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Structural and Social Transformation of Village Livelihood by Jal Jagruti Abhiyan: A Case Study of Art of Living Initiative

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Abstract: Villages in India today are facing a growing pressure for sustainable water services, as water is becoming scarcer. Solution to water problems depends not only on water availability but also on the processes through which water is managed. A major contributory factor to such failure has been identified as the lack of people's participation. For this, Art of Living took an initiative 'Jal Jagruti Abhiyan.' With the help of around 2,500 participants including Sarpanch, Gramsevak and Grampanchayat members of Marathwada, a project for filling the gap between water demand and supply was started. Rivers Gharni and Terna and Esai Devi and Babhalgaon tanks were de-silted manually, and their slopes were stabilized through plantation. The de-silted material was used for soil conditioning. *Bandharas* were made at Takli and Jewli to increase water-holding capacity. This noble campaign and initiative has brought cheers in Sangli, Latur, Osmanabad and Jalgaon.

Key words: Community Based Natural Resource Management, Water Scarcity, De-siltation, Marathwada, Art of Living, Jal Jagruti Abhiyan.

1. Introduction

The indispensability of water cannot be stressed enough. It would be a futile exercise to begin describing how important water is, considering that all of us have experienced the impossibility of existence without water. In agriculture-dependent nations like India, the discussion of water is inextricably linked with the Monsoons. The history of agriculture in India dates back to the ancient times. Today, India ranks second worldwide in farm output with 160 million hectares of cultivated land. Agriculture and allied sectors

like forestry and fisheries accounted for 13.7% of the GDP (Gross Domestic Product) in 2013, but employed as much as 50% of the total workforce (CIA Factbook).
Importantly, the crop irrigation scenario in India is still largely Monsoon-dependent. As per a 2013 World Bank report, only 35% of cultivated land in India was covered under reliable irrigation (World Bank Report, 2013). The unreliability of monsoons is particularly painful in central India where rainfall is normally less, rivers are seasonally fed and groundwater levels are low (Phadke 2002). Especially, the state of Maharashtra is drought- and farmer suicide-prone (Mishra 2006). Major portion of the state is semi-arid and though the Western Ghat and coastal districts receive an annual rainfall of 2000 mm, most part of the state lies in the rain shadow belt of the ghat with an average rainfall of 600 to 700 mm. The rainfall variations from 500 to 5000 mm have been recorded with an average of 1000 mm distributed over 60-70 days.
Marathwada (64590 km^2) is predominantly an agrarian region. The term Marathwada means "the house of Maratha people". It includes Aurangabad, Jalna, Beed, Osmanabad, Nanded, Latur, Parbhani, and Hingoli. Many villages in Maharashtra are reeling under water negativity – they have a high dependence on crops such as sugarcane, and a weak Monsoon can wreak havoc. High suicide rates among farmers and incessant migration of the rural youth towards cities bear testimony to the fact that our villages have failed to become the self-sustained units of Mahatma Gandhi's vision. As per BBC news, since 1995, more than three lakh farmers have taken their lives in India. According to the 2011 census, the suicide rate for farmers was 47% higher than the national average. 33,752 have occurred in Maharashtra alone from 2003 to 2012, at an annual average of 3,750 (Mishra 2006).
In this context, a question arises – is the provision of much-necessary water the responsibility of the government alone? Or, in the absence of concrete administrative steps, despite the expenditure of crores, must not the local population actually bearing the brunt of the problems be motivated to take the situation in hand? Indeed, ensuring the sustainability of water provision is too fundamental, urgent and indispensable a requirement that entails all working hands on board.
The main objective of the study is to explore how local people were involved in resolving the crucial water scarcity problem. The study is carried out in the affected villages to check their motivation level, binding forces and their commitment to take lead in transforming the village from water scarcity to a place where water is now actually generating revenue.

