

Conservation of Riverine Resources through
People's Participation: North-Eastern Godavari
Basin Maharashtra, India



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Samvardhan
India

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FINAL REPORT FOR



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1. Concept Note

1.1 Abstract:

Wetlands are important entities provide goods and services to whole biosphere. These vital entities are disappearing from the face of earth rapidly. The reasons behind this ecological meltdown are habitat destruction, pollution, over use of resources, invasive species and encroachment. Immediate effect of this erosion is on wetland dependent people like fishermen. The proposed project argues that, for the conservation of wetlands and sustainable livelihood there cannot be a single solution.

Thus, holistic approach can only be an important approach by which situation will ameliorate. Holistic approach involves consideration of as many as components of the wetlands while intervention. The movement of the whole basin management is essential where various anthropological, ecological, economic, educational, cultural, political approaches will be considered to save wetlands, fishes and to ensure sustainable life.

1.2 Problems Identified

1.2.1 Disappearing Wetlands:



Figure 1: Chandra Talaw from Karanja City degraded due to pollution and growth of hydrophytes.

Freshwater wetlands of India are rich repositories of biodiversity and are crucial for the livelihood and survival of millions of people. Unfortunately, these vital ecosystems are facing serious threats from development activities and they are disappearing from the landscape at an alarming rate. Recent studies show that, over last one decade 38% of wetlands of size of more than 2 hectare have disappeared from the Indian landscape. Thus, Karanja Lad is an urban setting had three traditional tanks locally called Rishi

Talaw, Sarang Talaw and Chandra Talaw. Encroachment, catchment destruction and dumping city waste ruined these natural entities in merely last 20 years. Bhandara district of Maharashtra has 43,381 tanks, built some 250-300 years ago by a small group of cultivators called *Kohlis* (Rajankar and Dolke, 2001). However, in present scenario this grand tradition of tanks has destroyed.

1.2.2 Degrading rivers

Over extraction of the riverine resources including water, pollution, dams, anthropogenic disturbances in the catchment and climatic changes are some of the root causes which destroying Indian rivers. In our case, river Adan is largely flow through the agriculture area and un-regulated extraction of the river water makes river dry merely in October or November. Destructive fishing by electric current and poisons and un-regulated sand mining are some of the examples of over extraction of riverine resources. Pollution in case

of Adan river are mainly includes agriculture runoff through high input agro-farms, dumping of sugar factory effluent and sewage. The forested region around Adan destroyed in the recent past leading to siltation and ground water depletion.



Figure 2: Eroding Rivers creating acute scarcity of water.

1.2.3 Erosion of Biodiversity:

The aquatic biodiversity from Indian rivers, seas and tanks is eroding substantially. The central Indian River systems harbour 150 species of the fishes (Heda N. 2009). According to study made by author, it was clear that about 70 % species of the freshwater fishes are declining at the same time fishes like *Anguilla bengalensis* completely wiped out from the rivers of this region (Heda N. 2007).

1.2.4 Spread of Invasive alien Species:

The introduction of exotic species is the second leading cause, after habitat degradation, of species extinction in freshwater systems (Hill et al. 1997). Article 8h of the Convention on Biological Diversity (CBD), calls on the Parties to 'prevent the introduction of, control or eradicate those alien species, which threaten ecosystems, habitats, or species (CBD, Article 8h). In our study area, fishes like *Oreochromis mossambica* are spreading with unprecedented rate (Heda N. 2007).

1.2.5 Ultimate victims: Traditional communities

The cascading effect of this ecological meltdown is directly on the local communities, which depend on wetland resources for their subsistence. There are 387 communities of fisher folk throughout the length and breadth of India dependent on 191,024 kilometres of rivers and canals and numerous wetlands and reservoirs (Anonymous, 2002). These communities were evolved over the period to sustainably harness the goods and services from the wetland. These wetland dependent communities are of two kinds viz. Specialist (those of *Bhoi* and *Dhimar*) dependent completely and opportunistic (e.g. *Gond*) dependent partially. Both these communities are the victims of recent changes. Another group of people, following Gadgil and Guha (1992) I call them *omnivorous*, not directly connected with wetlands, but dependent on these resources indirectly and enjoying access of resources like water and fishes. The wasteful utilization and lack of awareness among *omnivorous* is the matter of concern.

There is a vast traditional knowledge possess by traditional communities regarding aquatic habitat and biodiversity (Heda and Kulkarni, 2004). This kind of traditional knowledge is important for the management of natural resources (Gokhale et al. 2005).

