

SGP The GEF
Small Grants
Programme

A Project for
**Stabilization of Ravines
along River Mahi**
in Vadodara District, Gujarat

A successful Project of this nature, aimed at stabilizing ravines based on the simple principle of promoting natural regeneration and vegetative measures as able mechanisms for preventing soil erosion, is a well-suited illustration for replication at a larger scale. Vast stretches of riverbanks still remain neglected across different parts of the state and country, and it is hoped that a larger project of such kind will be able to initiate activities in greater stretches along River Mahi, all the way from Vanakbori to Dhuvaran, spanning about 100 kms and covering 107 villages.



A view of ravines along the banks of River Mahi in Gujarat in 1986 when soil and moisture conservation methods were being planned and a picture of the same in 2007



FES
FOUNDATION FOR ECOLOGICAL SECURITY
PB No.29 At:Jehangirpura, P.O. Gopalpura,
Vadod-388 370, Dist. Anand - 388 001,
Gujarat
Tel: 02692-261402, 261238
Fax: 262087 / 262196
Email: ed@fes.org.in
www.fes.org.in

The Foundation for Ecological Security (FES) was established as a Society in 2001 and is committed to strengthening, reviving or restoring, where necessary, the process of ecological succession and the conservation of land, forest and water resources in the country. While the society came into existence only in February 2001, the group and its body of work was born 16 years ago. Activities in Anand stemmed in 1986, when at the request of the National Wasteland Development Board (NWDB) a pilot project on the Tree Growers' Cooperatives was initiated in selected districts of 5 states. Work was initiated, during the same time period, in 72 villages falling in the districts of Anand, Kheda and Vadodara, along the river basin of Mahi.

National Co-ordinator
GEF SGP Small Grant Programme
CEE Delhi
C-40 South Extension-II
New Delhi-110049
Email: sgpdelhi@ceeindia.org
www.sgpindia.org
www.ceeindia.org

CEE West
Centre for Environment Education
Nehru Foundation for Development,
Thaltej Tekra,
Ahmedabad - 380 054
Tel: 079 - 6858002 - 09
Fax: 079 - 6858010
Email: sgpwest@ceeindia.org



CEE
Centre for Environment Education

ECOLOGICAL CONTEXT

The River Mahi originates in Southern Rajasthan and passes through Panchmahals, Baroda, Kheda and Anand districts in the state of Gujarat and drains into the Arabian Sea at the Gulf of Cambay. Even though the basin has a high density of trees and is characterized by rich biodiversity, an undulating topography coupled with loose and sandy to sandy-loam soil renders the area highly susceptible to land degradation and erosion. The absence of vegetative cover aggravates the situation, leading to the formation of deep gullies and ravines on the commons and private land of the area. The embankments of 250-mile long river Mahi, is not an exception and is found to be severely ravined.

Ravines not only impact the provisioning of ecosystem goods and services, such as food, fuel wood, fiber and water regulation services, they are also responsible for the loss of arable land which in turn threatens the livelihoods of the poorest farmers with marginal landholdings. A preliminary survey conducted in 107 villages enfringing the river revealed that the ravines had affected no less than 30 thousand hectares of common as well as private land. The problem is further compounded on the common land of the villages as they are cared for by none and exploited by all. This happens due to lack of proper tenurial arrangements and absence of local institutions for managing common lands such as grazing and revenue wastelands.

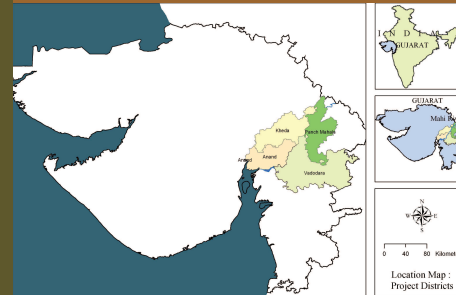
PROJECT BACKGROUND

With the objective of checking the further spread of ravines to prevent damage to the valuable tablelands and to work towards the stabilization of highly degraded and ravinous lands along river Mahi, a Project was initiated with assistance from Global Environment Facility (GEF), United Nations Development Programme (UNDP), Small Grants Programme (SGP) in 2005. The Project encompassed the villages of Himmatpura, Dungripura and Tansiya of Savli Taluka falling in Vadodara District; thereby bringing a total 560 ha of degraded land, associated village communities and local institutions under its ambit.

