



Community-based Operation and Maintenance of Hand Pumps in Bihar

February 2016



Sector Wide Approach to Strengthening Health (SWASTH) in Bihar, Government of Bihar Initiative
Supported by Department for International Development (DFID), UK

Bihar Technical Assistance Support Team (BTAST)



Knowledge product
developed by



CONTENTS

Summary	3
Introduction	4
Community-based Operation and Maintenance of Hand Pumps Scheme	4
The Programme Components and its Implementation	5
Emerging Lessons	7
Sustainability and Replicability	8

ABOUT THIS PROGRAMME REPORT

This programme report has been developed to describe the Community-based Operations and Maintenance of Hand Pumps scheme that was supported by SWASTH. It draws from internal documents and conversations with stakeholders. Information from the ground was gathered through a field trip to Dobhi block of Gaya district in Bihar. This included some personal interviews and group discussions with external stakeholders. This block was selected as the initiative was piloted here and was reported to have brought about some changes here since its implementation.

SECTOR WIDE APPROACH TO STRENGTHENING HEALTH (SWASTH)

Government of Bihar Initiative Supported by DFID, UK

The SWASTH programme aims to improve the health and nutritional status of people of Bihar by increasing access to better quality health, nutrition, and water and sanitation services, particularly for the underserved groups. The focus of this programme is to strengthen the systems through better planning, organisational strengthening and human resource management, decentralisation and convergence among key departments. The programme also uses community level processes to manage, demand and monitor services.



SUMMARY

The community-based operation and maintenance of hand pumps in Bihar, India is an initiative aimed at enhancing the provision of safe drinking water to rural communities in the Gaya district through community-managed hand pumps. It is a collaborative initiative of four entities -- Bihar Technical Assistance Support Team (BTAST), Public Health Engineering Department (PHED), Action for Community Empowerment (ACE), and JEEViKA.

This initiative seeks to enhance the access of rural communities to safe drinking water by maintaining well-functioning hand pumps through an efficient repair mechanism. Local community members, notably Self Help Group (SHG) women, are recruited and trained as hand pump mechanics, thereby creating a cadre of capable technicians amongst the user community. Measures have been taken to expedite service delivery, while ensuring quality control through the establishment of a Rural Sanitary Mart-cum-Call Centre that registers complaints and sells all necessary spare parts.

Apart from improving the community's access to safe drinking water via functional hand pumps, this initiative has enhanced women's economic status and participation in the community. A few challenges persist such as the method of payment for the repair of public hand pumps, but the resolution of these matters is being negotiated and it in no way diminishes the positive impact of the initiative.

INTRODUCTION

Access to safe water and sanitation was recognised as a human right by the UN General Assembly in 2010. However, several issues such as demographic changes, unplanned habitations, inadequate waste management practices and climate change are exacerbating the problem of water scarcity. Apart from contamination of water due to inadequate waste management or due to natural causes, other factors such as socio-cultural and economic inequalities and rural-urban locations also determine access to safe drinking water.

In the case of Bihar, which is a water abundant state, problems of ground water contamination by fluoride, arsenic, bacteria and iron are widespread. As many as 22 of Bihar's 38 districts contain excessive amounts of arsenic or fluoride in their ground water, giving rise to water borne diseases such as dental fluorosis, skeletal fluorosis, diarrhoea, many forms of cancer and others diseases. In the district of Gaya, this problem is compounded by the fact that low average rainfall has turned it into an arid zone.

As per Census 2011, roughly 88% of Bihar's population lives in rural areas and hand pumps are the main source of drinking water for 91.4% of these rural dwellers. A report of the Chandragupt Institute of Management Patna (2013), available on the PHED website, estimates that Bihar has as many as 6,67,163 working hand pumps, which have been playing a significant role in reducing people's dependence on wells, rivers, streams and ponds. However, as the State strives to cover more habitations with supply of safe drinking water, problems concerning the operation and maintenance of hand pumps persist. This reinforces the need for large-scale community engagement to ensure timely and responsive action for hand pump operation and maintenance requirements.

To address such and other larger issues holistically, the Government of Bihar launched the Sector Wide Approach to Strengthening Health (SWASTH) programme in June 2010 with the objective of achieving significant improvements in health and nutrition of the population in Bihar. SWASTH is funded by the Department for International Development (DFID), Government of the United Kingdom, and has been designed from the perspective of three

departments of the Government of Bihar-Department for Health and Family Welfare (DoHFW), Social Welfare Department (SWD), and PHED. SWASTH includes a gamut of significant and inter-related initiatives, one of which aims at building a community-managed operation and maintenance system for hand pumps. SWASTH has been instrumental in accelerating Bihar's progress towards achieving increased access to safe water for its people.