1.2.6 Responses to changes

Responses to these catastrophic changes by local communities are many and varied and most of the time that of degraded type, for example production of illegal liquor or shifting towards destructive resource extraction. Due to destruction in the natural resources, large numbers of community members are migrating out of their villages in search of employment and in mega cities living miserable life. At local level traditional fishermen, due to their inability to take water bodies on lease are working as labour in unorganized fishery sector.

It was noted that, if livelihood of these communities were in danger then it would negatively affect surrounding biodiversity by exploitation. There are many examples of these kinds of vicious circle e.g. destructive fishing techniques used by traditional fishermen.

1.2.7 Irrigation and Agriculture:

The area is largely agriculture area with about 74% geographical area is agriculture. The net cultivable area in Washim district as per 2000-2001 survey was 3885 sq. km. whereas the irrigated area was merely 261.41 sq. km., which is 14 times less than the total agriculture area (Ministry of Water Resources, Central ground water board, Govt. of India, 2007). The effect of this is directly on the wellbeing of the farmers. In extreme cases, this is converting in the suicides of the farmers of the area.

Last few decades witnessed substantial increase in the use of chemical fertilizers and pesticides. After use the residues of pesticides enters into natural watercourses along agriculture runoff and affect aquatic biodiversity.

1.2.8 Information deficit

There is another dimension to this situation, lack of knowledge about the two things viz. resources and laws, making situation worst. As an example in Maharashtra, there are large numbers of water bodies largely in the possession of the state. Every year, State Fisheries and Irrigation Department auction water bodies to local people, but there is no mechanism of the information disbursement (e.g. how many water bodies? Distribution, their biological characteristics, auction value etc), because of this, those wealthy people, which have access to information, are benefited. As an example, we made a survey of the 106 families and asked them whether they worked for NREGA and if the answer is no then why. Out of 106 families, only 23 families very occasionally worked for the NREGA. 70 % people among not worked for the NREGA argued that they do not know how to secure employment through this act (*Jal-Samvad*, 2008).

1.2.9 Immerging Group Conflicts:

It is also noted that, due to depletion of wetland resources, there is increasing tensions and episodes of conflicts among various user groups. Thus, there is conflict between agriculturist, industries and fishermen for the water or conflicts between traditional fishermen and neofishermen for water bodies for fish culture.

1.3 Root Causes:

The root causes of above problems are lies in the human institutions in the inequities that plague our society and erosion of local, traditional decision-making and conflict resolution systems. These systems were the vital part of Indian rural life. After the collapse of these systems, local people increasingly believing that some outside agency can solve the local problem. In addition, the paradigm shift in the management of natural resources such as traditional tanks from the hands of the community to the hands of state created unequal sharing of the resources.

1.4 Approach

Holistic approach is the key by which situation can be ameliorate. The key point in this approach is to understand that, *the solutions to local problems would best begin at the local level by the local stakeholders and as we are dealing with the complex system of various interlinked components, we have to address countless issues by varied methodologies.* This approach ensures involvement of the grass root communities in the conservation endeavour by providing them sustainable livelihood. In our case, this can be achieved by two ways viz. implementation of aquaculture in cooperative manner and using government laws to generate livelihood and to make sustainable environment. Wise implementation of *National Rural Guaranty Act (NREGA)* of government of India fulfils both objectives viz. eco-restoration and generation of the sustainable livelihood.

However, fish culture can be a partial solution of the livelihood for fishermen but substantially large population of the fishermen still depends on the natural water courses for their subsistence therefore it is essential to improve health of our wetland resources. On small scale, this improvement can be done by creating series of *Fresh Water Protected Areas (FWPAs)*. Off course, these kinds of FWPAs must be declared and owned by the local groups and sustainable utilization should be the central theme of such structures.

Above approach can work effectively only when the local decision-making and conflict resolution mechanism work properly. If the local systems strengthen by sensitizing them and capacity building of the same made then only the system will be sustainable.

