaries but they were convinced after the final results.

After two months, they found at least 95 tillers on the plot, which was a much higher output than that of the traditional method. At this stage, the beneficiaries were taught to use the conoweeder. With the conoweeder, weeding could be carried out with only two people and in a manner that helped them separate the weed to make organic fertilisers. The women were then informed of diseases associated with crops and of effective ways to tackle them.

Finally, after the harvest stage, having observed the success of the SRI method, the programme was implemented in

Figure 2: SRI methodology

Seed selection and treatment

- Seeds treated with fungicide and dipped in brine water for separating bold grains that settle down

Nursery placement

- Wet bed nursery in lowlands recommended

Transplantation

- Uprooting of tender (9-15 days old) seedlings to be done without disturbing roots
- Soil surrounding roots to be scooped as well to prevent root damage
- Seedlings transplanted in the main fields with only one seedling per hill and wide spacing of 1 ft row-to-row and 1 ft plant-to-plant to allow profuse tillering in later stages

Regulation of water depth

- Use of alternate wetting and drying for best results
- Where not possible, thin film of water to be maintained in the field, especially for SRI paddy

Weeding and hoeing

- Recommended 2-3 times during the growth phases of paddy

Source: OneWorld Foundation India, 2014

2011 with 715 women on 1,000 acres in 18 villages of three blocks of Chandrapur, Gondpipri and Pombhurna.

b. Current implementation

The area under cultivation increased from 565 acres in 2010-11 to 1,000 acres in 2012-13 before falling to 970 acres in 2013-14. The number of women participants peaked to 915 in 2012-13, up from 715 when it was initiated in 2010-11 before falling again. There has been a lingering reluctance to switch from the traditional method.

Emphasis has been laid on ensuring that beneficiaries receive training and capacity building for SRI. For this, the participation of women farmers in field schools and evening classes are actively pursued by Sahyoginis (field workers) of the CMRC, which is the cluster level federation that coordinates ground-level work. Other technical education and awareness generation activities, which are based on the need expressed by the beneficiaries, have also been carried out at the block level at the behest of the Department of Agriculture.

Image 2 & 3: Women farmers from Chandrapur village with conoweeder, collection basket and drum and pesticide spray

For developing a comprehensive approach and attracting more farmers to imbibe the SRI method, existing schemes of the Agriculture Department have been converged with this programme. This includes the distribution of mini kits for seeds, pesticides and organic fertilisers, provision of tractors and enabling bank linkages.

With the passage of time, it has been observed that women farmers are no longer passive participants but have taken ownership of the programme. There is increased interaction between workers during meetings, increased support from male members of the household, increased participation in exposure visits to other villages and attempts to expand their group activities to marketing and branding.

c. Awareness generation

Creating awareness has been an important component in building faith among people and in creating replication value for the project. There has been a strong focus on Information, Education and Communication (IEC) exercises, which include holding presentations for community groups on the agricultural and monetary benefits of the SRI method, taking people out on exposure visits led by *Sahyoginis* and beneficiaries to various villages, sharing experiences of over 350 women on Akashvani (All India Radio) and publicity through newspapers and other media.

Image 4 : IEC material used by MAVIM in SHG empowering programmes

Table 1: Year-wise progress of SRI cultivation project in Chandrapur district

Year	No. of Villages Covered	Land Covered (in acres)	No. of Women Participants	No. of SHGs	Total Production of Rice (in quintals)
2010-2011	18	565	715	87	6500
2011-2012	30	600	880	90	8000
2012-2013	47	1000	915	105	9500
2013-2014	40	970	850	95	9000

Source: MAVIM, Chandrapur District, Government of Maharashtra

Resources Utilised

The SRI programme is implemented through the Tejaswini system of MAVIM and so does not require any additional human resources or administrative infrastructure.

The Tejaswini system itself is funded by the Government of Maharashtra and the International Fund for Agricultural Development (IFAD). Funding for the SRI project has been sourced from the existing Training and Capacity Building corpus in MAVIM. Agricultural tools and implements, and banking linkages have been drawn from the existing government schemes and do not require additional resources.

Impact

As of 2014, the project is being implemented in six blocks of Chandrapur district – Chandrapur, Pombhurna, Gondpipri, Brahmapuri, Chimur and Mul.

Reduction in production cost in paddy cultivation and other benefits: The production cost has reduced by 30 percent. The women farmers benefit from this reduction in production expenses *(Table 1)* even as they generate a better quality of produce due to organic farming.

On the other hand they are getting higher market rates for their produce as they reap the benefits of labeling, branding and marketing of products under the Tejaswini brand of MAVIM. All of this has also resulted in the promotion of cluster activities. The initiative has strengthened the grassroots level institutions as it has resulted in the formation of business groups and has ensured that the SHGs pay a service charge to CMRC for its fund-raising support. A component wise break-up of the benefits accruing through the SRI method has been given in *Table 2*.