2. Literature Review

Community-based natural resource management (CBNRM) approach has been consistently credited to be the dominant global theory of neoclassical economics and liberal democracy (Virtanen, 2003). CBNRM advocates the participation of local communities. Local communities are closer to the local environmental problems and they can find more suitable and doable solutions. Thus, it is appropriate for residents to play important roles in local environmental conservation.

Several international organizations, including United Nations Environment Programme (UNEP), have widely adopted the CBNRM principles (Berkes, 2007). CBNRM has been a critical principle behind World Bank's projects in West Africa, South America, and Asian countries (Mansuri and Rao, 2004; World Bank, 2005). The United Nations Development Program (UNDP) has also applied the community-based conservation approach to a number of international programs ensure the success of their projects. Recent research has highlighted the importance of linkage between environmental planning and sustainable development in the local context (Berke and Conroy, 2000; Conroy and Berke, 2004).

CBNRM originated from Jeffersonian ideals of civil society to encourage citizens' voluntary participation in democratic processes to advance the public good (Lurie and Hibbard, 2008). The major motivation for a bottom-up CBNRM approach is local sustainable development. The three major components of CBNRM identified through literature are: Stakeholder involvement, Public participation, and Inter-organizational collaboration.

3. Methods

3.1 Study Area Details

The interaction with the villagers involved in this project was conducted in Latur city, located in the Maratwada region of Maharashtra and is the district headquarters (Fig 1). Table 1 summarizes the agricultural details of the districts in Marathwada. In Table 2, the demographic details of the studied districts have been enlisted.