PROJECT OBJECTIVES

Intervention during the Project period was primarily aimed at:

- Working towards restoration and stabilization of ravines along River Mahi through appropriate soil and water conservation measures and improved vegetative cover
- Strengthening tenure arrangements and village institutions in the nature of Tree Growers' Cooperatives, with the intention of improving the governance of natural resources and ensuring the stabilization of the ravine lands



FES, Anand Project Area



Districtwise distribution of Mahi ravinous areas from Vanakbori to Dhuvaran



UNDP SGP Project

ACTION PLAN FOR RAVINE RECLAMATION

Aiding revegetation with help of Mechanical and Vegetative Control Structures

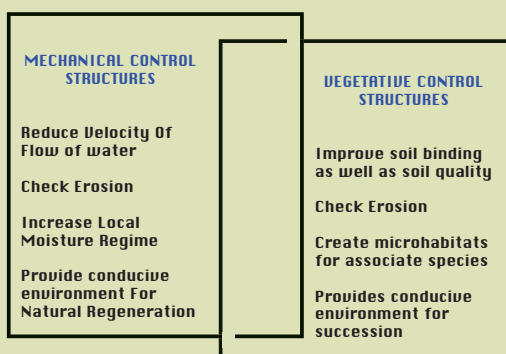


Diagram of model plot:

Ridge to Valley treatment for ravines is a tried and tested approach to check land degradation.



Ravinization along the River Mahi is spreading both vertically and horizontally, at large scale considered only second to that of the Chambal ravines.



Boribandhs are harvesting rain water and producing a conducive micro climate for vegetative growth.



Appropriate soil conservation measures have succeeded in reducing soil erosion and have effected an increase in silt accumulation



Facilitating the involvement of the local communities in planning and incorporating local wisdom at the initial stage leads to better understanding and implementation of the project by them.



In Dungripura, Smt. Kapilaben Vikrambhai Bhoi successfully raised and managed a nursery in the year 2006 with project assistance. She raised a total 10,000 saplings of six species, namely-Desi Babul, Ardusa, Kanaj, Kothi, Jamun, and Amla. She made a net profit of Rs. 5,000, which was invested in an insurance policy for the family and in affecting timely repairs to a flourmill being operated by her household.

ACTIVITIES

- Three local village level institutions in the nature of Tree Grower's Cooperative Societies were strengthened by helping them secure tenure over the land in the form of long term lease and laying emphasis on the principle of universal membership and by ensuring the inclusion of women and marginalized sections.
- Groups of community members were trained and capacitated to undertake perspective planning and assist in GIS-based mapping exercises. Ecological restoration plans and treatment plans were drawn using participatory tools and techniques.
- A total of 74 training programs and meetings were conducted for capacity building of the community, in which 1532 odd members consisting of no less than 397 women members participated.
- All the 3 TGCSs were assisted in framing village specific byelaws for protection and benefit sharing of resources.
- Considering the abundance of sandy-loam soil in the affected areas, boribandhs or sand bag structures were used to plug gullies in 102 ha of common land. 275 ha. of private land was also treated through farm bunding.
- 85,758 saplings of 12 tree species were raised in 6 decentralised nurseries in three villages of the project area. Total contribution by the members in raising the saplings amounted to Rs. 22,342 (25%).
- Regeneration activities were undertaken in 102 ha of Common land, which included planting of 49,371 saplings of 18 tree species, dibbling of 946 kg of seeds of 21 tree species, 99.5 kg of grass seeds and 8,300 root slips of three grass species. Community contributions towards regeneration activities amounted to Rs. 88,611 (33%).
- A total of 31,121 saplings were planted on farm bunds, in which the contribution by the members was Rs. 3,56,895 (33%).
- In collaboration with Gujarat Land Development Corporation (GLDC), farm bunding and leveling was undertaken in 225 ha of farm land.
- Installation of energy efficient devices was undertaken to reduce pressure on regenerated biomass. A total of 86 smokeless chulhas were installed. Sixty pressure cookers were also distributed amongst the local community members, the community contribution towards which was to the effect of Rs 24,382 (50%)

OUTCOMES

- Drainage line treatment has controlled run-off and accumulated silt in the gullies. The total silt trapped by the check dams amounts to 26 tonnes/ha over a total treated area of 102 Ha.
- Natural regeneration has improved significantly with community protection and has in turn led to a substantial reduction in soil erosion. Enrichment seeding and planting have shown survival rates of as much as 40%.
- Soil erosion of farm lands has been controlled due to farm bunding and vegetative measures.
- The communities have successfully evolved regulation mechanisms for protecting the common lands. Though collection of dry wood and twigs for satisfying local energy requirements, green felling is totally banned.
- It is estimated that energy conservation measures have reduced fuelwood requirement of the communities by at least 10%.
- A total number of 6,896 person days of labour was generated as part of project activities and local communities were benefited by Rs. 5,68,878.

Women members took the lead in raising and managing decentralised nurseries at the village level, thereby ensuring ready availability of saplings at the onset of monsoons. Interested participants were trained in the basics of bed preparation, watering, seed treatment, manure application, bag filling, weeding, hoeing, shifting, grading, hardening, pest and disease management, transportation of saplings and transplantation for this purpose. A total of 6 nurseries were raised in this manner, totalling the number of saplings to 85,758.