Reduction in women's drudgery: Prior to this scheme, women performed all agricultural activities where they were required to bend in the fields (in addition to their regular household activities). With the introduction of SRI and conoweeders, this was greatly reduced. Under SRI method, there was a 75% reduction in drudgery and with the use of conoweeder, there was a reduction of up to 95%. *(Table 2)*.

Increased participation of women in decision-making: The programme led to an increase in women's participation in decision making matters of the household as they were the primary stakeholders that implemented paddy cultivation by SRI method. Agriculture related activities such as juice-making and *achaar*-making undertaken by women became an additional source of income. The act of attending SHGs and agricultural trainings without necessitating any male support, and directly contributing in income-generating activities, therefore, enhanced their role in decision-making.

Faith in women-related government schemes: The programme reinforced faith in the capacity and potential of women related government schemes in agriculture. The project has led to 86 SHGs receiving bank linkage services while 700 women benefited from crop insurance.

Key Challenges

There was resistance in shifting from traditional practice in the community. Initially, the target was to cover 1,000 acres of cultivation but this came down to 565 acres. This was primarily because the beneficiaries, particularly the husbands, objected to the reduced use of seeds at the transplantation stage, in the fear that it would result in lower yield. This led to the withdrawal of a number of participants. However, this perception was dispelled after higher productivity under the SRI method was demonstrated.

Table 2: Comparative study of traditional farming and SRI

Component (per acre)	Traditional Method	Changes	Remarks
Seeds	50 to 30 kg Rs.1,500 to 2,500	3 kg Rs. 150	By use of SRI method.
Fertilizers	4 bags of Di-Ammonium Phosphate (DAP) & Urea Rs. 2,500 to 3,000	Use of organic fertilizers (zinc sulphate, 2 roac phosphate) Rs. 1,000	Other organic fertilisers, 9 culture, compost, vermicompost
Spray	Chemical spray Rs. 2,000	Organic spray Rs. 200	Done by women themselves
Labour- drudgery	Paddy cultivation - 10 labourers for Rs. 1,500 within 3 days	5 labourers for Rs.500 to 700 within two days	75% drudgery reduction in SRI method
	(b) Nindan 10 labourers for Rs. 2500 within 5 to 7 days	2 labourers for Rs. 300 within 3 days	By using konoweeder 95% drudgery reduction
Footway	Upto 20 to 30	Upto 50 to 110	Use of SRI method
Production	9 to 11 quintals	Upto 13 to 15 quintals	-
Production rate	Per kg Rs.17 to 20	Per kg upto Rs. 25 to 40	Due to organic farming

Source: MAVIM

Another challenge was that the community displayed lack of faith in government initiatives. People had a pre-disposed mind-set that government programmes/ schemes are not successful and will not show the desired results. This was overcome by showing the results of the trial phase and through continuous IEC efforts.

Inter-departmental convergence was also a key challenge. At the start of the project, convergence with the Department of Agriculture required considerable effort to break away from the status quo of imparting SRI training only to the male members of the community. However, this has come to pass and the Department of Agriculture, in addition to convergence activities, has started supporting and participating in the marketing exhibitions held by women SHGs. Ground-level implementation of some agricultural schemes requires land to be in the name of beneficiary but as land is often in the name of the man while the target beneficiaries of this programme are women, difficulties arose in combining assets. Hence land ownership emerged as a hindrance in the scheme.

Due to issues of pricing and lack of sufficient marketing channels, there has been an overall reduction in the production of rice. This is being addressed now by encouraging the creation of SHG federations for production and marketing.

Replicability and Sustainability

After the pilot phase, the programme was able to garner support not only from its primary target group - women farmers - but also from the men in the community. Since a majority of the beneficiaries are small and marginal farmers, there is a high motivation to form collectives under the framework of this programme and sustain it in the long run.

This also aligns with MAVIM's long-term goal to ensure that SHGs are empowered to undertake projects wholly and completely, not only financially but also materially, after initial implementation. As such, in the next phase of the implementation, the programme will be replicated to the benefit of 2,100 women in 57 villages and 10 blocks of Chandrapur district.

Financially, the SRI programme requires funds for training, while all other aspects are covered by SHG investment

and convergence with existing government schemes. The sustainability of the programme has, therefore, been interwoven with the benefits of other schemes offered by the Department of Agriculture for producing long-term results. For the purpose of replication, it is important to analyse the role of women in agriculture and co-opt them along with men in agricultural training and capacity building. Stakeholders' contribution, fiscally and otherwise, is also a key factor in eliciting participation from the ground upwards and ownership of such a programme.

Conclusion

With the expansion of the programme to new villages, focus will be placed on better production, storage and marketing. For example, a project can be initiated within this programme for the construction of community rice mills. Through the Comprehensive Livelihood Development Plan (CLDP) and Micro-Livelihood Development Plan (MLP) of MAVIM, women will be collectivised for bringing about higher impact.

