

**Bio-diversity conservation and management  
documentation Pipari, Morena district  
Madhya Pradesh**

**Sujagrati Samaj Sevi Sanstha Morena  
*and*  
Bio-diversity Management Committee Pipari**



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**Center For Environment Education (C.E.E.) Delhi  
*and***

**M.P. Bio-diversity Board Bhopa**

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**Biodiversity** is essential for human survival and economic well-being and for ecosystem function and stability over exploitation and bio-diversity loss affects livelihood and food security of the Locals. Biodiversity is not just one phenomenon it is a concept that involves many facts of biological variety, genetic differences among them and the communities, ecosystems and lands capes in which they occur.

### Sujarati Samaj Sevi Sanstha(S<sup>4</sup>)

S<sup>4</sup> is a Non Government organization working in Chambal region to provide the service to weaker section in the society. Focus Area of the S<sup>4</sup> are

- Biodiversity Management
- P.R.I. Strengthening
- Capacity building of C.B.Os
- Livelihood

In 2005 organization associated with the Madhya Pradesh Bio-diversity Board Bhopal and initiated the work on preparation of P.B.R. organization formed a bio-diversity management committee in Papari village. S<sup>4</sup> found that

- The Guggul plant decline in Chambal region.
- Livelihood pattern and source effected due to Ravine formation in Chambal Region.
- S<sup>4</sup> and Biodiversity Management Committee(BMC) Pipari send a proposal for plantation of Guggul and its conservation as well as to check Ravine Reclamation to C.E.E. Pune

### Description of the project Area



**Dist. Morena Map**

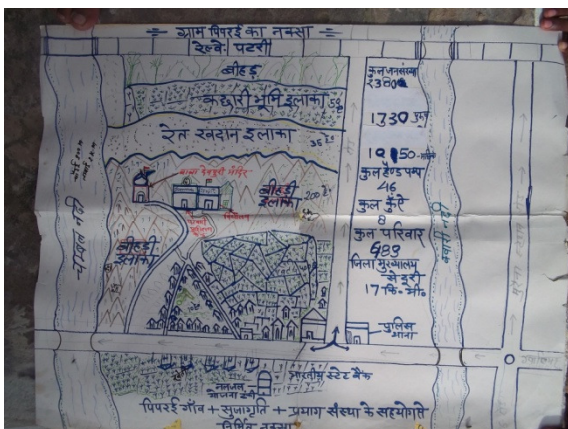
Morena is one of the district that forms a part of the Chambal ravine system. The district covers an area of 4,998.78 sq km with a population of about 1,587,264. Morena is derived from the word *Mor* (means peacock) and *raina* (means habitat). The district is bordered by Rajasthan state on its north and west, while Uttar Pradesh state on its north east. The rest of the sides are bordered by the districts of M.P. viz. Bhind on east, Gwalior on its south and Sheopur on its south west. The Ravine receives a mean annual rainfall of 700 mm in 35 rainy days. During winter temperature dips to 0°C and rises to 47°C during summer season.

About 50 per cent of the total geographical area is under cultivation, while 58.74 per cent of the cultivated area in the district is irrigation by various sources canal is the major source of irrigation accounting for 42.94 per cent of the total irrigated area. Agriculture is practiced in both Kharif and Rabi seasons during the year. *Bajra* is the major Kharif crop, while it is wheat and mustard during Rabi season.

Piprai village of Piprai block in Morena district is about 17km from the district Head quarter on the Gwalior Agra National Highway. River Chambal flows on the north, just 3 km from the village while river Kunwari is 10 km away on the south. Piprai is surrounded by eight villages (Bhanpur, Jaitpur, Magsoodpur, Vindhwa, Hetampur, Nandpur, Hussainpur and Nayakpur). Ravines cover a majority of the area in the village Pipari. The village too receives an annual rainfall of 700 mm in 35 rainy days during the year.

Twenty had pumps and six open dug wells in village Pipari provided drinking water to its population of 2380 .The 483 families of the village belongs to ten social classes viz, Gujjar, Brahmin, Muslim, Dhobi, Bdele, Khumaar, Goswami, Barber, Kushwaha and Kadere.

Chambal passes through the village Piprai and it has influenced in the formation of deeper and wider ravines. Soil found in the village varies from loam, sandy to gravel. The soil in Piprai village is mainly lateritic and alluvial. Alluvial soil is found along the rivers and streams.