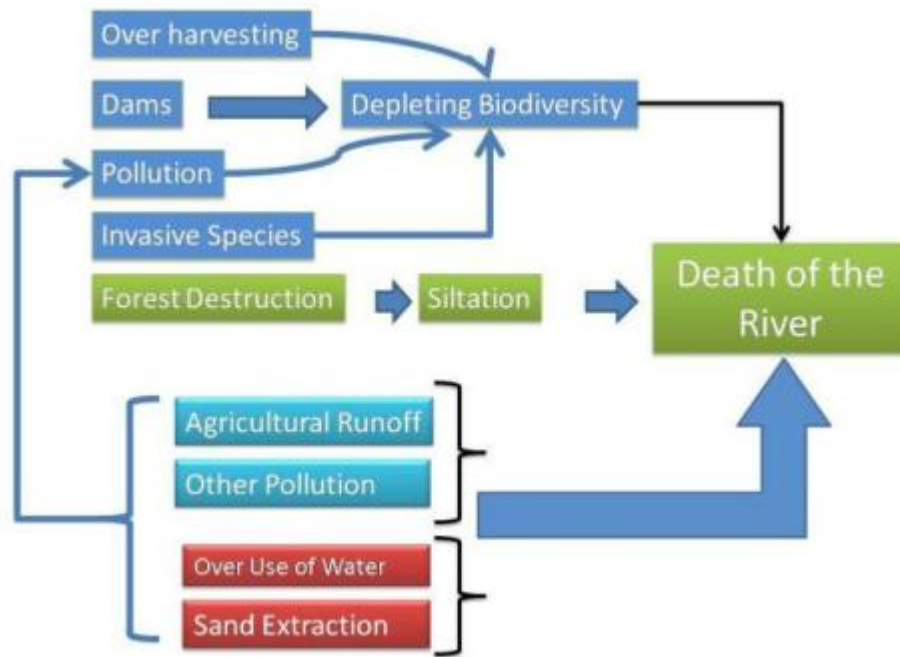


Figure 3: The diagram show linkages of various problems related to riverine Ecosystem

1.5 Methodology

1.5.1 Building Base:

There is need to create small local decision-making systems, need to strengthen existing traditional institutions and to do capacity building of the same. In the case of fishermen, to establish chain of cooperative societies and River Study Groups is essential. It was noted that such small thoughtful groups can take community level decisions which can help in the conservation of the natural resources. Thus, Dhanora ILAKHA (A group of 32 villages) of Maharashtra state, after careful observations of the declining fish fauna, through consensus took decision of the ban on fish poisons (Gadgil and Heda, 2009).

1.5.2 Activism from the base:

To harness potential of the various government schemes like NREGA there is a need to develop activism from local level, which can be possible by establishing small study groups of the local people. Thus, at Dhamani village of the Maharashtra local people completed work of the 17 small tanks on the small streams through NREGA in the period of 6 months.

1.5.3 Watershed Development through Ridge to valley approach:

The watershed development work of water and soil conservation is a process of immediate positive results. In Indian scenario, there is a big scope to do through NREGA, which stipulates 80% of development work should be of watershed development work. In the urban settings, incorporating roof top rainwater harvesting is practical solution, which can strengthen ecosystem good and services.

1.5.4 Information for all:

Data generation and availability of the same (the CBDs so-called clearinghouse mechanism) for all is a key factor, which can strengthen the local decision-making mechanism and can lower discrimination. Data banks can be established by using Right to Information Act (RTI) of government of India, involvement of the students and educational institutions in the data generation and use of the modern tools of the data base management. In 2007, we have applied for the information on the present state of the all water bodies of the Washim and Yavatmal district and gathered information to build a relational data base management system (RDBMS).

1.5.5 Spreading awareness:

Sensitizing local people and other classes of the society by effective campaign of the awareness generation is an important factor in the present concept note.

1.5.6 Involving policy maker and implementers:

Involvement of the policy makers and government officials in the whole gamut can effectively implement various socially relevant schemes.

1.5.7 Improving local finance:

Financial security to local groups of fishermen and other people by creating community fund and other aids will improve the financial situation and will involve local people in the conservation endeavour.

1.5.8 Influencing policy:

There are few policy level amendments needed in the existing laws, policies and government resolutions. As an example, the biggest challenge with using rainwater harvesting is that it is not included in water policies in many countries including India (UNEP, 2009). Local regularly interacting study groups can give important inputs in the existing policies as well as thoughtful local groups through activism can make positive changes.

1.5.9 Fresh Water Protected Areas (FPAs):

FPAs are portions of the freshwater environment partitioned to minimize disturbances and allow natural processes to govern populations and ecosystems. While similar conservation practices are well established in the terrestrial and marine environments, the use of FPAs for conservation of freshwater environments has been relatively slow (Cory and Cooke, 2006). For the establishment of the FPAs it is essential to make principals of the Ecology working on local level and utilization of the traditional wisdom and knowledge in the same.