Fact Sheet

Theme	**Women's Empowerment**
Nodal Implementing Agency	**Mahila Arthik Vikas Mandal (MAVIM)**
Geographical Coverage	**40 villages across 6 blocks in Chandrapur district of Maharashtra State**
Target Groups	**Women paddy cultivators**
Years of Implementation	**2010 - Present**

Part III

Lessons Learned from a Thematic Perspective

Re-visiting each case study from a thematic lens illuminates substantive lessons for planning and implementing future interventions within that sector. Notable points emerging within each theme from the initiatives documented therein have been provided in this section, with the aim of facilitating easy identification of relevant points for deliberation and incorporation into other theme-specific interventions.

3.1 Child Protection

While this section has covered only one initiative[1], it was observed that a proper child protection system can increase sensitization regarding child rights, discuss issues of concern in the public domain, and improve discipline in the education system. While it was important to bring issues of child protection and rights into the public domain in order to take appropriate supportive action, the need to maintain confidentiality with regard to the identity of the complainant was also understood to be extremely high, and this was enabled by providing access to the system through a telephonic or web interface. This aspect of confidentiality encouraged many people to seek assistance through the helpline.

Another noteworthy point is that complainants often expect higher authorities, rather than the first line officials, to attend to their complaints. While this attitude must be navigated through appropriate assurances by the implementers and a quick response to the complaint, the experience of this initiative does show that experienced/higher level officials are a great asset especially in dealing with complaints of sexual abuse. This initiative also demonstrates the need to take measures to curtail and/or investigate the misuse of provisions to lodge false complaints.

3.2 Education

While Information and Communications Technology (ICT) has been effectively utilised as an enabler to streamline the school education system, as seen in the Migration Card and Migration Monitoring Software initiative[2], measures must be taken to address infrastructural limitations, such as inadequate internet connectivity, insufficiently trained staff, lack of technical support etc., which hamper the optimum utilisation of instrumental online facilities.

Another lesson learned is that steps must be taken to facilitate people's adaptation to particularly out-of-the-box ideas. This is exemplified by the Pota Cabins[3] initiative of Chhattisgarh, where students previously accustomed to open spaces were found to be fleeing from their residential schools due to their discomfort in closed confines. To counter this, elements from the students' regular lives and surroundings were imbibed in order to make them more comfortable.

The high relevance of participatory approaches to assessing the school education system and addressing identified challenges has been highlighted by the Pratibha Parv[4] initiative in Madhya Pradesh. Participation of stakeholders such as students, teachers and management has strengthened the quality and speed of decision-making related to academic and administrative matters and resulted in making positive changes, notably, in terms of student attendance.

3.3 Environment

Initiatives promoting the conservation of common resources such as lakes and forests have been observed to begin with delimitation, or marking boundaries, as an essential first step. This has emerged a simple, yet effective method to avert further damage or misuse of the resource.

While segregation is critical to waste management, innovative and constructive re-use of waste material is a useful strategy to resolve the problem of waste management, with significant multiple benefits. In the case of the Sustainable Plastic Waste Management Plan[5] in Himachal Pradesh, for instance, plastic waste generated was utilised in road construction by the Public Works Department. In some cases, the community was engaged in reusing waste, such as in the Avadi Sewage Treatment Plant[6] in Tamil Nadu, where treated waste water was used for cultivation and production of economically viable items. This was also seen in the Environment Management Initiative[7] undertaken on an institute campus in the Andaman and Nicobar Islands, where waste was segregated, treated and recycled to use as manure or in the manufacture of paper items such as files and folders.

Analysing the sources of waste generation and accordingly taking measures to reduce the same is a practical strategy that was employed in Himachal Pradesh[8]. For instance,

[1] *Refer to 'Sampark: Reaching out through school student helpline in Odisha'*
[2] *Refer to 'Migration Card and Migration Monitoring Software: Tracking and educating migrant children in Gujarat'*
[3] *Refer to 'Pota Cabins: Residential schools for children in LWE-affected areas of Chhattisgarh'*
[4] *Refer to 'Pratibha Parv: Strengthening quality of education in Government schools of Madhya Pradesh'*
[5] *Refer to 'Sustainable Plastic Waste Management Plan: Defending the fragile ecosystem of Himachal Pradesh'*
[6] *Refer to 'Avadi Sewage Treatment Plant: Sustainable off-grid sewage treatment in Chennai'*
[7] *Refer to 'Environment Management Initiative: A unique low-cost model in Andaman and Nicobar Islands'*
[8] *Refer to 'Sustainable Plastic Waste Management Plan: Defending the fragile ecosystem of Himachal Pradesh'*

purified water dispensers were installed at tourist points to curtail the purchase and subsequent disposal of plastic water bottles.

