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CASE STUDY

The role of implementation and communication of MANTRA Water, sanitation and hygiene program in improving public health in Odisha state (India)

Bozena Markovic Baluchova [1], Alexandra Mamova [2]

1 Department of Development and Environmental Studies, Faculty of Science, Palacky University in Olomouc, Czech Republic.
2 Tropical Institute of St. Elisabeth University, Bratislava, Slovakia.

Correspondence to: Božena Markovič Baluchová, PhD.
Department of Development and Environmental Studies, Faculty of Science
Palacky University in Olomouc
ul. 17. listopadu 12, 771 46 Olomouc, Czech Republic.
TEL: +421 907 463 649; E-MAIL: boba.baluchova@gmail.com

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Abstract

BACKGROUND: Provision of safe drinking water is the main strategy to reduce the number of water-borne diseases. The Government of India has declared its commitment towards achieving Sustainable Development Goals and universal sanitation coverage in the country by the year 2022. Indian NGO Gram Vikas offers a solution to this task through its flagship WASH program MANTRA. It focuses on water and sanitation as an entry point for integrated village development.
METHODS: The case study from Haradango village (Odisha state, India) investigates the effectiveness of MANTRA program by identifying key principles of this Gram Vikas' flagship programme and by analysing an impact of its implemenation and communication on public health of Haradango villagers. Based on field research key principles were identified (100 % inclusion, Gender equity, Social equity, Cost-sharing, Sustainability).
RESULTS: Thanks to the application of the principles, reduction of nearly 80 % of water borne diseases was recorded and diarrhea incidence has been less than 2 %.
CONCLUSIONS: Gram Vikas' community-driven development approach towards improvement of public health and sustainable rural development can be labeled as successful model for local, as well as national projects. Information, education and communication activities need to persist in order to overcome the cultural practice of open defecation within communities..

INTRODUCTION

According to the World Bank in 2012 a third of Indian people was living on less than $ 1.25 a day. More than two-thirds of the population live below the sum of two dollars a day. (Daněk et al., 2014) India is in the 130 in the HDI rank which shows where they are at present. Water and sanitation are two parameters considered in the HDI ranking.

Open defecation (OD) is a cultural practice deeply engrained in communities in rural India. It perpetuates a vicious cycle of disease and poverty making sanitation and hygiene among the most important drivers of health, social and economic environments. (UN Water 2015) Almost 638 million of Indian people defecate in the open. India is

therefore called the "capital of open defecation", accounting for 59% of the practice in the world. (Tarraf 2015)

In 2013 there were reported 10,762,500 cases and 1,535 Deaths due to Acute Diarrhoeal Diseases (most of them in West Bengal, Uttar Pradesh and Odisha); 1,537,118 Cases and 361 Deaths due to Enteric Fever/ Typhoid; 104,145 Cases and 512 Deaths due to Viral Hepatitis; 1,127 Cases and 5 Deaths due to Cholera; 7,825 Cases and 1,273 Deaths due to Acute Encephalitis Syndrome/AES in India. Specifically in Odisha state, in 2013 there were reported: 593,207 Cases and 201 Deaths due to Acute Diarrhoeal Diseases; 53,743 Cases and 35 Deaths due to Enteric Fever/Typhoid; 3,119 Cases and 76 Deaths due to Viral Hepatitis (Ministry of Health and Family Welfare 2014).

Provision of safe drinking water is the main strategy to reduce the number of water-borne diseases caused mostly by open defecation. The Government of India (Ministry of Drinking Water and Sanitation; MDWS) through its programmes: Clean India/Swachh Bharat Mission-Gramin (SBM-G from 2014), the Rural Drinking Water Programme (NRDWP from 2010) and Nirmal Bharat Abhiyan/Total sanitation campaign (TSC) has declared its commitment towards achieving Sustainable Development Goals (SDGs) and universal sanitation coverage in the country by the year 2022, but with the current rural sanitation coverage of 32.7%, this is a challenging task.

MANTRA (Movement and Action Network for Transformation of Rural Areas) program is an example of community-led approach to WASH (water, sanitation and hygiene) challenge in rural India – implemented by non-governmental body: a rural development organization working with poor and marginalized communities of rural parts of Odisha state (known as Orissa) since 1979. Gram Vikas' program uses water and sanitation as an entry point for integrated village development. MANTRA enables communities to mobilise their own resources, helping them to break away from the inertia caused by a long history of marginalisation and deprivation. The aim of this paper is to identify key principles of MANTRA program and to analyse an impact of its implementation and communication on public health improvement on the example of Haradango village (Odisha state, India).