Thus, if the movement of the whole basin management is applied, various human, ecological, economic, cultural, human resources, political, educational approaches used then only wetlands will be saved, and sustainable life will be ensure.

2. Success Achieved during RSG project

2.1 Livelihood generation

2.1.1 Generation of livelihood and eco-restoration through MNREGA



Figure 4: Eco-restoration work going on at Kajaleshwar Village.

Due the impact of the project thousands of labour got sustainable livelihood through the wise implementation of Mahatma Gandhi Rural Employment Guaranty Act 2005. Through the capacity build by the project activities and capacity building workshops the people becomes self sufficient to ask for work. The impact quantification of our work is not possible as it is spread on the larger landscape area. However, 2 examples are shown here. 1) Dhamani Khadi is village of fishermen, situated along the river Adan. We sensitized local people and government departments for eco-restoration work. As a result, Eco-restoration works of about 8 Lakh rupees (=11,401.04 GBP) has been carried out. The eco-restoration work in the Adan river basin include plantation, watershed development work etc. 2) Kajaleshwar is a village situated along the river Uma. Here also due to our intervention, about 300 labourers did eco-restoration work of about 17 Lakh rupees (=24,230.27 GBP).

2.1.2 Successful community managed fish culture of local fish species:

Another success of the project is fish culture of the locally available fishes by local fishermen community. The fish culture is immerging as big bio-resource based industry. However, the use of invasive species in the fish culture creating harm to local fish fauna. In this context, at 3 places (Dhamani, Antarkhed and Rudrala), community fish culture has been successfully done. As local people got sustainable.

Number of groups chosen for the fish culture program.	3
Approximate number of people in each group.	20
Total people got livelihood.	60

Estimated total number of Families benefitted.	60
Total number of peoples benefitted (Considering 6 people in a family).	360
Average Approximate area of pond. (Hectare)	5
Number of ponds people own.	3
Total area of pond (Hectare)	15
Approximate production of fish per hectare (Kg)	1500
Estimated production of fish per pond (Kg)	7500
Estimated total production of fish (Kg)	22500
Fish prize per Kg (Rupees)	40
Total Amount own by all groups through project. (INR)	900000
Total amount earned by each group	300000
Expenditure for each hectare	10000
Expenditure for 15 hectares	150000
Net profit	750000
Total amount earned by local people thorough fish culture of local fishes Amount in GBP (1 GBP = 59 Indian Rupees)	GBP 12,630

Table 1 Tentative quantitative estimation of revenues earned by local people through fish culture of local fishes.

2.2 Conservation of riverine resources

2.2.1 Understanding Ecosystems

Effective conservation is only possible when locality specific data generated. In this regard, 2 project team members did holistic study of the area in association with SNDT women's university, Mumbai and Rural Commune organization. It was an action research project.

2.2.2 Eco-restoration:

Eco-restoration activities have been carried out in whole North-Eastern Godavari basin. The vast potential of Mahatma Gandhi National Rural Employment Guaranty Act 2005 of government of India has been used for Eco-restoration work. The Eco-restoration activities involved plantation, check dams, forest ponds, farm bunding for soil and water conservation. These structures substantially reduced amount of silt entering into natural water courses. The area is famous for traditional tanks. The tanks are eroding due to siltation caused by deforestation. Through MNREGA these tanks has been de-silted. The fertile silt has been used for the farmlands.

2.2.3 Conservation of fishes

The goal of fish conservation has been achieved through Eco-restoration. Culture of locally available fishes shown direct effect on fish conservation.

2.3 Awareness generation and capacity Building

Large scale awareness campaign has been initiated in the whole basin. Following programs has been arranged in this regard.

Main Concerns of Sammelan

1. All the forms related to NREGA should be available in the Gram Panchayat (Not available in many GPs).
2. Job Cards of the labour should be issued immediately (Since 2 years such JOB CARDS not issued at my villages).
3. The work demand forms should be accepted by the officers (Not accepted at Many GPs).
4. The acknowledgement of the demand form should be immediately distributed to labours.
5. The wages should be distributed within 15 days.
6. The honorarium of the ROJGAR SEVAK should be distributed immediately.
7. All the facilities as mentioned in the act should be provided to labours.
8. All line departments should plan for the work and there should be diversity in the work.
9. At the time of the planning of village whole basin should be considered.
10. Officers, Gramsabhas, Sarpanch doing good work should be felicitated.
11. There should be helpline to solve the problems of the labours.

