



Socio-economic impact of ravine lands-

A case study of River Chambal basin of state of Madhya pradesh, INDIA

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Introduction: - Soil and gully erosion have caused major environmental disasters worldwide. Many urban and rural communities have been severely affected, while the sustainability of the total landscape has been threatened. Human and animal population, physical infrastructure, agricultural lands and socio economic system of the land/areas are adversely exposed to multifaceted hazards. In many developing countries, many villages and communities have been displaced and virtually disappeared as a result of the scourages of gully erosion.

This paper presents the showcase of the social and economic problems faced by the rural communities due to ravine formation in the Chambal Region in the basin of river Chambal of the state of Madhya Pradesh, India.

Sheet erosion, which consists in the washing away of the fertile top layers of the soil, is the most extensive form of erosion, occurring even on moderately sloping lands. It causes enormous losses to agriculture every year by reducing the productive capacity of lands. Gully erosion, which generally starts after sheet erosion has remained unchecked for some time, has already rendered large areas useless, and is steadily increasing. Ravines are a result of formation of gullies within unconsolidated, relatively loosely bound material such as soft sediments. National Commission on

Agriculture (1976) estimated that India has 3.67 million hectares of ravine lands constituting 1.12% of total geographical area. Once even a small ravine is formed, every rainfall makes it bigger by creating holes in the front as well as the corners. Ravines are by no means a recent problem — thousands of hectares of fertile land along the banks of rivers like Yamuna, Chambal, Mahi and their tributaries have been ruined by ravine

formation in Uttar Pradesh, Madhya Pradesh, Rajasthan and Gujarat. But the rapid spread of ravines is a recent phenomenon, more so

in Chambal

State	Affected districts	Ravine area
Madhya pradesh	Bhind, Morena	
Rajasthan	Karauli, Dholpur	
Uttar pradesh	Jalon, Itawah	

Large areas of lands along rivers such as the Yamuna, the Chambal and the Mahi and their tributaries have been badly eroded and transformed into ravines. The march of ravines is progressing unabated; Lack of vegetation helps rainwater sweep away the upper portion of the land. The fast-flowing water creates nallahs (rivulet), big cracks and fissures, which develop slowly or quickly, depending on the rainwater, and become ravines. In the specific context of Bhind and Morena districts of Chambal Region, the light and alluvial kind of soil, coupled with deforestation, increasing population pressure, faulty irrigation projects and short-term developmental schemes seemed to have fuelled the formation of ravines, resulting in loss of productive lands.. About 3.5 million acres(1 acre =0.4074 hectare) in Uttar Pradesh and about 800,000 acres each in Madhya Pradesh, Rajasthan and Gujarat are badly affected by ravine erosion.

The Problem of the Region: - Ravines are gobbling up many villages and communities in Bhind and Morena districts in Madhya Pradesh, destroying their houses and wasting away the soil. It's estimated that ravines have affected 948 villages in Bhind and Morena districts. Mrigpura village in Morena district is being gobbled up by the ravines so rapidly that all the land around it has turned into deep pits. The village is now divided into 18 parts. What could be the life of any person when his place is divided into so many parts, when there is no land to till, no pastures and no work?

In Porsha block of Morena district, Ratanbasai village has split into eight new segments. The streets and roads have been destroyed and it takes a tough walk across

three kilometers to cover all segments of the old village. The ravines are eating into the social life of the villages. For villagers, it's now a problem to get their children married.

. Nayakpura, Rubara, Ajitpura, Khadoli, Jaghona, Rithona, Mahuwa, Sarsani, Gaushpur are among the innumerable ravine-affected villages in this region. The Chambal Division, which has an area of 16.14 lakh hectares, around 20 per cent of the division, i.e. around 3.107 lakh hectares are ravines. The ravines have spread along the main rivers of the region, which include Chambal, Quari, Lasan, Seep, Vaishali, Kuno, Parvati, Sanka and Sindh. The worst ravines are in the vicinity of Chambal River and are expanding faster than ever before.

The problem of dacoits: -The Chambal valley with peculiar topography added with ravines, at the intersection of three states (namely, Madhya Pradesh, Rajasthan and Uttar Pradesh) makes it a breeding ground for outlaws, who escape from one state to the other once identified and chased by the police.