## **Problems of the project Area**

Soil erosion is major concern of the people living in Ravine. Running water cause loss of top soil that makes the land infertile and reduce the crop productivity.

- Guggul plants is declining in numbers.
- Agricultural land is getting converted in Ravine every year.
- Loss local livelihood

## **Objectives of the project**

- a. Conservation of existing Guggul plants.
- b. New plantation of Guggul.
- c. Stop the Ravine reclamations
- d. Formation and capacity building of local BMCs
- e. Livelihood generation

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## **About the Guggul**

Guggul (*Commiphora wightii*) is an important arid medicinal plant species found in Rajasthan, Gujarat and Madhya Pradesh. The oleo-resin of Guggul plants has wide application in Ayurvedic treatments for numerous disorder and diseases. This slow growing plant also forms an important component of the floral diversity in the arid and semi arid regions as it binds soil prone to erosion. S<sup>4</sup> has organised various training for capacity development of B.M.C. and S.H.G. members.

### **Guggul plantation**

- a. 10,000 old Guggul plant were preserved by B.M.C. Piprai
- b. 10,000 new guggul plant were planted in Ravine area.

The villagers of Pipari identified five reasons for the decline in the number of Guggul

#### **i. Destructive tapping**

Tapping of Guggul plants in the ompara ravines have been an age old livelihood enterprises. It was carried out with the help local knife and use of Guggul solution as an activator, Rajasthani traders introduced the chemical activators in tapping this may cause of exudation of Guggul gum from plants. Though harsh chemicals helped in maximum exudation of gum from the plant but the trapped plants began to dry.

- ii. **Encroachment** :- Piprai village drains down to h ompara river during monsoon. The flowing water while carrying loosetop soil along with it forms narrow gullies

that transform in to ravines with the passage of time. Ravine formation causes displacement of the settlement and loss of area under cultivation.

iii. **Termite infestation** :- The soil in the ompara ravines is loose and light. Termite infestations in almost all the plants are common in the area. C wightii plants comparatively being fleshy area susceptible to termite infestation. Termite eat away the plant from the base causing the plant to fall down and dry.

iv. **Soil erosion**

v. **Damage by Shepherds.**

## **Work Done by B.M.C. Piprai for Guggul conservation and Ravine Reclamation**

### **Out put**

- 10,000 Guggul plant were preserved.
- New 10,000 Guggul plants were planted in Chambal Ravine.
- 200 ha agriculture land protected.
- Water level up to 13 to 15 feet in project area due to construction of 9000 m Doorbandi.
- Women empowered earn money and self dignity.

### **Description**

BMC, Morena district aims to not only conserve but also restore & sustainably use Guggul (*Commiphora wightii*) plant species & other medicinal plants in the dreaded, degraded, risk prone areas in Chambal ravines. Its purpose is to ensure long term sustainability of the threatened species while securing livelihood improvement of the poor.

### **Ecosystem Characters**

The Chambal ravines are denuded, dry land hills in the Sheopur, Bhind, Morena district of Madhya Pradesh State in its northern border with Rajasthan State. It is semi-arid tract with thorny shrubs and grasses. The area is heavily eroded due to wind, and loss of biodiversity. Water is scarce & vegetation is sparse. The area had several species of medicinal plants before but a few only are left due to unethical practices adopted by the middlemen, poor harvesting practices, fires, over-grazing & exploitation of timber, poor plantations, no local ownerships and lack of regulations in the forest management etc due to the Dacoit problem for over last 50 years.

Fertile land is decreasing. In 1981 the ratio of per head total land in Morena was nearly 47 hectare and the per head ratio of total fertile land was nearly 29 ha while in Madhya Pradesh (MP) per head of total land ratio was 85 ha. Even today in the region per head

total land and per head fertile land is less than the land ratio of M.P. The present status is only 0.20 ha per head.

### **Challenge**

The area served as a home to the dacoits that made Chambal a dreaded territory. Many families possess guns even today including a few licensed ones, rivalries are settled only through violence in a more caste ridden society. Thus wildlife hunting, prohibited trade & illegal activities are in abundance and are a part of the local gangs abound. This harms Guggul a threatened medicinal plant species which is native to the areas and ravines. It is overharvested for its gum, tapped by rather destructive methods like branch cutting, de-barking etc., thereby leading in the plant loss, and depleting its population. Even the young trees are not spared, posing huge risk to its future growth and conservation.