COMMUNITY-BASED OPERATION AND MAINTENANCE OF HAND PUMPS SCHEME

This initiative has sought to establish a mechanism by which a steady supply of drinking water can be ensured via functional hand pumps to those habitations that do not have an alternate supply of safe water. It involves maintaining existing hand pumps by undertaking necessary repairs in a timely fashion. For this purpose, it was decided to establish a trained cadre of ground level hand pump mechanics within local communities who would be easily accessible, supported by a call centre to register complaints along with a shop to make quality spare parts readily available at reasonable prices. Significantly, this initiative incorporated a strong gender component, as several local SHG women were trained as hand pump mechanics, thereby giving them a viable income generation option.

Led by the Bihar Technical Assistance Support Team (BTAST), the community-based operation and maintenance of hand pumps initiative is driven by the efforts of several partners. PHED provides oversight and approval to all activities under the initiative. BTAST, supported by DFID, is the technical lead. Action for Community Empowerment (ACE) was hired by BTAST to undertake capacity building for male and female mechanics, and to run awareness generation activities with the user community so that they can get maximum benefit from the initiative. Additionally, BTAST and JEEViKA set up a Rural Sanitary Mart – cum- Call Centre to register complaints regarding hand pumps, connect users to mechanics, and supply spare parts.

The seed money for establishing the call centre was provided by The World Bank funded JEEViKA. BTAST, using DFID funds, supported setting up of the call centre.

THE PROGRAMME COMPONENTS AND ITS IMPLEMENTATION

Prior to commencing activities, BTAST had to obtain approvals from PHED and DFID. ACE, the capacity building partner, was recruited by BTAST through an open tender and bidding process. Funds for the various activities were released by DFID and the PHED to BTAST upon completion, and were further disbursed as required. Subsequently, the implementation strategy in Dobhi block, Gaya district, consisted of four main stages:

BASELINE SURVEY AND GIS MAPPING

A baseline survey was conducted by ACE to prepare an inventory of existing public/ private hand pumps and GIS mapping was done to help track hand pump status, operation and maintenance. Consequently, a village wise list/ inventory of hand pumps was prepared with details such as the number of government and private hand pumps, number of shallow and deep well hand pumps, inventory of functional and non- functional hand pumps, location of hand pumps, type of each hand pump, schemes under which installed, water quality, current status and the ongoing operation and maintenance work for each hand pump.



Communication material used during training

CAPACITY BUILDING OF MEN AND WOMEN

To ease the process of repair and maintenance of the hand pumps in the villages, ACE, the capacity building partner, imparted theoretical and practical training to men and women in Dobhi block, Gaya district, thereby making them capable hand pump mechanics. The women participants were accessed through JEEViKA's SHG network. Male and female participants were selected by PHED and the Panchayati Raj Institution (PRI) members of each Panchayat that participated in the initiative.

Approach to imparting training: The training programme followed a participatory approach, and was delivered through lectures, discussions, field work and demonstrations to give the trainees adequate exposure to issues they would encounter as mechanics.

Technical focus of training: Trainees were taught to repair India Mark II, India Mark III and shallow well hand pumps. ACE developed a comprehensive training module along with IEC material to orient trainees to the internal mechanics and repair of hand pumps. Along with a thorough explanation of technical aspects, the training focussed on problem analysis and activity planning based on resources and available time frame, along with enabling an understanding of responsibilities and strategies that would result in greater ownership and committed involvement of concerned officials. Themes such as community participation, information sharing, consultation, decision making, initiating action and raising awareness were also covered.

Field exposure: The practical component included a field visit during which newly trained mechanics were made to open and repair non-functional hand pumps. This made them better comprehend their roles and exercise their new skills before being deployed on duty. SHG members were trained for two days as hand pump care takers, and hand pump mechanics were trained for five days. Refresher trainings were also conducted for five days for trained hand pump mechanics. Additionally, upon completion of training, bicycles were provided to mechanics at the call centre for reaching distant sites. Those women mechanics who did not know how to ride a bicycle were trained to ride them.