METHODS

The study village: Haradango (MDWS 2012) comes under the Biswanathpur Gram Panchayat belonging to the Berhampur sub-division in Ganjam distirict, Odisha. The village has 168 households with 85% of general cast (143 houlseholds) and 15% of scheduled cast (25 households). The total population of the village is 1,029 out of which 89 families fallen below the poverty level. "Community piped water supply and sanitation project" was established by Haradango villagers in 2008–2011 and was implemented by Gram Vikas.

The field research had the following objective – to identify key principles of Gram Vikas' flagship programme MANTRA on the example of community-driven WASH project in Haradango village and to analyse an impact of its implemenation and communication on public health of Haradango villagers.

The literature review for this paper was conducted, drawing mainly on existing monitoring and evaluation reports of Gram Vikas projects and other analysis related to Water, Sanitation and Hygiene programs in Odisha state. Also, two external stakeholders (WASH experts – J. Madiath from Gram Vikas and R.R. Prasad from NIRD&PR) were consulted in November 2015. Detailed case study of Gram Vikas Water and Sanitation program implementation in Haradango village was carried out in December 2016 during NIRD&PR field visit. A sample of project sites in Haradango village was visited and individual village members (52 out of 168 households) responded to the questionnaire. After the review of key documents, direct field observations of WASH practices six long semi-structured interviews with Haradango village leaders were followed in December 2015.

RESULTS

Based on field observations, documents review and semi-structured interviews with Haradango village leaders ten findings (five key principles, and other five code rules) of particular community-led project's implementation (as a part of MANTRA WASH programme) were identified as follows:

Finding I: Memorandum of Understanding: Before the start of Water and Sanitation project – there is supposed to be written agreement between village members and Gram Vikas (GV) NGO with listed responsabilities, rights and duties during the implementation of this project and its sustainability.

Finding II: Mandatory 100% positive decision: It means that all family members from 168 households were supposed to agree on the project decision and the implementation start, as well as the contribution/deposit from their own pocket. The development intervention is based on 100% consensus and participation of all adult men and women in the village (Whinney & Madiath 2010). A General Body is formed, which comprises of every male and female head of every household in the village. This General Body elects the Village Executive Committee (VEC), which is accountable to the General Body and it is usually a democratically elected body taking responsibility for the management of all development programs in the village. This committee is also registered as a society according to the rules of Government of India, enabling members to leverage funds and making it easier to communicate with government organisations. In case of Haradango village: Water and Sanitation committee consists of all village members' representatives – 8 out of them (4 male and 4 female members) has been elected as

executive body by voting. Now, the committee has nearly Rs. 200,000 bank fixed deposit.

Finding III (Key principle): 100% inclusiveness: It means that people from all castes (rich or poor, men or women, educated or illiterate) had their own voice and right to vote (equally) in the decision process of water and sanitation process and cooperation with Gram Vikas NGO. The village committees have proportionate representation of all caste and class groups in the community.

Finding IV: Financial sustainability and future extension: The initiation of the program is subject to the generation of a 'corpus fund' by the village, to which every single household contributes Rs. 1,000 on an average (the poor give less and the better off more, but the poorest widow also gives at least Rs. 100). Collected money from villagers (principal ammount of contribution to corpus fund) should be deposited to the bank and be used only in the case of reconstruction or extended construction of toilets and bathrooms for other villagers.

Finding V (key principle): Cost sharing during structure of toilets and bathrooms: People contribute at least 60% (in Haradango case: Rs. 22,000) of the costs of toilets and bathing rooms (costing a total of Rs. 25,000) and up to 30% of the cost of establishing a water supply system. The water is available 24 hours/per day, 7 days/week, which is not granted even in the big Indian cities. There is the training on using toilets and proper hygiene conducted by Gram Vikas NGO. The project is usually ready to start after 6–8 months from the initial meeting between villagers and GV staff. There is the norm of three taps per household. A pump operator was appointed by the village committee and he is paid Rs. 1,000 per month from the village fund. Every family pay Rs. 30 each month for maintenance and electricity.