Across the initiatives documented, it was found that Information, Education and Communication (IEC) material and Behaviour Change Communication (BCC) are distinctly effective when they go beyond merely sensitising citizens to the environmental ill effects of certain common practices, to also educate them on alternative, environment friendly solutions. Providing viable alternatives to people and, if possible, incentivising the adoption of these alternatives provides an impetus to change.

3.4 Financial Inclusion

A remarkable initiative to make banking services more accessible to the rural poor, the Panchayat Banks[9] initiative in Jharkhand demonstrates the potential to engage local entrepreneurs in making multiple essential services more accessible to the rural poor at Panchayat offices. This initiative serves to exemplify the theory that greater access to banking facilities encourages and enables a culture of financial saving, as citizens are able to make frequent visits to the bank to withdraw money as required, as opposed to the earlier practice of minimizing the frequency of cumbersome and expensive travel to banks by withdrawing large amounts of money in one visit.

3.5 Food Security and Public Distribution

A lesson learned from the practices studied under this theme, particularly highlighted by the Dilli Annashree Yojna[10], is that the most vulnerable people often do not have the documents required to benefit from existing food and social security programmes. Identifying the most vulnerable population segment through field surveys is a time and resource intensive task, but can be combined with strategies to raise public awareness, and eventually sets a foundation for such persons to access the benefits of other schemes as well by enabling the creation of documentation necessary for eligibility along with information dissemination on entitlements.

The Dilli Annashree Yojana also demonstrated that making women the recipient of benefits on behalf of their households is an effective strategy to gain access to these women and impart valuable information on health, nutrition, hygiene, as well as on other schemes and entitlements. The provision of such information to women is seen to have positive consequences for their entire household.

The use of technology in monitoring the procurement, storage, transportation and sale of food grain is common across the Arun ePDS[11] and the eUparjan[12] initiatives. Computerised systems have demonstrated remarkably high effectiveness in tracking the movement of grains from godowns to fair price shops, reducing pilferage, and eliminating false ration cards in the former initiative, while in the latter case it has systemised procurement in large quantities and enabled the arrangement of timely and adequate transportation and storage facilities.

3.6 Health

Decentralisation and empowerment of local officials/ field workers along with strict monitoring benefits the implementation of an initiative in several ways. In the case of decentralisation of the ICDS[13] in Odisha, for instance, procurement of food material at the village level has reduced problems of pilferage, inadequate quantity and poor quality, insufficient/improper storage and the consequent spoiling of food. Supported by other mechanisms such as fixed menus, raising public awareness on entitlements, forming committees to engage the community in monitoring and ensuring all fund transactions are undertaken online and accountability is maintained.

The immense value of preventive healthcare in reducing health risks, the severity of ailments and treatment costs has been demonstrated by initiatives like KIDROP[14], CATCH[15] and Indira Bal Swasthya Yojna[16]. These initiatives have provided rich and replicable models for screening large sections of the population, to identify and treat health problems at a nascent stage and to prevent future problems. Although administratively challenging, these initiatives leverage the already existing health and education human resources and material infrastructure of the state, as well as on the use of information technology to expand their reach. An effective strategy for providing preventive healthcare is thus a vital area for future action, so as to promote healthy lives, avoid grave illnesses that

[9] *Refer to 'Panchayat Banks: Providing banking facilities at the village level in Jharkhand'*
[10] *Refer to 'Dilli Annashree Yojna: Food security for the vulnerable in New Delhi'*
[11] *Refer to 'Arun ePDS: ICTs and process re-engineering for an efficient public distribution system (PDS) in Arunachal Pradesh'*
[12] *Refer to 'e-Uparjan: Re-inventing the procurement system through digitisation in Madhya Pradesh'*
[13] *Refer to 'Decentralisation of ICDS Supplementary Nutrition Programme: Ensuring timely and quality nutrition to all beneficiaries in Odisha'*
[14] *Refer to 'KIDROP: Preventing vision loss in premature infants of underserved areas in Karnataka'*
[15] *Refer to 'CATCH: Ensuring quality health care for all in Sikkim'*
[16] *Refer to 'Indira Bal Swasthya Yojana: Applying preventive health care measures to promote children's health in Haryana'*

hamper functioning, and to reduce future costs borne by individuals and the State in treating illnesses in their advanced stage.

The removal of impediments in health seeking behaviour is a crucial issue to address, especially in the case of the poor, for whom a medical visit might involve the loss of daily wages, and in the case of the less informed, who may not be aware of their entitlements. Initiatives such as the Indira Bal Swasthya Yojana[17] and KIDROP[18] undertook campaigns to educate people on the significant health and monetary benefits of checking illnesses in their early stages and going for follow-up checks. This is especially relevant to combat the problems associated with patients dropping out or stopping treatment mid-course, which could be more harmful to the patient by potentially increase drug resistant pathogens, while being a drain on the tax payers' money.