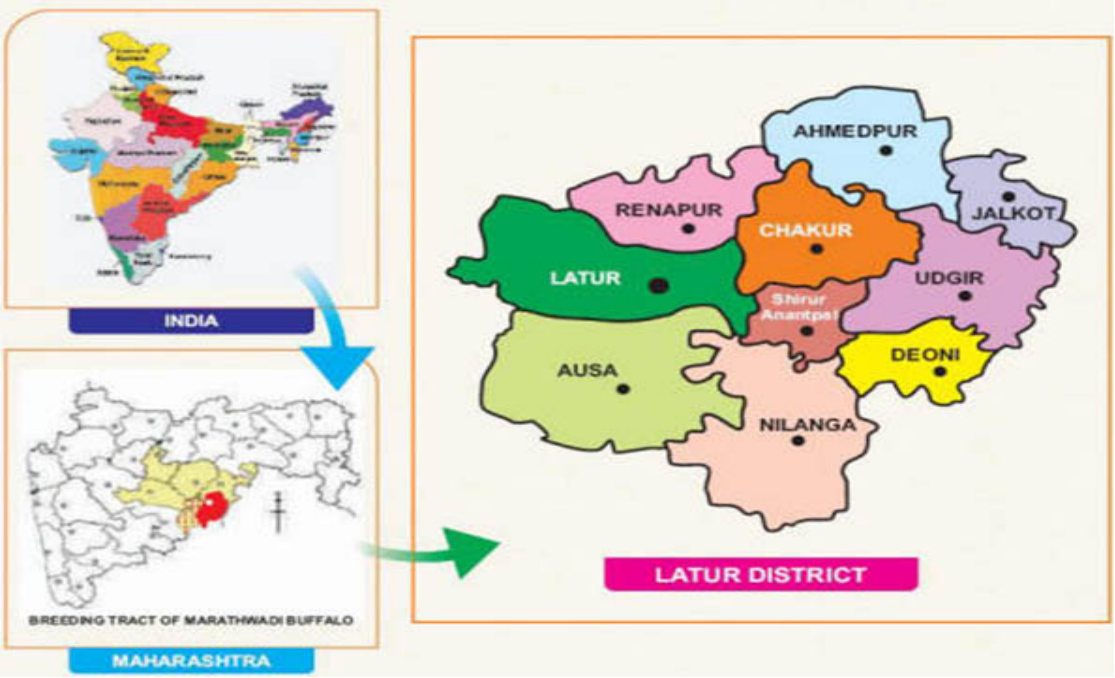

Figure 1: Study Area

	Aurangabad	Jalna	Beed	Osmanabad	Latur	Sangli	Jalgoan
Net sown area (la ha)	7.15	529.0-596.5	876	519	529	557.1	844.2
Gross cropped area (la ha)	8.12	688.0	1051.6	841.8	688	649	1324.8
Area under double cropping (la ha)	1.37	159.0	175.2	321.5	159	91.9	480.6
Rainfall- SW monsoon (June - Sep)	623.5mm	600mm to 700mm	600mm to 700mm	693mm	634.9mm	473.5mm	639.8mm
Soil type	Deep black soil, shallow deep soil, medium deep black soil	Blac soil-light, medium and heavy soils	Deep black soil, shallow deep soil, medium deep black soil	Black soil	Deep black soil, shallow deep soil, medium deep black soil	Black soil	Black soil
Crops	Cereal, pulses, gram, cotton, sugarcane, oil seeds, fruit crop	Rice, wheat, jowar, bajra, maize, gram cotton	cotton, sugarcane, gram, pigeon pea, soyabean, wheat	Pigeonpea, black gram, soyabean, sunflower, wheat, sugarcane	Pigeonpea, black gram, soyabean, sunflower, wheat, sugarcane	Soyabean, sugarcane, sorghum, groundnut, wheat, pearlmillet	Cotton, wheat, maize, black gram, groundnut

Table 1: Agricultural Details of Marathwada Districts

	Sangali	Jalgaon	Osmanabad	Latur
Population (census 2011)	2,822,143	4,229,917	1,486,586	3,82,754
Gender- Male	1,435,728	2,197,365	769368	10,75,257
Female	1,386,415	2,032,552	717,218	10,05,028
Sex ratio (per 1000)	996	925	932	935
Population growth	9.24%	14.86%	11.50%	18.04%
Area sq km	8,572	11,765	7,569	7,157
Density/km^2	329	360	196	291
Literacy rate	81.48%	78.20%	69.02%	71.54%

Table 2: Demographic Details of Sangli, Jalgaon, Osmanabad and Latur Districts

River Gharni: It flows near Shirur and Latur districts in the state of Maharashtra. It is a tributary of the River Manjara, the main river in Lature district. River Gharni has its origin near Wadval and flows through Chakur taluka. An 'earthfill' dam has been constructed on the course of the river, called as the Gharni dam. The height of the dam above lowest foundation is 15.24 m (50.0 ft) while the length is 956 m (3,136 ft). The gross storage capacity is 25,080.00 km3 (6,017.01 cu mi).

River Terna: River Terna is a tributary of the River Manjara near village Makani of Latur district of Maharashtra. Like River Gharni, River Terna is also one of the main tributaries of Manjara which flows on the southern boundary of the Ausa taluka.

3.2 Art of Living

A non-governmental organization, The Art of Living (AOL) is involved in humanitarian projects. It operates in 152 countries and has impacted 370 million people. AOL's areas of work cover conflict resolution, disaster and trauma relief, poverty alleviation, empowerment of women, prisoner rehabilitation, education for all, campaigns against female feticide and child labor and environment sustainability. The Jal Jagruti Abhiyan (JJA) initiated by the spiritual organization Art of Living (AOL) worked on the philosophy of social motivation, as this abhiyan (campaign) primarily focused on explaining sociological phenomena, with the hope that the structure of work will be useful in clarifying economic phenomena by making the area water positive.

3.3 Social Motivation

Many economic phenomenons can be explained with an understanding of social norms: what they are, how they form, how they change, and the associated economic perspective, which can be taken as a complete explanation and understanding of the phenomenon. Some of the sociological phenomena are explained by different models,

such as peer effect models, identity models, and motivated belief models. Sociological phenomena theory predicts that social interaction of a group or community works for common welfare.