In the region dacoity is directly linked to ravine formation. The ravines of Chambal spoiling the land, the life is getting tougher for every one. There is no employment opportunity and the only occupation farming, too becoming impossible with not much land is available to cultivate. The 20-50 feet deep ravines provide good hideout to the dacoits therefore harbors many outlaws. It is a paradox in the Chambal valley; dacoits are born because the land is ravined, and it is the ravines, which sustain them, giving them cover. Another disheartening trend that developed in the region recently, is the kidnapping the persons from weaker section, as not many well to do people left in the villages. The main occupation is the farming, the people has to be out most of the time, they become the easy targets. As such ravine affected area of these three states in the Chambal Region, have a dominance of weaker section and backward social classes

The problem of female infanticide: - If the ravines of Bhind and Morena have long been associated with tales of female infanticide, today with increasing number of ultrasound clinics which at times provide a safe haven for illegal foetal sex determination, these silent landmarks stand witness to the growing practice of female foeticide. The region chiefly inhabited by the Gujjars, Yadavs and Rajputs, encompasses the Chambal belt that was once notorious for dacoits. Here, feudal practices dominate and display of guns is a sign of valor. The child sex ratio in this region of Madhya Pradesh, which borders Uttar Pradesh, is abysmally low. Morena and Bhind with a population of over 2.5 lakh each in the 0-6 age group have a child sex ratio of 837 and 832 respectively, according to Census 2001.

Ravine reclamation Projects: - There have been programmes in past for reclamation of ravines and dacoits in the troubled intersection of three states. Nothing has worked

satisfactorily, except that in case of dacoits the intervention of Gandhian leaders helped in the surrender and reformation of a few dreaded outlaws in the Chambal valley in the early 1970s.

At one time, the Madhya Pradesh government had mooted a plan of leveling the ravines using bulldozers. The state alone has a 311 thousands hectares of ravine, the plan proved to be quixotic. In year 1980, another project of aerial seeding in the ravines, was introduced to raise 12000 hectares of forest every year. Aerial seeding, carried out for some time, could not meet the target. The plant the thorny ACACIA species heightened the agony of those living in the area as the new thorn forest made access to villages more difficult besides damaging the quality of the soil further. Fodder problem, too, got aggravated, as the new bushes suppressed the existing local vegetation.

0.0.1 Development Initiative

Ravines are not an invincible or insurmountable phenomenon. They can be challenged with the help of new policy perspectives and with the active support of villagers. The key approach, however, pursuing the idea of reclaiming the ravines using contour bunding and vegetative measures was not easy. People had a strong feeling that the only way for developing lands is 'land leveling', which would have been quite a costly affair. Only after seeing the results of work done by few progressive farmers, people will come forward for taking up conservation measures.

Approach of the project should be to build capacities of people, reclaim the ravine lands, recharge water and utilize it for irrigation on an equitable basis.

People organized themselves into various groups. Village Watershed Committees (VWCs) are village level organizations represented by the project participants. Women have organized themselves with the Self Help Groups (SHGs) and also represented the VWCs. People started sharing the ground water developing the Water User Groups (WUGs).

Ridge to valley approach was adopted for treatment to the micro watersheds. Following measures were adopted for treatment:

- Development of vegetation cover in deep ravine areas.

- Contour bunding across the slope to conserve the rainwater in-situ and stop soil erosion in medium ravines. Developing grass cover for protecting the bunds.
- Gully control using earthen bunds/plugs with vegetation cover on them.
- Masonry and composite check dams for water harvesting and recharge.
- Improved agriculture and use of locally produced organic fertilizers.

With the above measures, the process of ravine formation has stopped. Measures for in-situ moisture conservation and soil fertility improvement have resulted in improving land quality and good stand of crops.

Most of the large rivers of the country pass through the territories of two or more States. In many cases, soil conservation measures are necessary in one State in which the catchment area of the river is-located while areas receiving irrigation or flood control benefits are located in other States. Soil conservation measures in such cases can be effective only with the cooperative effort of all the States concerned, and if suitable arrangements are made for financial contribution towards the cost of these measures by states, which would receive benefits from the projects

1 Economics of the Ravine Area: -

The Chambal valley has an estimated potential to produce 3 Million Tonnes of food grains annually. With water available in plenty the area could have grown fruits, vegetables and fodder for the whole of the central India .It has great potential for tourism as well. Instead of all these, the place is providing a drain on the regions resources and a curse to those who are fated to live there

Table No.1-Socio-economic Indicators of Chambal Region				
SNo.	Indicator	Unit	State of Madhya Pradesh	Chambal region
1	Population	No.	60385118	3573930
2	Rural population	Percentage	73.33	78.45
3	Density of population	Persons per 100 Sq.KM	196	282
4	Female Population	No. Per 1000 male	927	845
5	Literacy	Percentage	64.08	60
6	Geographical area	Sq.KM	307450	16140
7	Forest Area	Sq.KM	88090	3430
8	Agricultural sown area	Percent	49	46
9	Ratio of irrigated area to sown area	Percent	28	45
10	Production of food grain	Thousand metric tonnes	152471	942.8
11	Total irrigated area	Sq.KM	56690	4000
12	Production Of Food Grains	Thousands Metric Tonnes	152471	943
13	Gross Value of Agricultural Products	USD per Hectare	600	2500
14	Gross Value of agriculture production	USD	113400	7150