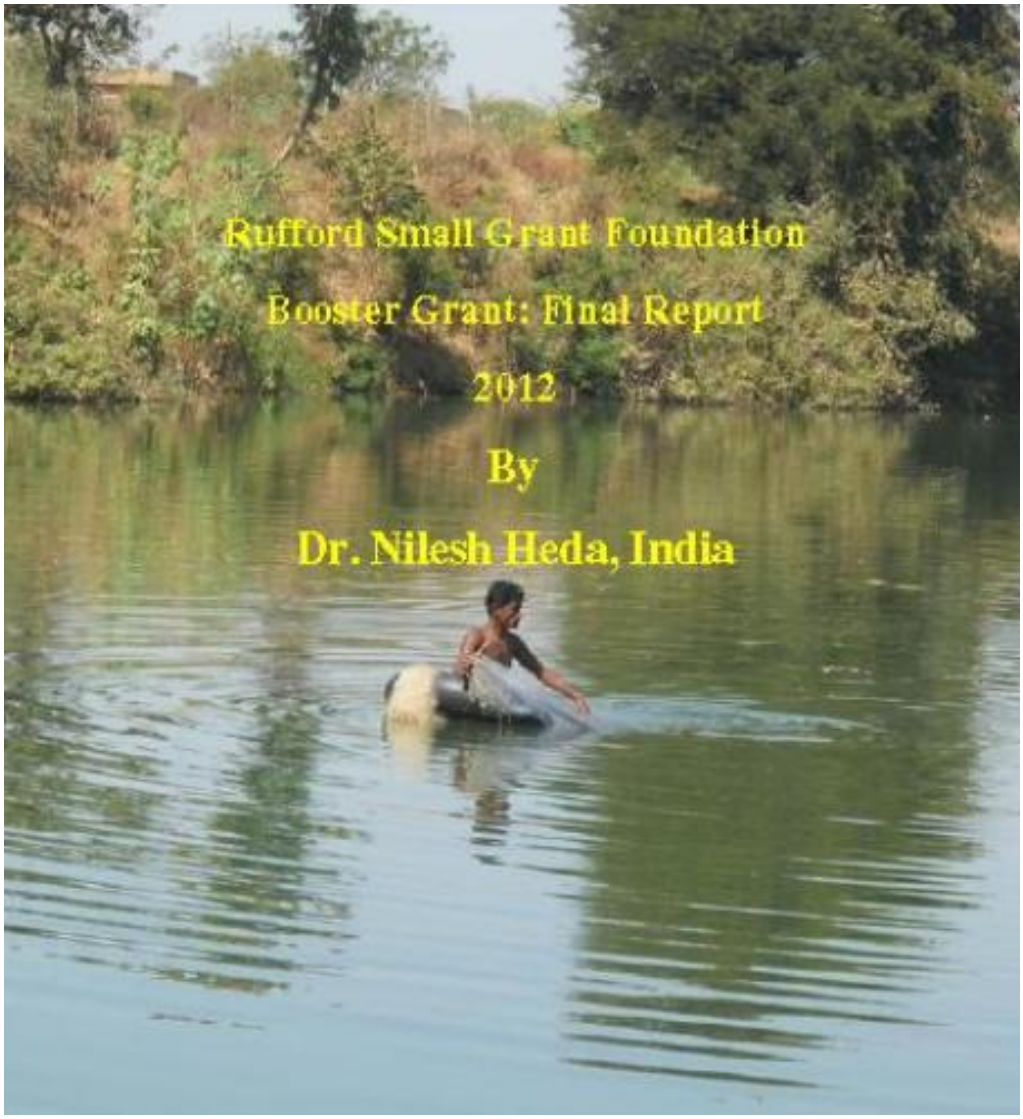
Conservation of Riverine Resources through People's Participation – North -Eastern Godavari Basin.



The Rufford Small Grants Foundation
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SAMVARDHAN

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CONSERVATION OF RIVERINE RESOURCES THROUGH PEOPLE'S PARTICIPATION

"लोक सहभागाने नदी संरक्षण"

2011-2012

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1. Summary of the project outcome

The project area situated in the comparatively dry tract of the country with chronic and acute water scarcity. The area is situated at the bi-junction of riverine network of the tributaries of North eastern Godavari basin. The riverine network is largely fed by the monsoon. Substantial people of the area are depends on the agriculture and other natural resources for their subsistence.

Since few decades the rivers of the area are under great anthropogenic stress mainly due to deleterious changes in the natural resources in the basin area. The degrading various ecosystems including agriculture, forest, grassland, scrubland, various traditional tanks and lakes are showing ultimate effect on the riverine ecosystems. The degrading fish diversity is one of the serious results of the degrading riverine habitats.

The main and immediate result of this ecological meltdown is on local natural resource dependent communities like fishermen, farmers and labourers. The irrigation deficit, depleted fish fauna, depleting ecosystem good and services, lack of employments in the villages and migration to cities in search of employment are some of the interlinked problems in the area.

Since first RSG I am consistently working for the conservation of riverine resources with people's participation considering holistic ecosystem approach. The project is multidisciplinary with the active participation of the various stakeholders. Present project has strengthened and extended activities/processes started during first and second RSG. I have scale up project on other spatial scales with lesson learnt. The aims of project were to conserve wetland ecosystems and fish fauna through holistic, ecosystem approach and to generate sustainable livelihood for fishermen and labourers. Diverse activities includes rejuvenation of traditional decision making systems and their capacity building, data generation, awareness generation and to deploy students power for wetland conservation, eco-restoration and livelihood generation for local people through MNREGA, aquaculture of local fishes, plantation and promotion of sustainable agriculture and establishment of Fresh Water Protected Areas.

The process has been successfully extended and satisfactory result has been achieved. As the process started in this area is a long process of social and ecological change, I have extended all previous RSG activities on larger scales. I have arranged river march to two new rivers to understand ecological and social settings. I have arranged extensive awareness generation campaign through various capacity building workshops, publication of popular material, by delivering talks and so on. Using potential of the MGNREGA I have foster eco-restoration activity in the basin in hundreds of villages. I have rejuvenated and created various local decision making and conflict resolution systems. I have made capacity building of the local people regarding eco-restoration, various government acts and resolution. Considering the fact that the agriculture landscape is a major landscape of the area I have provided special attention on the agriculture and farmers. In this regard, I have arranged workshops and farmer's meetings to promote organic low cost agriculture practices, with minimum use of the chemical pesticides and chemical fertilizers.

have also used MGNREGA for the development of the economical status of the farmers. The policy level impact was the main impact of the project. I have provided valuable inputs to MGNREG act. This time I have tried to link my local attempts to various national and international processes. Considering generation of the good and reliable data in the local eco-restoration planning I have initiated data collection. I have involved students. Village youth in the conservation endeavour.