2.3.1 MAJDUR SAMMELAN 2010: (18 January 2010)

There are two contrasting situations in the rural area of Vidarbha: severe lack of employment for unskilled labour in unorganized sector moreover, there is huge amount unspent at government department allotted for employment and watershed development work. A cross cutting arrow goes through this situation is large-scale destruction in the natural resources. This massive unspent fund of NREGA (MREGS in Maharashtra state) can be utilized to solve both problems viz. to provide employment to mass and to restore degrading ecosystems. In this situation a question is arises that where to start to ameliorate the situation? We believe we should start with the labour, largely unorganized, devoid of knowledge and deprived.

NREGA is demand driven program and labours have to ask for the work. However, due to lack of knowledge people simply do not ask for work. Role of local institutions like GRAMSABHA is crucial in the implementation of this act however, this largely do not happen at all. The act stipulates that GRAMSABHAS should come up with management plan of their own area. However again due to lack of knowledge this largely does not happen.

To cope with some of the above problem we organized one-day summit of labours, Gram Panchayat members, and government officials and student's summit. The main objective of this summit was to explain the NREGA act to all the sections of the society. NREGA only for the sake of the employment to labour is not the core area of our work. Rather to initiate whole village development work by incorporating principal of whole basin management is core area of work. The river basin is our target area.

Beyond our expectations about 4000 people including labours, government officials, students, and common people gathered to understand the

conservation of watershed through NREGA. We made the seating arrangement for the approximately 1000 people while about 3000 people seated under the sun for almost 3 hours.

Chief Guest of the program was **Megesese winner Dr. Rajendra Singh, Tarun Bharat Sangh, Jaipur**, Member of the Maharashtra state assembly **Mr. Prakash Dahake**, Collector of Washim district **Mr. Udaysingh Rathor**. The program was divided in to two parts viz. capacity building and actual field visit to understand the watershed management at local level.



Figure 5: Labours, students gathered during Labour Summit.

The program started with the introduction given by Dr. Nilesh Heda. He explained need of the NREGA. He argued that, NREGA is only way to halt the degradation of natural resources. It is the practical way to implement the **GRAMSWARAJ** (Village Independence), a concept given by Mahatma Gandhi, at local level. The act gives power to local institutions to make a planning of village. However, according to him, this act is violated at every step. Government official refused to accept forms essential to ask for work and so on. The actors behind this failure are not only government officers but also labour and GRAMSABHA members. As a part of future plan he provided way of study of this act and peaceful activism at local level.

The collector of the Washim district **Mr. Udaysingh Rathor** provided status of the MREGS in the Washim district and agrees to take necessary actions to strengthen the same. Member of the state assembly **Prakash Dahake** decided to incorporate the NREGA in the development work in his constituency (Manora and Karanja Taluka).

As a part of capacity building **Mr. Pawan Mishra** explained in very simple words steps to start NREGA work in villages.

The Final speech of first session was delivered by Dr. Rajendra Singh. He argued that failure of the NREGA is not only due to the government officers but labours also involved in the same. Present situation of the water resources, rivers and other natural resources in

India is alarming. To halt this situation there are two practical way viz. Water conservation and soil conservation, both the objectives can be fulfilled by the NREGA.

The encouraging Example of Kajaleshwar

Labour of Kajaleshwar village created an example of eco-restoration and earn 7 Lakh 80 thousand rupees (=10,837.78 GBP). In this regard they not only earn good money but also made excellent union of labours.

Kajaleshwar is a village of Karanja Taluka situated at the bank of UMA River. Due to drought in the area labours were started migrating towards Mumbai, Pune. In this situation labours of Kajaleshwar started for asking work of eco-restoration along with Mr. Ashok Chawan and researcher Dr. Nilesh Heda.

First of all they have created a study group and understand MNREGA act. After that they have started peaceful activism, as result government department started eco-restoration work.

Ones people got work they have worked hard. During February to May 2010 55 labour earn 7 Lakh 80 thousand Rupees and prepared 15 ponds and other work of watershed development.....