A critical learning from the field has been the need to increase capacities at the local level-Primary Health Centres, Community Health Centres, and First Referral Units - before undertaking health initiatives. It has been observed that running such healthcare initiatives without undertaking this basic step leads to an immense amount of referrals being directed to the district hospitals, where the high number of cases hampers timely delivery of necessary medical services. This, combined with the fact that district hospitals are not easily accessible to all, negatively impacts the health-seeking behaviour of people. Increasing the ability of local health centres and practitioners to provide a wider range of medical services could play a key role in encouraging people to seek and use health services due to convenience of access and reduced logistical expenditures.

3.7 Infrastructure and Development

The way in which ICTs can be utilised to streamline and improve timeliness of public transport, effectively reducing traffic congestion and pollution as well as improving user convenience and safety, is a major takeaway from the Intelligent Transport System[19] in Mysore. It demonstrates that improving public transport service delivery and reducing people's dependence on private transport can have varied environmental, safety and cost benefits.

3.8 Local Governance

Under the 24x7 Metered Water Supply[20] initiative in Punjab, it was observed that households attempted to minimise their water bills by making more judicious use of water. Therefore, while demonstrating that even poor households are willing to pay fair charges for a useful and efficiently provided service, this initiative also underscores the fact that charging payment based on the metered usage of utilities is a logical and tactical measure to encourage conservation of valuable resources such as water.

Innovative methods of seeking feedback to address grievances are vital in boosting consumer trust and satisfaction. The 24x7 Metered Water initiative in Punjab introduced the practice of tele-calling beneficiaries for feedback on a regular basis, thereby effectively mainstreaming the concerns of end-users for greater effectiveness.

The lack of information on sources of fund inflows to the district and lower levels hampers the ability of officials at these levels to optimally engage in planning, prioritisation of issues and agenda setting. The initiative on Entitlement-Based District Planning[21] in Bihar showed that training and information dissemination on schemes, entitlements and the resource envelope enables state and district planning officials to identify existing gaps/focus areas and decide on feasible measures to address them.

3.9 Social Security

The exemplary implementation of the Aam Aadmi Bima Yojana[22] in Andhra Pradesh illuminates the fact that integration of local community-based organisations such as self-help groups (SHGs) in processes of rolling out large scale programmes plays a critical role in raising awareness and generating acceptance, thereby increasing service penetration and outreach. In addition, the introduction of mechanisms to scan and share documents online for verification and has significantly speeded up the process. The same initiative also demonstrated the great potential of social audits to identify malpractices and revisit implementation modalities to prevent them.

An important learning from the Daliya Jalao[23] initiative in Uttar Pradesh is that while behaviour change

[17] *Refer to 'Indira Bal Swasthya Yojana: Applying preventive health care measures to promote children's health in Haryana'*
[18] *Refer to 'KIDROP: Preventing vision loss in premature infants of underserved areas in Karnataka'*
[19] *Refer to 'Intelligent Transport System: Improving urban public transport in Mysore'*
[20] *Refer to '24x7 Metered Water: Improving water supply in rural areas of Punjab'*
[21] *Refer to 'Entitlement-Based District Planning: Innovating planning process for accuracy and efficiency in Bihar'*
[22] *Refer to 'Aam Aadmi Bima Yojana: Life insurance for rural landless labourers in Andhra Pradesh'*
[23] *Refer to 'Daliya Jalao: Liberating and rehabilitating manual scavengers in Badaun district of Uttar Pradesh'*

communication and sensitisation towards social and health issues on the demand side and supply side is important for comprehensively ending historically unjust and harmful practices such as manual scavenging, rehabilitation of those providing such services through providing them alternative sustainable livelihoods is essential to successfully draw such service providers away from the practice. The Daliya Jalao initiative also ensured greater effectiveness by converging with other social security schemes such as pension, special scholarships for children, rural housing, loans and skill upgradation trainings were effectively used to rehabilitate scavengers

A lesson for violence-affected parts of the country is the utility of skills training and public private partnership (PPP) to provide the dual benefit of viable livelihood options while at the same time countering the vulnerability of youth to being co-opted into antisocial activities. This is seen in the implementation of Himayat[24] in Jammu and Kashmir, where poverty and unemployment are extremely high and insurgency and violence are a deep-rooted problem. In addition, in an extremely forward-thinking strategy for sustainability of the initiative, monetary and non-monetary support is provided to trainees who are recruited in workplaces outside their home state in order to help them adjust financially, culturally and emotionally to their new environment.

Social interventions aimed at de-stigmatisation of particular physical/mental health issues through sensitisation of communities have been found to be an effective sub-component in health service provision, as the reluctance of community members to acknowledge and seek treatment for ailments is a common challenge. Samarpan[25] has effectively utilised methods such as street theatre, wall paintings, pamphlets and advertisements to spread awareness, remove feelings of embarrassment, and build sensitivity and acceptance about disability, to help people shed their inhibitions and seek professional treatment.