Figure 1: Participatory mapping exercise at Vilegav village.

2. Concept note of the change

2.1 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.

2.2 Problems Identified

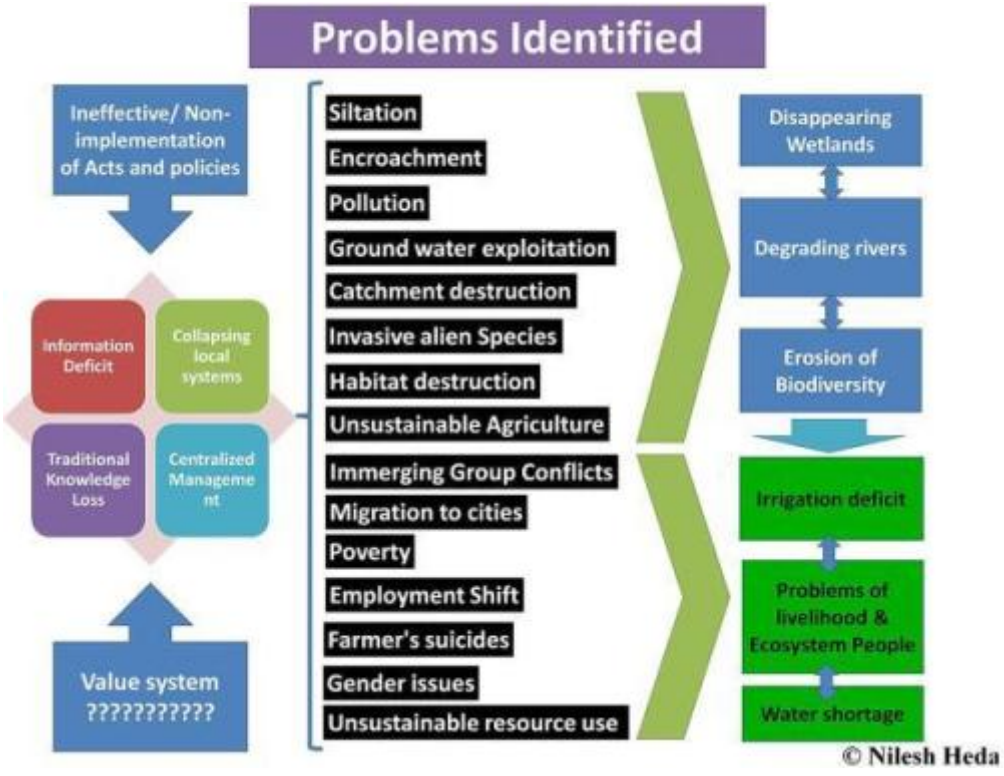

Figure 2: Various interrelated problems of the river and associated ecosystems.

Figure 3: Un-regulated sand mining at Adan River.

- **Disappearing Wetlands:**

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.

- **Degrading rivers**

Figure 4: View of Adan River during drought

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 5: Depleting fishes of the rivers of this area.

- **Erosion of Biodiversity:**

The rate of loss of freshwater species diversity is the fastest for any of the world's major biomes. Taxonomic groups with the highest proportion of threatened species tend to be those that rely on freshwater habitats. For example, according to the Living Planet Index, the rate of loss of freshwater biodiversity (1970-2000) was almost double that of marine and terrestrial biomes (Loh et al. 2006).

The aquatic biodiversity from Indian rivers, seas and tanks is eroding substantially. The central Indian River systems harbour about 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. In addition, fishes like *Anguilla bengalensis* completely wiped out from the rivers of this region (Heda N. 2007).

- **Spread of Invasive alien Species:**

Figure 6: Invasive alien Oreochromis mossambica.

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).

- **Ultimate victims: Traditional communities**

Figure 7: BHOI- Traditional fishermen from Adan river basin.

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).

- **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 leas 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.

- **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).

- **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 neo-fishermen for water bodies for fish culture.

- **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.

2.3 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.

2.4 Approach

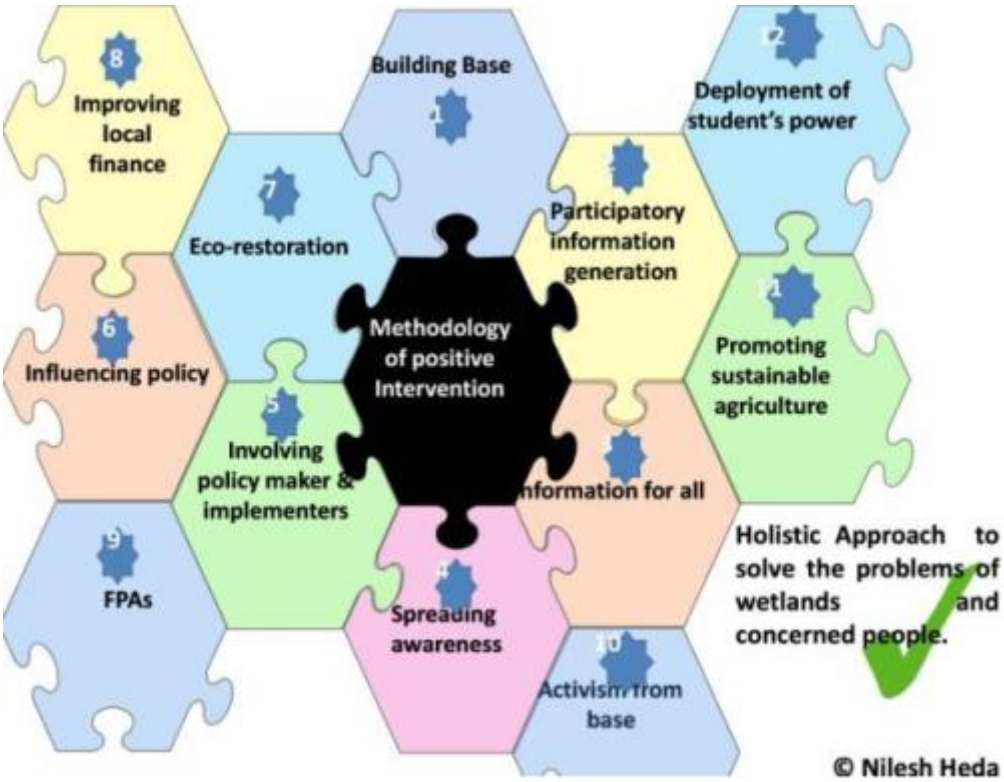

Figure 8: Holistic approach to solve the problems of river and concerned people.