ESTABLISHMENT OF A RURAL SANITARY MART -CUM- CALL CENTRE

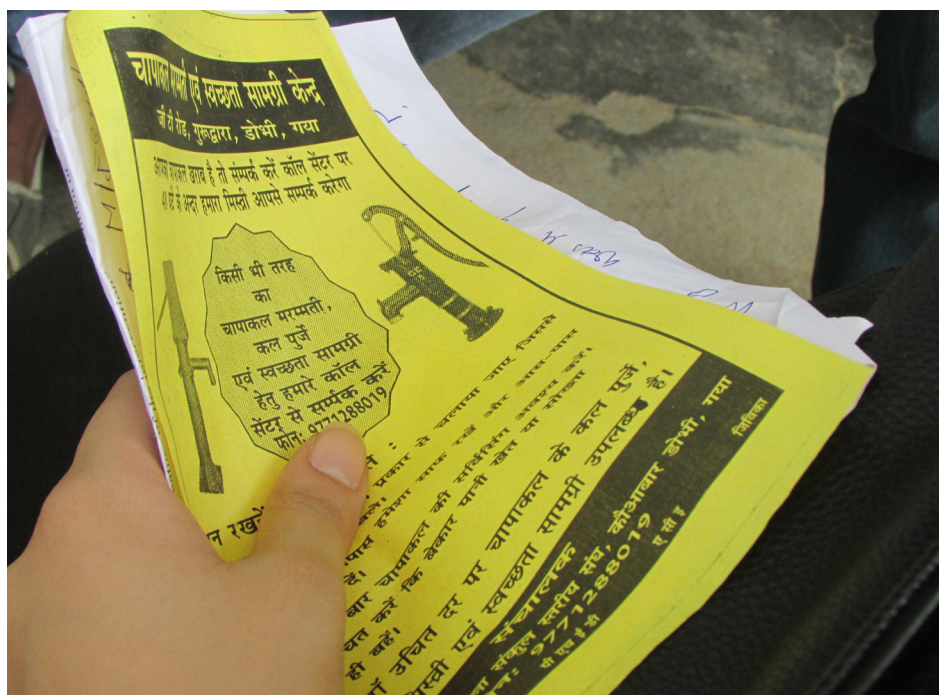
To add to the effectiveness and reliability of service delivery, a Rural Sanitary Mart -cum-Call Centre was established in the block. The Rural Sanitary Mart -cum- Call Centre facilitates easy availability of quality hardware required for the repair of hand pumps. Additionally, the Rural Sanitary Mart -cum- Call Centre also acts as a call centre for a swift response to strengthen the mechanism of operation and maintenance of hand pumps. When a complaint regarding a hand pump is registered with the Call Centre, a note is made of the nature of the problem and repair required, after which the Call Centre informs an available hand pump mechanic. This mechanic is despatched along with the necessary spare parts to carry out the repair work. Such a mechanism that combines the benefits of a Call Centre and spare parts shop reduces response time considerably. Additionally, the provision of bicycles ensures that women mechanics reach distant sites within the shortest possible time.

List of male and female mechanics in Dobhi block displayed in the Rural Sanitary Mart-cum- Call Centre

The main IEC strategies used to support information dissemination activities include distribution of leaflets and pamphlets, wall writing on Panchayat buildings in the project area, and disseminating messages through print media and flex installations. Moreover, video documentation was also done for capturing the activities of the project which is likely to encourage the community and other agencies to extend support to the women hand pump mechanics and care takers.

INFORMATION DISSEMINATION AND AWARENESS GENERATION

Meetings were conducted by BTAST and ACE to sensitise the community on the issues of hand pump repair and maintenance, and to disseminate information about the Rural Sanitary Mart-cum-Call Centre along with contact details. At these meetings, community contributions were encouraged for the repair of non- functional hand pumps. Separately, focussed discussions were also conducted with SHG members to sensitise them on the role of women hand pump mechanics and to highlight the opportunities for income generation and women's empowerment that this model presented.



Pamphlets distributed for raising awareness in the Dobhi Block



Rural Sanitary Mart-cum-Call Centre



Call Centre operator receiving a call

EMERGING LESSONS

Speedy and economical repair mechanism: The presence of a Call Centre to register complaints, and easy availability of spare parts along with a group of trained mechanics has enabled setting up of a speedy hand pump repair mechanism. In fact, the services are available at a price lower than the market price, which makes them more affordable for the community. Also, all spare parts in the Rural Sanitary Mart carry a mark of verification by the Bureau of Indian Standards (BIS), providing quality assurance about the repair work. The initiative has also helped the mechanics of PHED as they were facing recurring problems and now there is no delay in response from their side.

New livelihood option for women and associated gains: By opening up a new option for income generation for SHG women, this intervention has enabled them to renegotiate gender roles to an extent. With time, this has helped dismantle widely held stereotypical notions, increased women's mobility and confidence and made them more active and visible participants in the public domain.