3.10 Water and Sanitation

The Community Managed Water Supply Programme[26] in Gujarat and the Open Defecation Free Villages[27] initiative in Jharkhand have shown that a key strategy to ensuring the long term engagement of citizens/end users in service delivery is to draw partial investment from them, apart from following a demand driven approach to planning and implementation. With the community being part owners of assets, there is sustained interest from members in maintenance and operations.

The Jharkhand initiative, in addition, places great stress on a saturation approach, i.e. only when 100% community consensus is achieved is the initiative implemented in a village. By treating the entire village, rather than each individual household, as a unit for implementation, health and sanitation are addressed as community issues, a cohesive approach to changing practices is taken, and cases of slip-back are not discussed in isolation.

3.11 Women's Empowerment

The experience of the Ghar Doghaanche Abhiyan[28] in Maharashtra highlights some useful strategies to help navigate the inevitable sensitivities that arise in response to initiatives that challenge the historically held privileges of a particular population segment. These include to begin implementation in the most favourable location, to carry positive experiences or the 'most significant stories' of change to other more challenging sites, and to reinforce positive change with socially valued incentives such as public recognition and respect. This initiative was first implemented in the district of Parbhani under the umbrella of the already implemented women empowerment programme 'Tejaswini', because of the successful experience of mobilising SHG women in that district. Also, when the implementation team found large landowners more resistant to registering property jointly with their wives than small landowners, they concentrated initial efforts on small land owners. Successful stories were disseminated widely and reinforced through public felicitation ceremonies.

Enabling women to achieve greater control over economic assets or make better economic gains through their productive activities aside from household work increases their bargaining power and consequently improves their position in other domains of life such as within their households, and gradually in their social circle and political environment. The Ghar Doghaanche Abhiyan shows how women gained a sense of security through obtaining joint ownership rights over property, which in some cases translated into an improved ability to battle harassment and violence within the household. The Organic Rice Production[29] initiative in Maharashtra has not only reduced the drudgery of women engaged in agricultural work, it has also elevated their status as

[24] *Refer to 'Himayat: Placement linked skill development in Jammu and Kashmir'*
[25] *Refer to 'Samarpan: Early identification and intervention to check disability in Madhya Pradesh'*
[26] *Refer to 'Community Managed Water Supply Programme: Bringing drinking water to the doorsteps of people in rural Gujarat'*
[27] *Refer to 'Open Defecation Free (ODF) Villages: Creating and sustaining Nirmal Grams through community participation in Jharkhand'*
[28] *Refer to 'Ghar Doghaance Abhiyan: Joint ownership of housing by husband and wife in Maharashtra'*
[29] *Refer to 'Organic Rice Production by SRI: Empowering women in Maharashtra'*

stakeholders in agricultural activities and decision making at the household level by enabling them to lend greater economic stability to their families.

Both the initiatives discussed under this category point to the fact that SHGs are an effective entry point to identify needs in the direction of empowering women. They play a vital role as primary units for mobilising women, promoting awareness, conducting advocacy campaigns and providing support to members.

Conclusion

This resource book presents some exemplary cases of implementation of social service delivery initiatives from an action-oriented perspective. The aim of this compilation is not to be exhaustive but to present key good practices along with an analysis of critical success factors, to serve as a reference point for other ongoing or forthcoming initiatives. Not only are these practices relevant to guide other initiatives within the particular thematic area that they have been undertaken in, the overarching principles guiding their conceptualisation and implementation can be applied across themes.

In the current context of demand led development and the strong emphasis on good governance through transparency, accountability, efficiency, and inclusion, the role of the State in social service delivery is undergoing a profound transformation. With several noteworthy improvisations and innovations being made in aid of this positive transformation, accurate and sustained information exchange on the same can be of immense support to action for social service delivery across the country. This resource book seeks to promote the circulation of such information, so that the positives from these documented initiatives can be replicated to further good governance and the overall goals of human well-being.

ANNEXURE

ANNEXURE I

Template for

SUBMISSION OF GOOD PRACTICES IN SOCIAL SECTOR SERVICE DELIVERY

I. State submitting the good practice

II. Title of the project (Max 100 characters with spaces)

III. Name of the Implementing Department(s)/Organisation(s)

IV. Thematic area to which the good practice belongs (Select up to three areas most closely linked to the practice)

- ☐ Administrative Reforms
- ☐ Child Protection
- ☐ Finacial Inclusion
- ☐ Education (Skill development, Information and Broadcasting)
- ☐ Environment
- ☐ Food security and Public Distribution System
- ☐ Health
- ☐ Infrastructure and Development (Rural/urban - transport, housing, financial inclusion and microfinance)
- ☐ Local Governance (Panchayat Raj Institutions)
- ☐ Social Security (Welfare for SC/STs, OBCs, minorities and persons with disabilities, labour and employment, pensions and insurance)
- ☐ Water and Sanitation
- ☐ Women's Empowerment

V. Name and contact details of Key Contact Person

VI. Website of the project (if any)

VII. Duration of implementation

Click here to enter a date. to Click here to enter a date.