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 2005* (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.

2.5 Methodology

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).

2) **Activism from the base:** To harness potential of the various government schemes like MGNREGA 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.

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 MGNREGA 2005, which stipulates guaranteed wage employment to rural people through local resource development work. In the urban settings, incorporating roof top rainwater harvesting is practical solution, which can strengthen ecosystem good and services.

4) **Information for all:** Data generation and availability of the same (the CBDs so-called *clearinghouse mechanism*) for all is a key factor, which ca

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).

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.

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.

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.

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.

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.

10) **Promoting sustainable agriculture:** 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.

3. Impact Area

3.1 Impact Area

3.1.1 India: The land of geographical diversity

India is a land of great natural diversity. This diversity embraces mangrove swamps of *Sunderbans* and rain forest of Western Ghats, coral reefs of *Lakshadweep* and wetlands of *Bharatpur*, hot deserts of Rajasthan and cold regimes of Himalayas. In addition, India is situated at the tri junction of African, Eurasian and Oriental biota.

Population wise India is a second largest country in the world and it is seventh territory wise. India is situated at north of the equator, between 800 4'' to 370 6'' North latitude and 680 7'' to 970 25'' East longitude. The country's land is flanked by the Bay of Bengal and the Arabian Sea along the southeast and along the southwest respectively. From North to South, India measures about 3,214 km and from east to west, about 2,933 km. The total land area of India is 32, 68,090 square kilometres. Its land frontier is 15,200 km and coastline 6103 km. Geographically India is divided into four major geographical regions viz.

- The Great Himalayan range,
- The Indo Gangetic plain,
- The Desert regions and
- The Deccan Plateau and Peninsula.

3.1.2 The Deccan Plateau and Peninsula

Deccan plateau extending south of the Vindhya is geologically the oldest portion of the Indian land. The Aravalli, Vindhya, Maikala and Ajanta mountain ranges separate this Plateau from the Gangetic plain. This Plateau is flanked by the Eastern and the Western Ghats. Both the Ghats meet at the southern point in the Nilgiri hills. Godavari catchment is an important catchment of this plateau.

Figure 9: Map of Vidarbha showing all its 11 districts.

3.1.3 Vidarbha region of the Maharashtra

The eastern Maharashtra, part of central Indian Deccan plateau, is a land of great diversity, both ecological as well as ethnically. Buldhana Washim, Akola, Yavatmal, Amravati, Wardha, Nagpur, Bhandara, Gondia, Chandrapur and Gadchiroli districts constitutes Vidarbha region. This part (also known as Vidarbha region) is mosaic of various contrast ecosystems like dry deciduous forest, scrubland, grassland, agriculture, important river basins and natural and manmade water bodies. The rain fed rivers of this region are abode of about 100 fish species.

The area is inhabited by both, Dravidian like Gond, Austro-Asiatic like Korku as well as historical populations like Muslims. These various communities occupied their own ecological niches and dependent on array of resources for livelihood. Dhimar, Bhoi, Kewat are depends since millennia on water bodies for various goods and services.

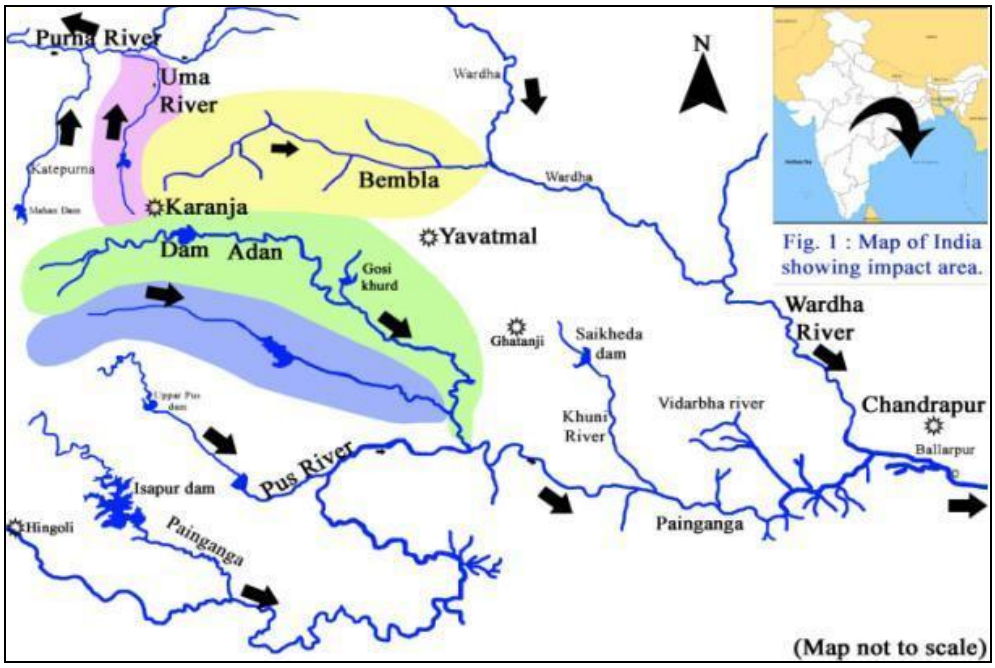

Figure 10: Riverine Network of western Vidarbha region. Adan River is with highlighted colour.

Figure 11: Study Group meeting arranged at Karanja

4. Impact

The present project is nothing but the joining of various pieces of social, economical, ecological, educational, policy and so on and ground level action to create holistic picture of sustainable life. The project touches every aspect of the human nature interrelationship. Following are major initiatives taken during the project period.

4.1 Awareness generation: I believe that only awareness generation is futile if not supplemented by the actual grassroots work. Thus, along with the awareness generation actual conservation work on ground level is going on. Before the initiation of this kind work in this area the awareness generation program performed was in politically motivated and without study based management approach.

4.1.1 **Felicitation of barefooted actors:** The labourers, fishermen, farmers are the main actor of the project and must be recognized by the main stream society. Considering this we have started felicitating the grass root workers.