Finding VI: The repairment and the monitoring process: Villagers keep their toilet clean and maintained every day. Monitoring of using clean toilets is in the hands of villagers (not only committee's members, but also women's group or school children). They monitor this practice and report those, who should be punished for not using the toilet at home. Every week, school children move from house to house, inspecting the toilets and bathing rooms. The village committee developed their own norm, that if a person goes for open defecation – he or she should pay Rs. 300 penalty. In 2015, there were 8 persons (all of them men) fined due to open defecation and the collected money were deposited to the committee account.

Finding VII: The reduction of nearly 80% of water borne diseases: Thanks to proper sanitation facilities and hygienic practises it has a direct bearing on children's and women's health. In past unclean water and related diarrheal incidence was the largest killer of children under 5 years of age. Gram Vikas' internal record on health shows, that in villages where the programme is in place, diarrhea incidence has been less than 2% (and that too, because of consumption of water outside the village).

Finding VIII & IX (key principles): Gender equity and social equity: Both men and women finally accept the enriching role that women can successfully play outside of their families. Women have taken over the responsibilities of maintenance and monitoring of water supply and toilets, as well as interaction with government officials, banks and communication with other outsiders. Gram Vikas stays three to five years to build capacities of women and the excluded, so that they can participate on an equal level. It was for the first time, that the poorest woman, the widow, or the dalit (untouchable) caste member could feel that she had a voice, which would be heard and which would matter. After using the water supply for toilet and bathroom for 3–4 months, Haradango village women realized, that they have more self-confidence and dignity.

Finding X: All of the listed principles contribute to the final 'Good practice' principle: Haradango villagers can feel ownership and empowerment (no more shame because of open defecation). The most prominent determinant of success when it comes to behaviour change process initiated by Gram Vikas, is whether 100% of people in the village is regularly using the toilets and the bathing rooms and also keeping them clean. Once the toilets and bathing rooms are constructed and water supply systems are established, the village committee lays down several codes of behaviour for everyone to follow. After four years, Gram Vikas withdrawed from the habitation and the community took full responsibility for the management, operation and maintenance of all systems and its communication/success story sharing outside the village (sustainability – key principle).

Most of the principles are very similar to key stones of community-driven development (Prasad 2015). The results from Haradango village case study show that Gram Vikas' MANTRA WASH project is sustainable and could be applied in other parts of Odisha state or even further in India.

DISCUSSION

Gram Vikas' experience shows, how something as basic as providing WASH infrastructure can generate sustainable change, not only by reducing water borne disease and child mortality, but also by uniting divergent strands within communities. By changing existing power structures and enabling the marginalised people to become active members of their communities, MANTRA has triggered new strands of development and achieved substantial improvements in the quality of people's lives. (Gram Vikas & FANSA 2013)

Besides all the benefits of Gram Vikas' WASH projects in selected districts of Odisha state, the MANTRA approach works to improve the effectiveness and accountability of grassroot people's organisations in several ways. (Whinney & Madiath 2010) People in tar-

geted communities are more aware of the importance of keeping their village clean (collective approach), as well as the importance given to personal hygiene (individual approach). They share this knowledge outside the location. Also increasing women's access to WASH facilities contributes to closing the health and nutrition gap in Odisha rural parts. Making facilities more gender-sensitive have been relatively easy improvement (Thomas *et al.* 2015).

A cluster-randomised trial (Boisson *et al.* 2014) in 100 villages of Odisha state of India to measure the impact of a rural sanitation intervention implemented under the government of India's Total Sanitation Campaign on diarrhea and soil-transmitted helminth infections showed, that the percentage of households with a latrine (completed, or under construction) increased from 8% at baseline, to 66% one year after the start of the intervention in March 2012.

Based on the results of another research (Impact of Indian Total Sanitation Campaign on Latrine Coverage and Use) conducted in 20 Odisha villages a large-scale TSC campaign to implement sanitation has achieved substantial gains in latrine coverage in this population (Barnard *et al.* 2013). Nevertheless, gaps in coverage and widespread continuation of open defecation will result in continued exposure to human excreta, reducing the potential for health gains. Similar Clasen's research (evaluating the impact of an ongoing rural sanitation campaign conducted under the umbrella of India's TSC Campaign on the sample of 50 intervention and 50 control villages from Odisha) found water stored in households to frequently be more highly contaminated with faecal indicator bacteria (FIB) than source water (Clasen *et al.* 2012).