Lesser incidence of diseases: Owing to the speedy repair of hand pumps and timely restoration of the supply of safe water, the community's dependence on unsafe drinking water sources has reduced. Local residents report a reduction in the incidence of water borne diseases. The spread of disease is also checked by the fact that the advocacy activities under this initiative urge local users to keep the area near the hand pumps clean. JEEViKA Sahelis have been raising awareness among the women mechanics on this issue as well.

Technical factors: One of the technical challenges faced is in terms of the response capacity of mechanics to the demand for a desired level of service, especially in cases involving use of complicated technology. Other technical challenges include the availability, accessibility and cost of necessary spare parts, as well as maintenance costs.

Community factors: Differential capacity and willingness to pay for the repair of hand pumps is a significant challenge faced, particularly in the absence of an organised community entity to carry out financial and administrative management of repairs. Lack of awareness and understanding regarding the need for safe practices, hygiene and sanitation also complicates matters.

Cultural norms regarding gender roles: Patriarchal value systems and deep-set stereotypical notions regarding gender roles posed barriers to the community's acceptance of women as capable hand pump mechanics. This challenge was overcome gradually, with successful demonstration of skills by women mechanics.

Payments for repair of PHED hand pumps: The repair of India Mark II and Mark III hand pumps presents a challenge as these are in large numbers and are costly to repair. Besides, since these are PHED hand pumps, they are not owned by any one individual, and paying for their repair is a challenge for the community. To deal with this issue, BTAST has proposed that the Annual Maintenance Fund of PHED hand pumps be transferred to hand pump care takers at the cluster level so that the process of payment is easy.

SUSTAINABILITY AND REPLICABILITY

The participatory approach followed in rolling out this initiative is the greatest evidence of its sustainability. Maintaining hand pumps by creating a trained group of hand pump mechanics from the local community is a strategic move because being local residents these mechanics are as interested as other end users in ensuring that the hand pumps are functioning properly. Relying on JEEViKA's network of SHGs and drafting women into the training for hand pump mechanics has also brought about a shift towards positive gender attitude in the community. The establishment of a Rural Sanitary Mart-cum-Call Centre adds to the sustainability of repairs and maintenance services, by making complaint registration and procurement of good quality spare parts easier.

As this initiative relies heavily on capacity building and awareness generation and taps into the transformatory potential of already existing civil society networks, it is a replicable model. In fact, BTAST has scaled up operations by replicating the initiative in the districts of Jehanabad, Nalanda, Patna and Purnea.

This initiative has made significant progress towards improving people's access to safe drinking water via functional hand pumps. Sustained engagement of the community through training of SHG members and awareness generation drives have contributed significantly to its success. The initiative relies on a well-conceived plan that has systematised complaint registration and service delivery mechanisms along with plugging gaps in sourcing spare parts. The fact that it has been scaled up in new districts is a testimony to its success.

ACKNOWLEDGEMENT

This programme report was written at OneWorld Foundation India and was reviewed by the BTAST.

BIBLIOGRAPHY

- *Census of India, 2011. Accessed online at <http://www.censusindia.gov.in/>*
- *Chandragupta Institute of Management Patna, 2013. Assessment of Rural Drinking Water Supply Services for the Rural Water Supply and Sanitation Program in Bihar. Accessed online at <http://phed.bih.nic.in/Docs/CIMP-Report-18-05-2013.pdf>*
- *Internal documents of BTAST*
- *Mott MacDonald, 2013. Bihar Water Supply and Sanitation- Study on Social Assessment, including Capacity Building and Communication Strategy. Accessed online at <http://www.bswsmpatna.org/spmu/Mott%20Final%20Report.pdf>*
- *World Health Organization, 2015. Drinking Water. Accessed online at <http://www.who.int/mediacentre/factsheets/fs391/en/>*
- *National Rural Drinking Water Programme Reports, Ministry of Drinking Water and Sanitation, Government of India. Accessed at www.indiawater.gov.in*

Bihar Technical Assistance Support Team (BTAST)

Sector Wide Approach to Strengthening Health in Bihar (SWASTH)

Main Office: House No. 10, IAS Colony, Kidwaipuri, Patna - 800 001, Bihar, India.

Phone: +91 612 2535577/2523049 | Fax: +91 612 2285674

Website: <http://swasth.btast.oneworld.net/>

Disclaimer: SWASTH is supported by the Department for International Development (DFID)-UK and implemented by the Government of Bihar, in collaboration with the Bihar Technical Assistance Support Team. However, the views expressed in this report do not necessarily reflect either DFID's or Govt. of Bihar's official policies or views.