4.1.2 **Popular speeches:** Educational institutions, government departments, nature conservation groups, NGOs are inviting me to understand the RSGF funded project and many groups are replicating the work at various places.

4.1.3 **News paper articles:** News paper articles are being published in various local news papers. LOKSATTA is leading daily of this area, they have invited me to write a series on various issues of the rivers of the area.

4.1.4 **Workshops:** Total of 6 capacity building and awareness generation workshops has been arranged during the project period.

4.1.5 **Regular village meetings:** Regular village meetings are essential part of the project. Regular village meetings have been arranged by me as well as project team.

4.2 Building team for sustainable future

4.2.1 **Our team:** 2 members of our team have been selected by CORO, Mumbai for "Canter for leadership course (CFL). CORO is voluntary organization provides fellowships to the active village youths. The selected fellow (1. Mr. Dilip Gavande and 2. Mr. Ambadas Khadase) are doing RSGF project work. CORO provided monthly stipend of 3000 Rupees (34 GBP) as fellowship to our team members. Rural Commune, a Mumbai based voluntary group also provided support to one of our team member Mr. Santosh Jadhav.

4.2.2 **Involving village youths in the process**: During project span lot of village youths has been joined our team.

4.2.3 **Involving students and educational institutions:** 35 high schools of the basin area have been involved in the work.

4.2.4 **Involving government machineries:** Various government departments including district administration, agriculture department, forest department, block level departments, revenue departments sensitized to make their contribution in the conservation endeavour.

4.2.5 **Involving policy makers and politicians:** Local Member of legislative assembly (MLA) and other policy makers has been involved.

4.2.6 **Involving various likeminded groups:** Linkages has been created with various likeminded groups like Tarun Bharat Sangh, National Jal Biradari and so on.

4.3 Rejuvenation of local systems

4.3.1 **Rejuvenation of traditional systems:** Gramsabha (Village council), Gram Panchayat (Village administration).

4.3.2 **Creation of new social structures:** Majdoor Sangh (Labour groups), Self Help Groups (SHGs).

4.4 Capacity building

4.4.1 **Capacity building of SELF:** Continuous study and attendance in the scientific conferences building capacity of myself.

4.4.2 **Capacity building of the project team:** Exposure visits, attendance in various study group meetings, monthly meetings.

4.4.3 **Capacity building of the stakeholders:** Through various aforementioned workshops.

4.5 Eco-restoration

4.5.1 **Greening basin:** Nursery of 75 thousand plants and its distribution among stakeholders.

4.5.2 **Sporadic watershed development work through MGNREGA:** Massive watershed development work in the basin area through MGNREGA.

4.5.3 **Forest regeneration:** Adjacent to Karanja city in the Bembla river basin there is a 100 hectare barren land in the possession of forest department. The land is barren without any vegetation and vulnerable to encroachment and soil degradation. Due to policy level influence by project team member government declared the land for the development of the natural forest. Government also allocated initial funding of ten million rupees for the rejuvenation purpose. The inauguration of this eco-restoration work started at forest sight. About one thousand people participated in the program.

4.5.4 **Agriculture:** Bundhless agriculture is main reason behind soil erosion and resultant siltation in the river. We have targeting our attention on agriculture fields.

4.5.5 **"One village –one lake" movement:** The lake has an important role in the ecology of the river and wellbeing of any village. Keeping this in mind we are trying to built at least one lake per village through MGNREGA.

4.6 Tackling human right issues

4.6.1 **Fighting against discrimination:** At Dhamani Khadi village National Bank for Agriculture and Rural Development (NABARD) sponsored watershed development work is going on. However, there was too much discrimination with the labours and wages provided was much low as compared to standard wages. We have made complaint of this to regional commissioner and the discrepancy has been solved by the authorities.

4.6.2 **Fighting against delayed wage problems:** The MGNREGA act stipulated payment of work must be made within 15 days at most. However, the labourers of entire district have not received wage payment since 2 to 3 months. Regarding this sent letters to Minister of Rural Development, secretary and all concerned departments. News paper campaign has been initiated and agitation with labourers has been declared, as a result entire system suddenly becomes aware about the issues and payment of the labourers has been released (Delayed payment of about 3.5 crores rupees = 409,619 GBP !!!). We believe, this is the greatest achievement of project.

4.7 Impact at other national and international level

4.7.1 **Impact on national level:** Through Tarun Bharat Sangh, Jaipur a national NGO working for the rejuvenation of rivers. We also worked with Ministry of Rural development.

4.7.2 **Impact on international level:** Attendance in the International conference "Planet Under Pressure", held at London, UK.

4.8 Sustainable agriculture

4.8.1 Involving farmers.

4.8.2 Agriculture infrastructure

4.8.3 Spreading Low cost, low input agriculture

4.8.4 Changing crop pattern

4.9 Study and research

4.9.1 Species inventory

4.9.2 Habitat inventory

4.9.3 Documenting traditional knowledge.

4.9.4 Studying river

4.9.5 Studying village.

4.10 Expanding idea

4.10.1 Including more rivers.

4.10.2 Building capacities of the other groups involved in the river conservation.

4.11 Financial security of stakeholders

4.11.1 **Self help groups:**

4.11.2 **Livelihood generation through eco-restoration:** Use of MGNREGA.

4.11.3 **Fish culture:** Community fish culture is going on at Dhamani village.

4.11.4 **Using potential of government schemes:** Due to capacity building local people are taking benefits from agriculture department, NABARD etc.

4.11.5 **Agriculture intervention:** Agriculture land is one of the important components in the river health and farmers of the area are important actors in the river conservation. All river basins of the area constitute about 70 % land area under agriculture set up. Considering the effectiveness of agriculture intervention to maintain the sustainability of river we have started agriculture intervention. In this regards we are working on four fundamental levels. 1) Providing basic infrastructure to agriculture like irrigation facility, farm roads, bundings, fencing, godowns etc. 2) Changing crop pattern like incorporation of orchids. 3) Scientific agriculture. 4) Creating supporting occupational endeavour for the agriculture.

4.12 Impacting education

4.12.1 **Involving students and educational institutes:**

4.12.2 **Towards river study syllabus:** The main aim of this educational intervention is to train village youth, NGO workers and students to understand various components of riverine ecosystems and conservation planning. The health of riverine habitats is depends on the basin area, any disturbances in the basin area seriously affect river and aquatic biodiversity on one hand and livelihood of local people other hand. Last few decades witnessed widespread degradation in the river basin are

affecting health of riverine habitats. Degradation of river is not an isolated problem rather it is linked with various interlinked social and ecological problem. The training modules are designed considering holistic ecosystem approach where anthropological, ecological, economical, approaches will be considered.