3.4 Cooperative Action Taken

A participatory approach for water conservation was undertaken by the volunteers. First-of-all, situation analysis was done about water problem in the villages in Maharashtra. Situation analysis is used to generate consciousness for development amongst the participating villagers. The process of social motivation took 10-30 days, with more than 50 volunteers of AOL involved in the exercise. About 50-100 villagers from each village were involved in the exercise. In total, nearly 2500 villagers, including Sarpanch, Gramsevaks and members of Gram Panchayat were involved in the Marathwada region.

In this innovative approach of creating awareness and making the villagers active for collective action, following steps were taken during the process:

- Elaborated the objective of the project with the villagers;
- Introduced the contents of every session:
    - Use of Audio -visual aids to motivate the participants;
    - Provided equal opportunity to each participant to share their views;
    - Water awareness program.
- Proper guidance to the participants with relevant question-answer sessions;
    - Ensured the participation of all groups (men and women);
    - Created awareness on the importance of local natural resource conservation
    - Promoted self-help spirit;
    - Empower the villagers to address their problems and to find their own solutions;
    - Involve the majority of villagers in decision-making process;
    - Generate information to be used for decision-making and preparation of action plans.

4. Results

4.1 De-siltation

The rivers Terna and Gharni, bandharas at Takli and Jewali, as well as the Esai Devi and Babhalgaon tanks were among the water bodies that have been cleaned up, benefitting several villages in Sangli, Jalgaon, Osmanabad and Latur districts. In Jalgaon alone, canals in 6 villages in 6 talukas have been recharged. The River Gharni was deepened 2m for a length of 1700m and width of 50m.Similarly, the Babhalgaon Tank (60m by 70m) was deepened 7m.(Picture 1and 2)

Picture 1 De-siltation process with the help of local community

Picture 2: After De-siltation recharge ground water reserve

4.2 Slope Stabilization

Slope stabilization is a significant step necessary for prevention of soil erosion in the slopes of a river/water body. This is essential for preventing the fast silting-up of a water body. There are several methods of stabilizing the slope, including rip-rap, jute textile mats, mesh, permeable concrete and geotextile. However, plantation along slopes for slope stabilization continues to be an ecologically and economically superior solution. Local emergent plant species were planted along the slopes to prevent slope erosion and reduce the sedimentation in the newly-deepened water bodies. This is a simple bio-engineering technique that has been used since ages for the purpose of slope stabilization. Emergent species not only prevent the erosion of slope but also serve as feeding and breeding grounds for native fish. Their roots filter the water and naturally purify it. In addition, they undergo rapid biomass increase, thereby acting as carbon sinks.

4.3 Silt for Soil Conditioning

Silt is made up of rock and mineral particles that are larger than clay but smaller than sand. Individual silt particles are so small that they are difficult to see. In the Udden–Wentworth scale (due to Krumbein), silt particles range between 0.0039 and 0.0625 mm. Silt is created when rock is eroded, or worn away, by water and ice. Silty soil is usually more fertile than other types of soil.

The silt obtained after deepening the water was deemed fit as a soil conditioner by the team of geologists accompanying AOL volunteers. It was, hence, used as such in the agricultural fields of the nearby areas. In arid regions, soil conditioning can reduce evaporation, reclaim saline soils, and prevent water and wind erosion (De Boodt, 1975). Wilken (1990) discusses how silt deposited in their floodplains by flooding rivers makes for enhanced soil fertility for farmers.

4.4 *Bandhara* Construction

Bandharas are traditional check dams or diversion weirs built across rivers. They are built either by villagers or by private persons who received rent-free land in return for their public act. A gabion *bandhara* 55m long and 1.5m high was created to hold the water in River Gharni.

4.5 Testimony of the Locals

When the research team approached Makrand Jadav (the coordinator of the project), he stated, “As responsible citizens, the villagers have taken active participation in these initiatives at different places. We reached out to more than 33 villages in 4 districts of

drought-affected areas and benefitted more than 80,000 people and received tremendous response from the people who have come out and supported this initiative."