VIII. Geographical outreach/location (Attach map, if available)

IX. Project summary (Max 1000 characters with spaces)

X. Key beneficiaries (Point [a] is mandatory. For other points, choose the ones that apply to your practice)

a. Approximate total number

b. Number of women

c. Number of children

d. Number of senior citizens

e. Number of differently abled persons

f. Number of minorities (please specify the communities)

Others (please specify)

XI. Motivation behind good practice initiation (Select up to three most important factors)

☐ Improvise on existing models of implementation of a particular scheme/programme

☐ Vision of the government department/official concerned

☐ Pressure from community members concerned

☐ Experiment in governance

☐ Financial imperatives necessitated economical solutions

☐ Streamlining existing operations and functions

☐ Adapting to technological imperatives

☐ Inspiration from a similar practice elsewhere

☐ Initiative implemented to fulfill the mandate of a particular legislation

☐ Natural disaster or other form of crisis necessitating change

☐ Others (please specify)

XII. Key objective(s) (What does the practice seek to achieve? For instance, to reduce infant mortality rate by 50%. Max 200 characters with spaces)

XIII. Changes made in the existing system to bring about the good practice (Select up to three most important factors)

☐ Policy level changes

☐ Innovations in scheme implementation

☐ Systemic changes

☐ Resources added to existing personnel/infrastructure

☐ Capacity building exercises

☐ Enlisting support of private players to build PPP models

☐ Leveraging community resources

☐ Enhancing budgetary allocations

☐ Others (please specify)

XIV. Project implementation

a. Key stakeholders in the project

Name of organisation	Address	Contact person details	Organisation type	Nature of support

b. Components of the project (Select all that apply to the practice)

- ☐ Information and Communication Technology tools
- ☐ Training and capacity building exercises
- ☐ Awareness generation campaigns
- ☐ Monitoring and evaluation
- ☐ Grievance redressal mechanism/user feedback system
- ☐ Establishment of a Project Management Unit
- ☐ Participation of community members in planning and implementation of project
- ☐ Research and development
- ☐ Knowledge sharing and management
- ☐ Others (please specify)

c. Innovation in the practice (Select all that apply to the practice)

- ☐ Introduction of new practices, products, knowledge, services or processes
- ☐ Required government process re-engineering
- ☐ Leverages existing resources/infrastructure in a unique way
- ☐ Use of technology
- ☐ Developed new sources of supply for raw materials or other inputs
- ☐ Creation of new markets for community products/livelihoods security
- ☐ Skill development
- ☐ New method of monitoring and evaluating an existing practice
- ☐ Introduction of new methods of payment for public services/financial flow modalities
- ☐ Involvement of community in planning and implementation (in cases where it was not done earlier), particularly people hitherto marginalised on basis of caste, community, religion, gender, age
- ☐ Offers a scalable approach to solving a problem
- ☐ Creation of community assets

☐ Offers effective model to standardize and disseminate public information

☐ Others (please specify)

d. Resources utilized (Inputs in terms of human resources, infrastructure, financial costs. Max 500 characters with spaces)

e Additional information supporting the good practice (Max 500 characters with spaces)

XV. Reasons for considering the initiative a good practice

a. Performance of the practice (In terms of (i) short term outcome, and (ii) long term impact potential. Max 1500 characters with spaces)

b. Sustainability of the initiative (political, social, cultural, economic and environmental. Max 1000 characters with spaces)

c. Potential for replication (Has the practice been adopted elsewhere? What are the features that make the practice replicable? What are the necessary conditions for replication of a project like this? Max 1000 characters with spaces)

d. Outreach to the most disadvantaged in the region – Does this practice aim at bridging inequalities in the region? (How does the practice impact people living in remote areas of the country and those belonging to marginalised communities – women, SC/ST population, minorities and such like? Max 500 characters with spaces)

e. Efficiency (In relation to the resource inputs required by the initiative, have the outputs offset the inputs? That is to say, has the practice proven to be a less-resource, more-outcome initiative? Max 500 characters with spaces)

f. Effectiveness (Effectiveness implies the capacity to achieve a desired result. In this regard, how do you assess the outcomes of the practice in relation to the objectives it set out to achieve? Max 500 characters with spaces)

g. Participation of citizens (Please mention the level, extent and nature of participation of community members in the initiative. Max 300 characters with spaces)

h. Recognition of the practice (Was there an expert/peer review process that determined the practice to have significant evidence of effectiveness? Has the project received any awards? Max 500 characters with spaces)