4.12.3 **Designing small nature study projects for students:** Along with Centre for Environment Education, Pune we are involved in devising small nature study projects for students.

Figure 12: Nursery at Vilegav village.

5. Meetings and major events arranged during project period.

Figure 13: Labourer's meeting at Dhamani village.

1. **Awareness generation movement:** From 20 April to July second week 35 villages has been visited and delivered presentation to local user groups about sustainable watershed management, participatory resource conservation and river conservation. This visit to 35 villages of whole Washim district was very good learning experience for us. During this expedition lot of things about people's perception about nature conservation, their priorities and issues has been documented, which will clear our vision about practical conservation work. During this visit few selected villages has been identified where more energy can be invested.

2. **Involving village youths: 3 May 2011.** One day workshop with the village youths and students of Wadgav village (Karanja Lad Taluka, Washim District) has been conducted. The Wadgav village is situated at the bank of river Adan. In future conservation activities will be carried out with the youth of this village.

3. **Fight against discrimination: 13 May 2011.** At Dhamani Khadi village National Bank for Agriculture and Rural Development (NABARD) sponsored watershed development work is going on. However, there was too much discrimination with the labours and wages provided was much low as compared to standard wages. We have made complaint of this to regional commissioner and the discrepancy has been solved by the authorities.

Figure 14: Discussion meeting with CEE staff to devise strategy to involve students and educational institutions.

4. **Involving students: 23 May 2011.** In order to involve the students of the Bembla basin in the conservation work we have collaborated with PARYAWARAN MITRA (Friends of Environment) Program of Center for Environment Education (CEE) Pune, Ministry of Environment and Forest (MoEF) Govt. of India and ArcelorMittal group. Two days workshop with the CEE staff arranged at Karanja Lad. In this workshop strategy to involve schools and generation of capacity building material for students has been discussed.

Figure 15: View of SAMVARDHAN nursery of 75000 Plants.

5. **Greening the basin: Jun 2011.** A nursery of the 75000 plants has been developed. The plants consist of local available fruits, timber, fodder, fibre, and fuel species. The nursery is successful venture as shown 75% survival rate of saplings.

6. **Beyond boundaries:** An abstract to the conference "Planet Under pressure" to be held in March 2012 at London has been selected. The paper is in joint collaboration of Caroline Sullivan, Southern Cross University, Australia; Anuradha Bhat, Indian Institute of Science Education and Research, India; Ian Harrison, Conservation International, USA; Anne-Hélène Prieur-Richard, DIVERSITAS, France and Dr. Nilesh Heda. The title of the paper is "Conservation of freshwater ecosystems: towards sustainable management for future generations." The abstract can be access here: http://www.planetunderpressure2012.net/session_sullivan.asp.

Figure 16: Discussion with environment minister of Maharashtra state.

7. **Sensitizing policy makers: 22 Jun 2011.** Mumbai. Dr. Nilesh Heda and Praful Bangavkar visited Environment department, govt. of Maharashtra. We had discussion with honourable state minister of Environment Mr. Sanjay Devatale regarding various issues of the wetland conservation.

Figure 17: Capacity building workshop of RSGF team members.

8. **Fostering study based approach: 5 July 2011.** One day workshop on the village study and its linkages with the river conservation has been arranged. Village head, youth from the 15 villages attended the workshop. The area of jurisdiction of each village is comes under river basin; if the eco-restoration activities carried out in such village area then ultimately the goal of river conservation will be achieved. However, such village eco-restoration work should be systematic considering ecological setting of area. Thus, systematic study of village environment is needed. Keeping this concept in mind we were invited people from many villages of Bembla river basin and initiated work of ecological study and preparation of the village level eco-restoration work. Especially students and village youths has been targeted for this work.

Figure 18: Presentation at National Water Conservation summit, New Delhi.

9. **Linking other levels: 15 July 2011.** New Delhi. Project director have presented about our experience in the linkages of river conservation with the MGNREGA at National Conference on Water Conservation. The conference has been held at Gandhi Peace Foundation, New Delhi. The conference has been arranged by Tarun Bharat Sangh and National Youth Forum.

10. **Understanding best practices: 16th July 2011.** Visited *Tarun Bharat Sangh*, Rajasthan work area and got practical feedback about river conservation. We are developing a river study syllabus for the students. Dr. Nilesh Heda has provided guideline for the same. In Rajasthan state Raman Megasese award winner Rajendra Singh rejuvenated 8 rivers to their natural state. Spent very much knowledgeable time with Rajendra Singh.

Figure 19: Visit to Tarun Bharat Sangh work area, Rajasthan.

11. **Sensitizing policy makers: 18th July 2011.** Had meeting with secretary, Ministry of Rural Development, Govt. of India, New Delhi regarding nature conservation. The ministry is sending a team of expert to our area to observe the work we are doing.

12. **Discussing way to sustainability: 23 and 24th July 2011.** 2 days work shop with *Waingang*a *Abhyas Ga*t (*Wainganga study group.)* It is an informal group of the people working to ensure the sustainable life. Two days workshop regarding various issues of the wetland conservation, village level eco-restoration, and sustainable livelihood has been arranged. People from many districts of Vidarbha region has been gathered and attended this meeting.

13. **Valuing work: 25 July 2011.** One day field work with Mr. Pawan Mishra and Dr. Deelip Gavande has been done in UMA river basin to analyze the eco-restoration work done by the labour of KAJALESHWAR village. The labours planted 90 thousand plants through MGNREGA in the land of forest department which is adjacent to river UMA.

14. **Felicitating bare footed conservationist: 30 July 2011.** Last year labours of KAJALESHWAR village has done tremendous work of the river conservation and earned good livelihood out of this. Considering this and to do future planning and plant distribution one day program arranged. The program has been attended by about 300 labours, local assistants, and local GRAMSABHA members and so on. This was very much fruitful program and foundation of the future river conservation planning has been laid in this program. The labourers have been felicitated by providing them cotton scarf. About 2000 nursery plants have been distributed to the local people.

Figure 20: Felicitation ceremony of labourers, Kajaleshwar village.