(News appeared in government of Maharashtra News letter MAHANEWS. In Marathi language). The news letter can be accessed at

[Article on Kajaleshwar](#)

After the lunch Rajendra Singh and selected people went to a small village SHIVNAGAR to understand principles of the watershed management. SHIVNAGAR is a small village of the Karanja Taluka. Acute water shortage is the principle problem all people of the Shivnagar are facing. In this situation ridge to valley approach based watershed work is important to cope with the problem.

The follow up of this program is to spread the message in the whole Vidarbha. On ground level this can be happened by showing some examples, thus we are selecting 10 villages in the Bembla river basin for the positive interaction where system based watershed work will be done. Watershed work for the sake of watershed work is not the priority rather holistic approach which involves conservation of biodiversity through people's participation will be the main theme. In this regard the program was a starting point.

2.3.2 Capacity building workshop regarding MNREGA

1) **(28 January 2010)**: Collector office of Washim district has arranged 1 day capacity building program at Washim about *National Rural Employment Guaranty Act 2005*. I have presented *Ridge to Valley Approach* of the Watershed Management. Systematic work of the Employment Guaranty Scheme is beginning in the area.

2) To speed up the Watershed Management Work in the study Area Revenue Officer and Block Development office (BDO) arranged two days workshop at Karanja, I have conducted the same.



Figure 6 Megesese Award Winner Rajendra Singh addressing labours

2.3.3 Capacity Building of the teachers and students regarding wetland conservation

1. Amravati University is an important university of this area. National Service Scheme (NSS) department of this university organized my lecture before lecturers on the issues involved in the RSG project. From next season thousands of students will be involved in the project.

2. 7th December 2010. In order to involve the students in the conservation endeavour orientation workshop has been arranged with the NSS students of the Dhabekar College, Inja.

2.3.4 Providing in puts into state level MNREGA process

21 and 22nd May 2010. Tata Institute of Social Sciences (TISS) and PRAYAS, an NGO, organized 2 day brain storming workshop on MREGS at TISS campus at TULJAPUR, Maharashtra. I have delivered presentation on RSG project generated experience on village planning.

2.3.5 Connecting River and agriculture

3 May 2010. State Agriculture department and VIKALP, an NGO, arranged one day workshop on sustainable agriculture. I have delivered presentation on environment friendly agriculture.

2.3.6 Involving government officers

4th May 2010. Local governance arranged 1 day capacity building workshops for the government officers at Mangrulpir. I have conducted the same.

2.3.7 Exposure visit

1. On 2nd August 2010 we have arranged study tour of the local fishermen. From Dhamani village 40 fishermen participated in the study tour. The study tour has been arranged to SUVIDE foundation's field station. The field station is famous for the fish culture and breeding centre.



Figure 7: Capacity Building Workshop about Eco restoration through MNREGA.

2. Two people from anglers' group went to observe and understand scientific fish culture at *Hyderabad*. It was one-week expedition.
3. 15, 16, 17 December 2010. Along with 2 members of the project team attended 2 days workshop of CORO at *Bhandara*. This was good opportunity for team members to learn village level processes as well as to present the results of the RSG project.

2.3.8 Capacity building about scientific fish culture

1. On 4th and 5th August 2010 we have arranged 2 day workshop for fishermen to explain scientific fish culture. 60 people attended workshop. The workshop has been arranged at local K.N. College. The resource

person for the program was Mr. Manohar Bhrushundi, former joint director of fisheries and Mr. Ravindra Kale. First day was to explain holistic fish culture and role of native culture of the fishes in fish fauna conservation. In very much simple interactive language Mr. Bhrushundi and Mr. Kale explain various aspects of the aqua culture.

2. On 23rd August 2010, at Manora, discussion meeting of the local anglers has been arranged. About 45 fishermen gathered to discuss various ecological and policy level issues of the fish culture and conservation. The important output of the meeting was that, the issues of related to fish culture and aquatic diversity immersed. There is ignorance in the government machineries and policies about the aquaculture and conservation of aquatic diversity. Fishermen should unite and there must be district level vigilance group to look in to the matter. In this regard people decided to gather at Washim, district place.



Figure 8: Community fish culture at Dhamani Khadi village

3. Outcomes

3.1 Eco-restoration and conservation of riverine resources:

This is an important outcome of project. Due to various eco-restoration works in the basin area conservation goal of riverine habitats will be automatically achieved. It is using MNREGA for restoration of wetlands. Thus, as immediate gain it is providing employment opportunities while in long run conserving natural resources.