Satavar, Gokharu are some of the other important medicinal plants which are over harvested in the most in ethical destructive manner. Other threats mentioned above add to it, to reduce the resource base and conservation. This risks the well being or even survival of the poor tribal people who have been largely dependent for incomes and for whom non timber forest produce collection accounts for 25-40% of the income. Market demands have led to over harvesting; lack of skills, education, infrastructure & local institutions with the local communities is nearly making the species endemic to the area. Lack organized viable trade & development activities are further adding to misery. Local communities sell the harvested produce cheaply to the middlemen & earn quick but very small amounts, which is much wasted often on liquor / tobacco.

The locals more as nomadic hunter communities have been bereft of being 'farmers', lack land & agriculture traditions and values. The communities therefore do not have timely access to adopt the modern methods in agricultural practices, credit facilities and other schemes for development sustainable practices. They lack confidence, coupled with natural risks of skewed rainfall patterns they often make large losses in agriculture, cultivating the farm lands they got under the forest rights act, 2005. Thus, they remain poor, hungry with high prevalence of infant mortality rate and maternal mortality rate, women are prone to be anemic and the areas are under high migration. Therefore all these challenges are making the natural capital at high risk in the areas.

## Activities



The local non governmental organization (NGO) S<sup>4</sup> had several discussions both with the local administration, forest departments, and approached the Global Environment Facility (GEF) Small grants program (SGP) for a hands on approach involving the locals in a more participatory manner. A project was developed by SS with GEF SGP/UNDP addressing some of these challenges under the project

**“Reclamation of ravines through endogenous technology & *in-situ* conservation of local biodiversity, and strengthen the livelihood security in three Panchayats of Morena District.”**

The NGO was supported in laying out a sustainable approach by Centre for Environment Education (CEE) Delhi. The idea developed was that the partnership used the ‘participatory micro planning, (PMP) approach’, (e.g. village entry, informal regular-periodic village meetings, record keeping of the agreements in the meetings at the SHG levels, discussions, Participatory Rural Appraisals (PRAs) and related participative methodologies using the problem analysis tool with communities, discussing and negotiating community priorities). The micro planning approach was taken up in the context as ‘local area based exercises’ which clearly lead to developing ‘village work plans, (VWPs)’. These VWPs, led to prioritize the community needs with special focus to poverty, gender and livelihoods.

*The project strategy to develop mutual respect, community ownerships and sustainable actions, will have a three-phased approach namely:*

**Step I:** Mobilize the community through the use of ‘participatory micro planning (PMP)’ techniques to identify, analyse and prioritize the needs of the community. The details were

clearly documented in the local language by the communities, promoting reflections over time during the project period.

**Step II:** Facilitate and promote informal, kinship based-common interest self help groups (SHGs) for increasing self-help, collective bargaining, community negotiations and for implementation of the program according to the village plans ie. Regular meetings, record keeping and book keeping at the local levels, link to local rural and commercial banks).

**Step III:** Enhance the skills and capacities of a range of local community volunteers and local resource grass root persons, (including both men and women) to plan, implement, manage and monitor resources and activities according to the Village Plans (VPs). The local people therefore were involved at all levels-steps in the project development (VWPs), monitoring and implementation.

**Some of the major activities undertaken were:**

S<sup>4</sup> formed 4 women SHGs involving nearly 90 women and some men members, having a savings of nearly Rs 102,000 and the SHGs have thereafter been linked with banks for additional leverage of Rs 130, 000 as cheap credit, which they have attained for the first time. The NGO then to have the sustainable harvesting formed a BMC in 2006 at Pipary in Morena block of Morena district.

Seventy (70) ha guggul plantations undertaken with 400 families and nearly 10,000 plants planted between 2006 and 2008. Conservation of old plants were taken up in an area of 120 ha.