15. **Fostering village study: 1st August 2011.** A one day meeting with the villagers of the Vilegav village has been arranged. Team member Mr. Ganesh Sawarkar took lead in the arrangement of this meeting. The Vilegav village is agrarian village situated at the bank of river Bembla. The participatory maps have been prepared during this visit and future study of the village has been decided. Here MGNREGA labourer prepared nursery of 30 thousand plants and did eco-restoration work in the river basin.

16. Team expansion: 2nd August 2011. 2 Members of our team has been selected for the Graduate volunteer course conducted by RURAL COMMUNE, Mumbai, and SNDT women's university Mumbai. They have to work for a year period on one of the facet of present project and submit a project. Rural Commune will provide them monthly stipend and travel allowance.

Figure 21: Water and soil conservation structure at Dhamani village.

17. **Analysing the performance: 4th August 2011.** One day field work with the labourers of the Dhamani village has been arranged to analyze the eco-restoration work done by the labour. Most of the structures developed by the villagers have been in good quality with water filled during the monsoon rain. After the field visit discussion meeting has been held with the people.

18. **Sensitizing policy makers: 5th August 2011.** Discussion meeting with district deputy collector Mr. Shailesh Hinge has been arranged to discuss various issues related to wise implementation of the MGNREGA. We also visited to Ground Water Survey Department and good quality minor basin maps have been collected.

Figure 22: PARYAVARAN MITRA (Friends of environment) program at Karanja Lad.

19. **Linking other levels: 8th August 2011.** Two people of the project team Mr. Ganesh Sawarkar and Mr. Shahu Bhagat has been visited Water and Land Management Institute (WALMI), Aurangabad and got inputs regarding sustainable irrigation and collected library books from the same.

20. **Deploying student's power in the nature conservation:** 6th September 2011: One-day workshop with the schoolteachers and nature lovers has been held at Karanja regarding PARYAWARAN MITRA (Friends of Environment) program. The teachers and students from 30 schools and colleges attended this program and activities of the one year have been decided. Miss. Tejashree Kali from Centre for environment Education (CEE) was chief guest for the program.

21. **Distribution and Plantation along river Bembla: 9 September 2010.** Vilegav is situated on the bank of river *Kapasi*, a tributary of river Bembla. Along with villagers and local school students plantation activity has been carried out.

Figure 23: Plantation at Vilegav village.

22. **Towards the involvement of youth in river conservation:** 10 September to 15 September 2011: In order to involve youth in the river conservation work it is essential to design study based syllabus to understand riverine ecosystems. Keeping this in mind, project director Dr. Nilesh Heda is developing syllabus of the river study in association with Tarun Bharat Sangh, Jaipur, and a NGO. This will be first of its kind syllabus and students, youth; NGO worker from throughout India will be participating in the short course. Regarding this, Dr. Heda visited TARUN BHARAT SANGH study area.

23. **Training:** 17 September 2011. Invited as resource person for one-day discussion workshop on MGNREGA organized by NEUSID organization.

24. **Policy impact:** 21 September to 25th September. Our policy level impact work on the utilization of the potential of Mahatma Gandhi Employment Guaranty Act 2005 of Govt. of India in the eco-restoration and river rejuvenation is going to be successful venture. In this regard, I have presented about linking conservation with employment generation in the National River Summit held at Allahabad, Uttar Pradesh. Secretary of Ministry of Rural Development, Govt. of India (MoRD), activist, researchers, and NGO workers throughout India participated in the event. Considering our efforts in the Godavari basin secretary of MoRD committed to make policy changes to harness potential of MGNREGA in river conservation.

25. **Team Expansion:** 2 Members of our team has been selected for the CFL course conducted by CORO, Mumbai. They have to work for the period of one year on one of the facet of present project and submit a project. CORO will provide them monthly stipend and travel allowance. Mr. Santosh Jadhav of our team has been selected as fellow for Rural Commune and SNDT University, Mumbai. He will work in the Arunavati river basin.

Figure 24: Capacity building workshop for the labourer at Karanja.

26. **Field work to Katepurna River. 4 October 2011.** River Katepurna is tributary of river Purna (TAPTI RIVER BASIN), a fieldwork has been arranged to understand the present status of the river.

Figure 25: Exposure visit with farmers to understand sustainable agriculture.

27. **Regular village meetings:** Village meetings are going on for eco-restoration planning, awareness generation and livelihood security.

28. **Linking Forest Department:** Invited as chief guest for the program arranged by forest department at GIRDA village. The village is situated at the bank of river Adan and surrounded by blackbuck sanctuary.

29. **Monthly team meeting:** 29 September 2011. One day workshop with the project team for monthly planning, experience sharing, and to explain village study methodology, has been arranged at Karanja.

30. **Joint venture with forest department.** 02 November 2011. One-day workshop has been conducted with the forest department. The main issue of the discussion was Joint Forest Management (JFM) and its role in forest conservation.

31. **Sustainable agriculture and river conservation.** 16 November 2011. As part of our organic pesticide campaign, field work in the farms around river Bembla has been arranged and understood paste outbreak and other issues related to river conservation.

Figure 26: A view of Katepurna river.

32. **Web site of organization:** New website of our organization created and can be accessed at http://www.samvardhan.org.in/

33. **Research:** Research paper (related to present work) has been selected for poster presentation for the conference "Planet Under pressure" to be held in March 2012 at London.

34. **Plant distribution in the villages:** At various villages in the Adan, Bembla and Uma river basin plants have been distributed.

35. **Understanding more rivers:** Baseline data about 5 small Rivers has been generated viz. BEMBLA, SAKHALI, KAPSI, ARUNAVATI and UMA.

36. **Soil and Water Conservation:** 22 November 2011. A discussion meeting has been arranged at Vilegav village regarding various type of soil and water conservation work through MGNREGA.

37. **Learning by doing:** 27 November to 1 December 2011. Project Director Dr. Nilesh Heda visited Tarun Bharat Sangh, Jaipur to attend 2 days training program of the village Panchayat level water associations and shared experiences.

Figure 27: Farmer's meet at Kamargav.

38. **Discussion about future programs:** 11 December 2011. Discussion meeting with all project team members and CORO area coordinator Mr. Pramod Walde arranged at Karanja.

39. **Workshop GRAM SEVAK:** 16 December 2011. A one-day meeting has been arranged at Panchayat Samiti with Deputy Collector (MGNREGA) Mr Shailesh Hinge. All Gram Sevak of Karanja Taluka along with Block Development officers were participated in the meeting. Discussion about the MGNREGA work to be taken in the entire river basin has been done.