3.2 Linking conservation with livelihood generation:

Present project is uniting various stakeholders for conservation. Practically this is achieved by providing local people sustainable livelihood. It is creating new livelihood opportunities by utilizing water bodies for fish culture and through eco-restoration. Due to culture of local fishes it is lowering pressure on rivers for fishes.

3.3 Capacity Building of the local people:

In spite of guaranty of employment through MNREGA, the rights of labour violated often. Thus, project will build capacity of labour to secure their rights. Village council lack capacity of planning; intended project will fulfil this gap. It will develop leadership within local vulnerable and marginalized groups especially women. Use of various socially relevant government schemes and acts will enhance transparency in the system and will strengthen good governance. We are also involving educational institutions in the process so that beyond regular curriculum students can interact with nature.

3.4 Sustainable Solution and not quick fixes:

All the rivers of Indian subcontinents are suffering from various anthropogenic problems. There are many activities and programs going on at national and regional level to save the rivers. We made contacts with such initiative and giving inputs to such programs. Thus, project will impact on larger spatial scale. Present project is providing sustainable long lasting solutions and not quick fixes, by eliminating root causes. The programs will also giving inputs at policy level. It advocates adaptive management so that site specific issues will solve by cooperative Endeavour.

3.5 Creation of the leaders

I am Guiding 2 students for the “Graduate Volunteer course” designed by SNDT University, Mumbai and Rural Communes. First student named PRAFUL studying present status of the wetlands of the Karanja block and second student NILKANTH studying nomadic pastorals of the area. This is action research program where action component is important to achieve the objectives of the RSG project.

3.6 Policy Level intervention

3.6.1 Ganga Action Plan

8th 9th 10th February: New Delhi. Second Ganga Action plan is about to began. Ministry of forest and Environment (MoEF) has arranged 3 days consultation on the various issues of the river Ganga and other rivers of the India. I have presented an ecosystem approach to save the river Ganga and other rivers of the India. Environment minister Mr. Jairam Ramesh appreciated the concept presented by me and accepted many points suggested by me.

3.6.2 National Rural Employment Guaranty Act 2007 (NREGA)

National Rural Employment Guaranty Act 2007 (NREGA) of government of India has immense potential in ecological restoration and providing secure livelihood to rural poor. However, local administration failed to implement the same on large scale. On 19th April 2010 along with hundreds of local people we made one day peaceful demonstration at government block head office (*THASIL*). Following Mahatma Gandhi we call it SATYAGRAHA (Way of truth and peace). In response to this demonstration large scale ecorestoration work started in whole Karanja block. Hundreds of people are getting livelihood and massive watershed development work is started.

16 October 2010. Washim. Victory in our NREGA struggle is achieved when district authority has been made necessary technical arrangements so that now labours will get timely wages (Within 7 days). Initially the wages of local labours has been delayed, some time, for 2 and half months. I put an idea of how technically this can be done before the district monitoring and vigilance meeting. Local authorities worked on the issue and problem solved. Literally thousands of labours are benefited.

24th December 2010. Attended DRDA meeting and presented problems in the MNREGA work. For policy level impact this was good opportunity.

3.6.3 Water auditing

18 to 20 May 2010. Government of Rajasthan, Rajasthan University and Tarun Bharat Sangh arranged 3 days workshop to evolve methodology of the water auditing for India. As a resource person they have invited me to deliver a presentation on village level water auditing and role of MNREGA in the conservation of riverine resources. MNREGA based conservation of wetland resources has been included in the water budgeting.

3.6.4 State environment department

11 October 2010. Mumbai. Presentation made in front of secretary of state environment department regarding conservation of riverine resources through people's participation. The presentation was fruitful and Govt. may promote RSG project in future on larger scale.

4. Up-scaling

Project team has decided to scale up the project now. Health of riverine habitat and aquatic biodiversity is depends on the river basin. If the river basin is protected then only river habitats and aquatic biodiversity will be protected. In this regard through rigorous fieldwork selected 25 villages of the Bembla river basin for future in-depth study and eco-restoration activities. In this regard, we have contacted village heads (*Sarpanch*) of 25 villages and took consent for the future work. Local district administration is providing administrative support for this initiative. District collector provided all facilities to complete the eco-restoration at these 25 villages through *Mahatma Gandhi National Rural Employment Guaranty Act 2005*.

19th September 2010. One day workshop with the village head of 91 villages of Karanja block has been arranged in collaboration with Block Level Govt. officials about eco-resource planning at Karanja.