Dorbandi nearly of 2000 m in 4 villages. A “dorbandi”, is a protection wall created to project soil erosion, the wall is 6 feet broad at the base and 3 feet in height and 1feet in breadth at the top. In the treatment for land, different shapes and sizes of dorbandi was undertaken in the Ravines areas as,

- Shaped destructive land
- Shaped medium land
- Shaped deep destructive land

The project has led to the formation of a Village Biodiversity Management Committee (BMC) in the 4 project villages. This VBMC is continuously facilitating training to nearby four (4) villages (200 Households) to adopt sustainable harvesting practices for Guggul. This is leading to a greater awareness and sensitivity for harvesting Guggul Gum. The BMC is also involved actively in the following manner.

- a- BMC supports the preparation of PBR in 10 Panchyats and support to conduct the 7 days training on making Bio diversity Panchi.



- b- Plantation work of 10,000 plants of Gugual in ravine and devpuri temple in Pipary Panchyat and also protect and provide conservation of old 10,000 plants of Gugual and other species in Chambal .
- c- BMC done 3000 meter dorbandi under the water conservation work.
- d- Formed 10 SHGs in neighboring villages and provide the training for tati pickal and safe technique for Gugual gum extraction.



- e- Dr. Moni Thomas and Dr. Atul Shrivastava (JNKVV Jabalpur) provided the training on Sustainable process of Guggul Gum extraction.
- f- Pipari BMC conducted a district level workshop for block, district and panchyat President and Secretary of BMC in Piprai panchayat.



- g- BMC have sell their 1000 Gugual cutting and seed for DABUR company and regularizes their income sources for their work. The market Networking also established by BMC . We are also provided ENNI( Agani Mantra) for Dabar
- h- BMC and Sujagrati sanstha Morena Get the award of best state Bio diversity garden by state bio diversity Board Bhopal in year 2012.

i- **Paryavaran Mitra Programmed – Paryavaran Mitra Programme in 125 Schools of Morena Dist. By Centre for environment. Education Delhi.**



Today the working area of S<sup>4</sup> is 10 Panchayats of Morena block. The BMC has 7 members & 70 volunteers. It was constituted as a CBO with the resolution of the under Panchayat act. Its main stakeholder include the village families, traders, industry, buyers, besides forest department & indirect beneficiaries of the forest resources such as the farmers (who get water) & irrigation and line departments.

These types of new inhabitants fostered by the project can be seen in Degarh, Sarsaini, Sukhpura, Utlampura, Tajpur and in Dindokhar area in Bhind-Morena areas of Madhya Pradesh, India. Some workers are living without houses. Some farmers do not have fields to cultivate. S<sup>4</sup> encouraged villagers from the above villages to learn the skill sustainable extraction of 'Guggul Gum',. The local entrepreneurs are being developed through the project. S<sup>4</sup> also encouraged the local collectors towards Semi-processing and collective marketing of herbs to companies, plantation and conservation of Guggul and other herbs and establishment of the nursery were some of the activities of the Organisation.

Full fill these aims BMC running these activities as follows, these activities were aimed at

- a) Ensure the quality & long term resource availability,
- b) Enhance value, income & reduce the harvest need,
- c) Encourage Restoration of the resource,
- d) Provide additional income to the poor & reduction of pressure on the forests.

**Outcomes –**

The activities led to the formation of gathers & farmers groups of medicinal plants. About 100 members are trained in good collection & sustainable agriculture. Market linkage is established with Dabur India, New Delhi for higher price and insurance than that are offered the local middle men. This was facilitated by S<sup>4</sup> Morena. This enhanced the poor,

marginalized Scheduled Caste (SC) community interest in conservation, restoration & fair trade. Now efforts are ongoing to seek bank loan.

**Livelihoods -**

The conservation and fair trade ensured 30% added income than before to the poor SC community. Semi processing, storage, transport management generated few jobs. Further, intercropping of medicinal plants emerged as Satawar, Gugual, Anni Kitchen garden & local folk healer promotion process is also started that has reduced their health expenses i.e. about 10% of the family budget.

**Participation -**

BMC Piprai decides most issue in consensus or majority fashion in its quarterly meetings attended by majority of the members. Besides the Chairperson, Secretary & treasure meet on monthly basis to review any urgency or progress of the works planned. The decisions are taken on consensus or majority basis. Women are consulted as also the old and especially able people, for inclusive governance. Regular briefing of activities and plans were conducted to the forest, agriculture & health departments besides rural development.

**President**  
**Sujagrati samaj sevi sanstha**  
**Morena M.P.**