Figure 28: Awareness generation speech at college.

40. **Field work with Deputy Collector:** 17 December 2011. A fieldwork with the Deputy Collector (MGNREGA) Mr. Shailesh Hinge has been arranged to analyze the appropriate places for the watershed work and to understand the problems of the labourers.

41. **"One village –one lake" movement.** 20 December 2011. **"One village –one lake"** movement launched. The lake has an important role in the ecology of the river and wellbeing of any village. Keeping this in mind we are trying to built at least one lake per village through MGNREGA.

42. **Spreading awareness about MGNREGA.** 20 December 2011. An information broacher regarding MGNREGA has been distributed among people. The main problem in the proper implementation of the MGNREGA is lack of information. Keeping this in mind we have prepared a simple guide to understand MGNREGA and distributed among the villagers of Bembla, Adan, Uma, Arunavati river basins.

43. **MGNREGA discussion meeting:** 20 December 2011. A discussion meeting has been arranged at Bham Devi village regarding various type of soil and water conservation work through MGNREGA.

44. **Actual MGNREGA work started.** 28 December 2011. Actual soil, water conservation and other development work has been started at Vilegav and Kajaleshwar village due to the capacity building done by us.

45. **Thinking and acting about agriculture:** New Year begins with many hopes, new ideas and paradigm shift in the thinking about conservation. The riverine habitats of the area are in many ways affected and influencing by the surrounding agriculture area as about 70 % land use is agriculture area. Keeping this in mind we have intensively started our conservation work with local farmers.

46. **Involving farmers: January 2012 first week:** Had discussion with the farmers of Bembla river basin. One joint program of awareness and planning has been decided.

Figure 29: Involving student's in the positive change.

47. ***Krishi Chintan Shibir*** **(Brain storming workshop on agriculture thinking):** 06 January 2012. One day workshop with the farmers of Bembla river basin has been arranged at Kamargav village. The main theme of the program was “we can change our condition”. About 100 people have been participated in the program. People from Agriculture department, NABARD, Panchayat Samiti have been invited for the presentation. The program was important as new thinking about the agriculture, its impact on riverine resources, and new ways to improve the profit in the agriculture has been decided in the program.

48. **Agriculture university visit:** 11 January 2012. Visited Panjabrao Deshmukh Krishi Vidyapeeth, Akola (PKV). PKV is one of the largest universities of this area dedicated for the research in the agriculture.

49. **Involving college students in the conservation work:** 13 January 2012. Delivered lecturer about river conservation at J.D. Patil College, Daryapur.

50. **Discussion with thinkers:** 16 January 2012. A discussion meeting has been arranged with notable politician and thinker Mr. Harish Mandhane and Dr. Arun Jain regarding sustainable agriculture.

Figure 30: At Katepurna river.

51. **Joining hands with microfinance for economical strengthening of local people:** 18th January 2012. Has been invited to participate in the brain storming discussion arranged by NABARD bank regarding microfinance in the rural area arranged at Akola.

52. **Involving policy makers:** 23 January 2012. A meeting has been arranged with MLA Mr. Prakash Dahake regarding forest regeneration at Karanja City.

53. **Exposure visit:** 21 January 2012. An exposure visit has been arranged to visit "Agriculture symposium" arranged at Amravati.

54. **Field work and discussion meeting:** 24 January 2012. Field work and discussion meeting with the labourers and fishermen of the Dhamani villages, regarding alternative livelihood.

Figure 31: Eco-restoration work going on at Kajaleshwar village.

55. **Field visit forest rejuvenation sight:** 25th January 2012. Field work at Karanja city forest sight with MLA Mr. Prakash Dahake and forest department officers.

56. **Involving college students:** 27th January 2012. A lecture has been delivered at Pratibha Tai Tidke Vykhyanmala (Lecture series), Murtizapur.

57. **Involving college students:** 31 January 2012. GYAGYASA Bus (Curiosity Bus) is a mobile van developed by Central Pollution control board provides information about different aspects of the biodiversity. Display of GYAGYASA bus has been arranged for the student at Karanja.

Figure 32: At a local school with students.

58. **Advocacy and its impact on forest regeneration in the Bembla river basin:** 07 February 2012. Adjacent to Karanja city in the Bembla river basin there is a 100 hectare barren land in the possession of forest department. The land is barren without any vegetation and vulnerable to encroachment and soil degradation. Due to policy level influence by project team member government declared the land for the development of the natural forest. Government also allocated initial funding of ten million rupees (About 114,592 GBP) for the rejuvenation purpose. The inauguration of this eco-restoration work started at forest sight. About one thousand people participated in the program.

59. **Involving farmers: 18 February 2012.** Participated in the Farmers meet at Donad village.

60. **Involving college students: 10th February 2012.** Has been invited for the youth workshop arranged for the university students arranged at Sohol Blackbuck sanctuary.

61. **Ecological field work: River march:** 19 February 2012 to 25 February 2012. Field work with Mr. Rohitashwa Shukla, Indian Institute of Science Education, Kolkata, has been arranged to Bembla and Katepurna river basin. Fish sampling has been done and habitat characteristics documented.

Figure 33: View of Planet Under Pressure conference, London, UK

62. **PLANET UNDER PRESSURE:** Our conservation work is now acknowledged by the international community of thinkers, scientists, and NGO people. In this connection, project director portrayed RSGF funded work at PLANET UNDER PRESSURE conference held at London, from 25 to 29 March 2012. The conference venue was new London International Convention Centre (ICC) at Excel.

For this tour, Environmental Change Institute, University of Oxford provided funding support. Project director was one of the conveners of a session titled “Conservation of freshwater ecosystems: towards sustainable management for future generations”. In addition, he has presented a poster titled “Linking conservation of wetland resources with livelihood generation: Case study from Central India.”

63. **Activism for MGNREGA:** After returning from London we have involved in the activism with eco-restoration labourers of entire district area. The MGNREGA act stipulated payment of work must be made within 15 days at most. However, the labourers of entire district have not received wage payment since 2 to 3 months. Regarding this, I have sent letters to Minister of Rural Development, secretary and all concerned departments. News paper campaign has been initiated and agitation with labourers has been declared, as a result entire system suddenly becomes aware about the issues and payment of the labourers has been released (Delayed payment of about 3.5 crores rupees = 409,619 GBP !!!). I believe, this is the greatest achievement of project.