On 30 December 2010, one day workshop regarding role of MNREGA in the river conservation has been arranged with the village head and government officers of 25 villages at Karanja. It was one of the encouraging events where hundreds of people came forward to save the riverine resources. This was starting event for future scaling up of the RSG project.

1st January 2011. *GRAMSABHA* (Village meeting) and field work along river to observe eco-restoration sites. New Year morning was the starting of the scaling up activities. Along with joint-district collector meeting as well as field work arranged with the villagers of the Shivan village. The village is situated in the *Bembla* river basin. The people, labourers, small farmers of village are starting eco-restoration work in another next week.

5. Future Plans

I have life time commitment with the issues of nature conservation. In this regard, along with my likeminded friends I have registered a NGO called SAMVARDHAN (Society for the Conservation of Natural Resources). For long term wetland conservation I have prepared a blue print of future work given below.

5.1 Approach:

5.1.1 Holistic Approach:

I believe that, holistic, ecosystem approach is the key by which goal of the effective conservation can be achieved. The key point in this approach is to understand that, the *solutions to local problems would best begin at the local level by the local stakeholders and as we are dealing with the complex system of various interlinked components, we have to address various issues by varied methodologies.* This approach ensures involvement of the grass root communities in the conservation Endeavour by providing them sustainable livelihood. In our case, this can be achieved by two ways viz. implementation of aquaculture in cooperative manner and using government laws for the livelihood generation and to make environment more sustainable. Wise implementation of *Mahatma Gandhi National Rural Employment Guaranty Act 2005 (MNREGA)* of government of India fulfils both objectives viz. eco-restoration and sustainable livelihood.

5.1.2 Need to improve health of natural Water courses:

Health However, fish culture can be a partial solution to the livelihood problem of fishermen but substantially large population of the fishermen still depends on the natural water courses for their subsistence therefore it is essential to improve health of our wetland resources. On small scale, this improvement can be done by creating series of *Fresh Water Protected Areas (FWPAs)*. Off course, these kinds of FWPAs must be declared and owned by the local groups and sustainable utilization should be the central theme of such structures. In addition it is essential to do watershed development work of the entire basin which can be effectively done by the MNREGA.

5.1.3 Need to maintain sustainability of Agriculture:

My working area is largely dominated by agriculture land. Last 2 decade witnessed unchecked utilization of chemical fertilizers and pesticides to increase the production. The residues of chemical pesticides and fertilizers enter in the natural watercourses and harming aquatic flora and fauna. In this regards I am also planning to work for the sustainable low input agriculture.

5.1.4 Rejuvenation of local traditional decision making and conflict resolution systems:

Above approach can work effectively only when the local traditional decision-making, conflict resolution and conservation mechanism work properly. If the local systems strengthened by sensitizing them and capacity building of the same made then only the system will be sustainable.

5.1.5 Establishment:

In coming future (2 years) I would like to setup a training center cum demonstration center in our area. The training center will provide training to farmers, labours, students about ecology, watershed development. It will demonstrate organic agriculture; green energy will be equipped with modern tools of information technology and library.

5.2 Methodology

There is need to create small local decision-making systems, need to strengthen existing traditional institutions and to do capacity building of the same. In the case of fishermen, to establish chain of cooperative societies and River Study Groups (RSGs) is essential. To harness potential of the various government schemes like NREGA there is a need to develop activism from local level, which can be possible by establishing labour unions. Data generation and availability of the same for all is a key factor, which can strengthen the local decision-making mechanism and can lower discrimination. Data banks can be established by using *Right to Information Act* (RTI) of government of India, involvement of the students and educational institutions in the data generation and use of the modern tools of the data base management. Sensitizing local people and other classes of the society by effective campaign of the awareness generation is an important factor in the present methodology. Involvement of the government officials in the whole gamut can effectively implement various socially relevant schemes. Financial security to local groups of fishermen and other people by creating community fund and other aids will improve the financial situation and will involve local people in the conservation Endeavour. There are few policy level amendments needed in the existing laws, policies and government resolutions. Local regularly interacting study groups can give important inputs in the existing policies as well as thoughtful local groups through activism can make positive changes.

For the establishment of the FWPA's it is essential to make principals of the Ecology working on local level and utilization of the traditional wisdom and knowledge in the same.

Thus, if the movement of the whole basin management is applied, various human, ecological, economic, cultural, human resources, political, educational approaches used then only wetlands will be saved, and sustainable life will be ensure.



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