XVI. What was the role of state administration, panchayats and/or urban local bodies in achieving the results? (Max 300 characters with spaces)

XVII. Challenges faced in the implementation of the practice (Select all that apply to the practice)

- ☐ Capacity-related issues in adapting to new practices/changes
- ☐ Administrative challenges
- ☐ Political and legal challenges
- ☐ Infrastructure and human resources related
- ☐ Issues in standardization of data or relevant information
- ☐ Regular updation of data
- ☐ Regular monitoring and evaluation of progress
- ☐ Reaching marginalized population/remote locations
- ☐ Unresponsive target audience
- ☐ Budgetary constraints
- ☐ Lack of support from community/other players like NGOs
- ☐ Lack of technical aptitude among community members and government officials
- ☐ Social and cultural constraints
- ☐ Others (please specify)

XVIII. Photographs from field/project sites of the practice (Please send images in JPEG format separately along with this form.)

XIX. Supporting documents (Attach any materials that support the claim to this practice being a good practice in social sector service delivery – for instance, nomination notes, review committee reports, annual reports, media coverage articles.)

* Please use additional sheets to provide information, if needed.

ANNEXURE II

Social Sector Service Delivery: Good Practices Resource Book 2014

Evaluation Criteria for 'Good Practices'

After receiving 'good practices' nominations from various State governments, the OneWorld team will shortlist initiatives for further research and documentation and final inclusion in the *Social Sector Service Delivery: Good Practices Resource Book 2014* based on a set of criteria. An Advisory Team will be established for this purpose that will be composed of experts in chosen thematic areas. That will help ensure objectivity in the process of selection of good practices to be documented.

Scale of problem addressed

The nature, scope and scale of the problem that a particular initiative seeks to address will be crucial in determining the applicability and relevance of the said initiative to a different context. The nature of the problem will be studied in terms of being social, economic, and political or highly region specific, its scope will be analysed keeping in mind whether it is a long-term or short term problem and its scale will be highlighted by studying its coverage/outreach potential. The number of project beneficiaries is a critical indicator for ascertaining the reach of the project and, therefore, its potential to create impact.

Innovation potential of the good practice

A comparison of good practices addressing similar problems across states will be undertaken in order to determine the uniqueness of each such good practice and shortlist initiatives that display a higher 'innovation potential'. Such a comparison will be made keeping in mind factors like:

- degree of business process reengineering undertaken
- organisational creativity in terms of merging new and old technologies, developing new simplified processes and structures, seeking community involvement
- ease of access and ability to reach marginalised sections
- ability to overcome challenges
- impact in terms of creating efficiency (the extent to which outputs/results are obtained with same or less resources), transparency and accountability
- sustainability and effectiveness (the extent to which results are obtained)

Nature of use of available infrastructure

Each 'good practice' will be rated on its infrastructure. The infrastructure will be assessed in terms of its usage and whether there are alternative usages of the infrastructure. Infrastructure here refers to physical infrastructure, human resources and technological/IT requirements. Initiatives reflecting the most efficient/optimum utilisation of existing infrastructural facilities will be preferred as it significantly increases the feasibility of replicating an initiative.

Ability to self-support (Sustainability)

A good practice can be verified as such only once its sustainability has been adequately explored along the following criteria:

- Social support (continued participation of beneficiaries and local communities; robustness of grassroots organisations; creation of local assets for community)
- Technical soundness
- Government commitment (including key central and local agencies)
- Commitment of other stakeholders (including NGOs, local organisations, civil society and private sector)
- Financial viability (including funding of rural organisations, role of cost recovery, capacity to finance recurrent costs, operational costs in a cost-effective manner and financial self-sufficiency) Institutional support (the legal/regulatory framework and management effectiveness)
- Environmental impact and protection
- Resilience to exogenous factors (price variability and market access, natural disasters, unstable security in the project area)

Potential for replication

The capacity of the project to be replicated will be assessed and the capacity to produce the same good results even if it is replicated in different contexts and settings. Given that the objective of the Resource Book is to disseminate these initiatives to encourage their replication in other parts of the country, the potential of each initiative for further replication and adaption will be checked. Each initiative will be studied in relation to its intra-departmental, inter-departmental and inter-state up scaling potential. The performance of each initiative on the aforementioned criteria will contribute towards it replicability quotient. Initiatives that provide concrete evidence of replication during their implementation time frame will be preferred for documentation.

Outcomes of the project

The capacity of the initiative to create impact along lines of its objectives is a strong indicator of its sustainability and makes a robust case for its replicability. Since the Resource Book will adopt a people centric approach in analysing the initiatives documented, it is important to consider the impact of the project on empowering communities, particularly those hitherto marginalised, and enhancing their access to government services is a crucial indicator for ascertaining whether a government initiative is a good practice.

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