Figure 34: With happy labourers at Kajaleshwar village.

64. **Majdoor Sangh**: Majdoor Sangh River Conservation Societies (RCS) has been set up at Vilegav, Kajaleshwar, Aurangpur, Dhamani, Ladegav, Palana, Antarkhed villages.

65. **Public Speech:** 11 April 2012. I was invited as a president for a foundation program of Mohan Murkute Smruti Pratishthan.

66. **Financial security:** 15 April 2012. A meeting with the likeminded friends has been arranged at Aurangpur village. Joint entrepreneur endeavour has been decided to improve the financial condition of the people.

67. **Financial security:** 18 April 2012. Self help group has been established.

68. **Involving policy makers:** 20 April 2012. Meeting with collector regarding delay in labour payment has been arranged.

69. **Discussion with labourers:** 21st April 2012. Meeting with the people of Vilegav village regarding delayed wage payment and future planning of the micro basin.

70. **Policy level impact to make MGNREGA more effective:** Policy level impact to make MGNREGA more effective is going on. Our work impacted on district level and large population is benefitted from the same. We are working on three main issues 1) Timely wages to all labourers working very hard on eco-restoration work in the entire Washim district, 2) Labourers must get compensation for delayed payments 3) Monsoon rain is expected soon so all the incomplete water harvesting structures must be completed in timely manner (Which is not happening) and 4) Agriculture area should be targeted extensively for the MGNREGA work. The impact is showing its positive results and most of the labourers got their delayed payments.

71. **Meeting with NABARD:** 3 May 2012. RSGF team members visited National Bank for Agriculture and Rural Development (NABARD) office, Washim and had in-depth discussion with NABARD district project director Mr. Parhate regarding various NABARD schemes. NABARD has various schemes which can help in the conservation of natural resources and can strengthen people's sustainable livelihood.

72. **Discussion with Deputy Collector:** 3 May 2012. RSGF team members had meeting with Deputy collector (EGS) Mr. Shailesh Hinge and had discussion about MGNREGA.

73. **Exposure visit to understand best practices:** 3 May 2012. Visited scientifically managed orchid farm near Washim.

74. ***GRAMSABHA*:** 07 May 2012. A *Gramsabha* (formal village meeting) arranged at Dhotra village of Karanja block regarding long term involvement in the Watershed Development work.

75. **Discussion with BDO:** 09 May 2012. Discussion with Block Development Officer (BDO) regarding MGNREGA.

76. **Village meeting:** 12 May 2012. Village meeting at Vilegav regarding Adarsh Gram Yojana (Government scheme of the Excellent Village Program) of holistic village development.

77. **Popular speech:** 16 May 2012. Delivered speech at teacher's meet at Washim arranged by National Green Corps program of social forestry.

Figure 35: Joint Field visit with deputy collector.

6. Future agenda

During last 3 Rufford Small Grants, lot of conservation inputs gained and an impact on vast geographical area has been made. In coming future it is essential to continue this work further as still there are lots of social and technical issues we have to deal with. In addition, I am increasingly thinking that, now project should invest more resources in the education, policy level issues and creating way for the knowledge based management of the natural resources. Another arena of the intervention is agriculture land as it is estimated that agriculture is an important occupation in the area impacting seriously on the riverine resources. Keeping this in mind, in coming future, following 10 step program will be implemented in the whole North-eastern Godavari basin and other associated river basins of the Area.

1. **Livelihood generation while doing effective conservation:** Sensitizing local administration and local people for more river conservation work through MGNREGA.

2. **Livelihood generation and conservation of local Fish fauna:** Culture of the indigenous species of fishes through local fish culture groups. Capacity building of the people regarding scientific fish culture.

3. **Creation of the river study syllabus for the future generation:** The main aim of this educational intervention is to train village youth, NGO workers and students to understand various components of riverine ecosystems and conservation planning. The health of riverine habitats is depends on the basin area, any disturbances in the basin area seriously affect river and aquatic biodiversity on one hand and livelihood of local people other hand. Last few decades witnessed widespread degradation in the river basin area affecting health of riverine habitats. Degradation of river is not an isolated problem rather it is linked with various interlinked social and ecological problem. The training modules are designed considering holistic ecosystem approach where anthropological, ecological, economical, approaches will be considered. Students will study scientifically riverine habitats of their vicinity and with local people come up with its planning and through acts like MGNREGA the afore mentioned will be implemented on ground.

4. **Agriculture:** Agriculture land is one of the important components in the river health and farmers of the area are important actors in the river conservation. All river basins of the area constitute about 70 % land area under agriculture set up. Considering the effectiveness of agriculture intervention to maintain the sustainability of river we have start agriculture intervention. In this regards we have to work on four fundamental levels. 1) Ameliorate the present situation of the agriculture like halting siltation, lowering down use of the chemical pesticides and fertilizers, providing basic infrastructure to agriculture like irrigation facility, farm roads, bundings, fencing, godowns etc. 2) Changing crop pattern like incorporation of orchids so that the agriculture system becomes more profitable 3) Fostering scientific, organic, low cost agriculture. 4) Creating supporting occupational endeavour for the agriculture.

5. **Strengthening Community Structures:** Strengthening previously established community structures and creation of the more in Adan, Bembla and other river basins.

6. **Students Power:** Deploying student's power for data collection and awareness generation. Creation of the students groups in schools and colleges.

7. **Popular material:** Creation of the popular material on the relevant government resolutions, acts, rules for the help of local people. Creation of the material on the wetland conservation issues for common man and creation of the material on the scientific fish culture.

8. **Fish and habitat inventorying:** More fish fauna inventorying events to assess fish fauna of Adan river basin.

9. **Plantation in Adan, Bembla and Uma River Basin:** 100,000 plants of locally available species will be planted along river Adan in next RSG phase.

10. **Impacting on policy:** There is urgent need to do active intervention and provide inputs in the various existing acts and Government resolution. In this regard there is needed to take help from the court and need to file Public Interest Ligations' (PIL) wherever necessary.

Figure 36: Presenting at Planet under Pressure conference, London, UK.

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5) Centre for Environment Education (CEE), Pune
6) CORO, Mumbai, Maharashtra, India.
7) Rural Commune, Mumbai, Maharashtra, India.
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11) Block Development Officer, Karanja, Mumbai, Maharashtra, India.

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Figure 37: Poster Presentation at PUP, London.