Makarand Jadhav, said, "We organized a workshop to convince people that this project can be successfully completed with their participation. It's so inspiring to see a tea stall owner coming forward to donate for the project. People from all walks of life contributed in whatever way they could."

He added that the barrage on the Terna River at Kamegaon (Osmanabad) has been cleaned, widened and deepened, and manually operated gates have been fixed. "On this river alone we cleared 55000 sq.m. of river bed of debris, waste material and shrubs, increasing the water capacity by 155 lac liters. Not only this, more than 15,500 cu. m. of silt was transported from the river bed and spread across 51,803 sq. m. of land, improving its fertility considerably. In Sangli, there was water shortage because of the draught, but in two months, we have supplied 28,08,000 liters of water through 468 tankers".

5. Discussion

Community-level management of one's environment has been looked upon as an effective solution. In Maharashtra for the first time in the last 30 years, the river Gharni flowed with 45 crore liters of water in August 2013. More than 25,000 people benefitted. About 180 crore liters of water will now percolate in the river basin. The Department of Geosciences provided the encouraging news of as much as 30-40% increase in Babhalgaon, post the de-siltation work.

Similar efforts have been undertaken in other parts of the country as well. In Gujarat, Water Resources Department (WRD) invited leading NGOs to work closely with them for improving canal irrigation management. In 1992, a workshop was jointly organized by Water and Land Management Institute (WALMI), Gujarat and AKRSP, India (a prominent NGO in Gujarat) to discuss appropriate measures that can be initiated to promote Participatory Irrigation Management (PIM). By 1994, 13 pilot projects on PIM were launched across the state with the involvement of NGOs. Taking confidence from the results of these pilot projects and strong NGO support for the PIM (especially from AKRSP and DSC), Government of Gujarat launched policy resolution (1st June 1995) to invite participation of farmers and NGOs in management of state-owned irrigation systems. Between 1995 and 2000, some 37 orders were issued from the WRD to facilitate PIM process in the state. By the end of 2005, total of 377 Irrigation Cooperatives

(nomenclature for WUAs in Gujarat) were formed covering an area of 1.02 lakh hectares under farmers management.

The National Water Policy adopted by the Govt. of India in the year 1987 was revised in the year 2002 wherein it underscored Water Use Efficiency, Community Participation and Participatory Irrigation Management (PIM). In accordance with these recommendations, the Maharashtra State Water Policy was framed in the year 2003 in order to ensure a sustainable development and optimal use and management of water resources in the State for maximizing the social and economic benefits for the State. Subsequently, the enactment of the "Maharashtra Management Irrigation Systems by Farmers" Act in the year 2005 gave statutory recognition to the constitution and operation of Water User Associations (WUAs) for enabling the farmers to act collectively to improve the productivity of irrigated agriculture.

It is important that the generated information should be documented in a way that it is accessible to the villagers to make sure that they are the owners of the process. In addition, it is also imperative that such case studies are recorded and disseminated in a way that others in a similar predicament are motivated to solve it through a participatory, community-based approach.

Experience has shown that villagers face multiple problems that are outside the main issues. Some of these problems are rather serious. The role of AOL is to support villagers in finding appropriate solutions that are within their reach and realistic. In cases where additional help is needed, AOL linked the villagers with the relevant government organizations and NGOs. Since these agencies are few and not well-qualified the project also involved capacity building.

6. Conclusions

In conclusion, this case study exemplifies the spirit of social movement, hard work, self-dependence and patience. It is a motivating example that must set into motion several other similar case studies in other parts of the country and, indeed, the world. This noble campaign and initative for creating awarness for water bodies rejuvenation and awarness creation among many villages in Maharashtra had brought happiness and spring in life again in Sangli, Latur, Osmanabad and Jalgaon.

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