Roy's study in Odisha revealed that 50% of households surveyed knew that water contamination causes diseases, however 64% of these households continued to draw water from storage vessels by inserting a hand. Although 92% of respondents considered washing hands to be important for personal hygiene, only in 29% of households kept soap/ash at the washing area. About 56% of respondents associated health problems with open defecation, but nearly 36% did not think it is important enough to build a toilet at home (Roy 2012). Barnard's study on TSC impact on 447 households from 20 villages in Odisha revealed that 126 households (28%) did not have a latrine, therefore all members of the household practice open defecation. Among the 321 households (72%) that had latrines, 62% reported that at least one member of the household was using the latrine. Among these households with latrines, 37% of householders were reported to always practice open defecation. Another 5% reported always defecating in the compound; these were mainly young children. The most common reason reported for not using a latrine was that people prefer open defecation (Barnard *et al.* 2013).

As listed below, there are still some Challenges and Misconceptions present in people's minds. Research in India over the past decade offers useful insights on factors leading to the persistence of open defecation and non-adoption of safe hygiene practices (MDWS 2012), such as: Open defecation is a socially accepted traditional behaviour; Child faeces are considered to be harmless; Building and owning a toilet is not perceived as aspirational etc.. Proper communication (facing the stereotypes, explaining healthy practises and sharing success stories like Haradango's example) is needed. Information, education and Communication Factors Responsible for Significant Changes in Health Indicators (related to Public health services in Odisha state) remain listed among State's priorities, such as: Focused campaigns and programmes on major communicable diseases; Improved literacy levels in the state; Increased awareness of general public about health issues, largely due to mass media (ICRIER 2002).

The Ministry of Drinking Water and Sanitation (MDWS) along with other partners have developed the National Sanitation and Hygiene Advocacy and Communication Strategy Framework for 2012–2017 (MDWS 2012). The overall goal is to make sure that people have access to, and use a toilet and practice good hygiene, including handwashing with soap after using the toilet and before the contact with food. This is achieved through: advocacy, interpersonal communication and community mobilisation with overall multimedia support, including mass media (traditional ones, as well as new: digital and social media).

CONCLUSION

Improving access to WASH is both a development goal in its own right and a means of achieving other development goals, particularly in health (ICAI 2016). With poor access to WASH, people suffer from more health problems and worse nutrition. WASH is also important to gender equality. It is often women and girls who bear most of the burden of collecting water. Millenniun development goals (MDGs: 2000–15) target on clean water access was achieved in 2010, with an additional 2.6 billion people gaining access to improved drinking water since 1990. Progress towards the sanitation target lags much further behind: against an MDG target of 77%, only 68% access was achieved, leaving 2.4 billion people worldwide living without improved sanitation and almost one billion people having to defecate in the open. The Global Goals (SDGs: 2015–30) are very ambitious: "To achieve, by 2030, universal and equitable access to safe and affordable drinking water for all". (ICAI 2016) India's commitment (to achieve universal sanitation coverage in the country by the year 2022) is even more challenging.

The significance of MANTRA's impact is striking and worth sharing – as on 31st March 2014, Gram Vikas NGO has covered 63,000 households in 1,095 villages

across 24 districts of Odisha, reaching a population of over 350,561. In these villages where water supply has been established, it is heartening to see that communities have ensured that the systems are functional. Communities have put together corpus funds worth over Rs. 63 million. Haradango village successful example is just one of them (where villagers are willing to implement WASH project, to communicate it and share their experience). According to field research Gram Vikas' program MANTRA is based on five key principles: 100% inclusion, Gender equity, Social equity, Cost-sharing, Sustainability (the longevity of the project after Gram Vikas' withdrawal). Communities where community-led MANTRA has been implemented (and Gram Vikas trainings with and for communities were conducted) demonstrate improved public health (decreased water borne diseases), as well as well-being (increased gender and social equity, dignity, nutrition).

Even though there is an increase in rural sanitation coverage in rural India, the construction of latrines and access to sanitation does not lead to regular usage by all family members. Open defecation still continues, because it is a cultural practice deeply engrained in communities. In order to achieve the goals of the Swachh Bharat (Clean India) Mission, more behavior change is needed to be reached by using proper information and education activities, as well as communication tools and channels (traditional/out-door, as well as new/digital media).

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