Tribal Clans in Central India and Their Role in Conservation

The tradition of clans is apt to play an important role in the social set-up of any community, a clan being an aggregation of particular families having the same ancestors. However, there are some controversies regarding the origin of clans among the tribal grouping of Madhya Pradesh, a state in Central India. The important tribal communities of Madhya Pradesh are the Gond, Bheel, Kol, Auranb, Kamar, and Sahariya. The Sahariya tribal members inhabit mainly the four northern districts of Madhya Pradesh. The people of this tribe are mostly illiterate and very poor.

Collection of wild plants from forests is the main base of their economy. About 15 to 30 huts form a village-like unit called a 'Sahrana'. All of the huts of a 'Sahrana' are built facing towards the centre, where a place of worship is constructed. The head of the village is known as the Patel and settles all disputes. The staple food of Sahariyas is Sorghum (*Sorghum vulgare*), Maize (*Zea mays*), or sometimes wheat (*Triticum* spp.) which they take with salt or some leafy vegetables. Sahariyas believe in evil spirits and perform many rituals to appease them.

The Sahariyas comprise about 50 clans, which are related to their paternal family. A marriage between persons of the same clan is strictly prohibited; they are supposed to be brothers and sisters. During the present investigation, it was observed that certain clans of Sahariyas are named after certain plants which occur in the neighbouring forests; but it was found that the Sahariyas do not even touch the plant to which their clan's name belongs. Table I shows the names of some such clans, the related plants, the local names, and the manner in which conservation of the plants is effected.

The importance of the tradition of clans among Sahariyas in conservation of plants is evident and direct. Besides these clans based on plants, there are several clans which are related to animals. These clansmen do not eat the flesh of the related animals.

There are a number of popular stories or legends about the origin and naming of particular clans or sub-clans. Similar observations have been made among Munda tribal units of Bihar State (Gupta, 1981), where the clans are named after plants. The faith of early Man in the conservation of plants and other biological resources has led to their survival in something like their former abundance in many areas on this Earth (Jain, 1986). Such information needs to be collected from many other tribal sources to show that this association of clan names and plants could be utilized widely for popularizing conservation.

TABLE I

Clan	*Name of the plant*	*Local name*	*Taboo Conservation*
1. Umariya	*Ficus racemosa*	Umar	Worship the tree and never cut it.
2. Peepar Barodiya	*F. religiosa*	Peepal	Tag leaves on the forehead of bridegroom.
3. Dhanik	*Anogeissus latifolia*	Dho	Worship the tree.
4. Semariya	*Salmalia indica*	Semal	Worship the tree.
5. Samaria	*Crotolaria juncea*	San	Do not sit on a cot woven of its fibres.
6. Salaiya	*Boswellia serrata*	Salai	Worship the tree.
7. Jhilmiliya	*Albizzia lebbeck*	Siris	Worship the tree.

The Author is grateful to Dr S.K. Jain, of the National Botanical Research Institute, Lucknow, for useful suggestions, and to the Head of the School in Botany, Jiwaji University, for facilities and encouragement.

References

GUPTA, S.P. (1981). Folk-lore about plants with reference to Munda Culture. Pp. 199–207 in *Glimpses of Indian Ethnobotany* (Ed. S.K. Jain). Oxford & IBH Publication Co., New Delhi, India: [not available for checking].

JAIN, S.K. (1986). Ethnobotany. *Interdis. Sci. Rev.*, **11**(3), pp. 285–91, illustr.

ASHOK K. JAIN
School of Studies in Botany
Jiwaji University
Gwalior
India.

Guidance for Environmental Entrepreneurs

A steam-powered aeroplane, glasshouse heating from farm wastes, and a revolutionary water-pump, are widely different ideas with one thing in common: they would be innovations that could bring great environmental benefits through their wide application. The Conservation Foundation, a UK-based organization providing a link between industry, commerce, and environmental interests, hears from many hopeful inventors of such innovations. Some simply want to report a successful product-launch and others want to enter for the Conservation Engineering category of the Europe-wide Ford Conservation Awards which are run by the Conservation Foundation. Most want—and need—help.

We have noticed through the course of such correspondence that, though the products or ideas varied, the would-be innovators shared many problems. Thus they lacked the funds and resources to undertake proper research and development, while tending to underestimate market resistance and overestimate the impact which publicity might have on their project. They also had similar attitudes, saying that, although they thought their idea had great commercial potential, they were mainly interested in the environmental benefits and were 'not really doing it for myself'.

It was this concern for the environment and the desire to see their idea through at whatever cost, that led many innovators into difficulties. The environmental factor appeared to cloud their commercial judgement, and many persisted with their idea long after a conventional one would have been abandoned. Some apparently thought that the environmental spinoffs from their invention would oblige the Government to provide assistance or, if they only had some publicity, that a philanthropic investor could be found. In the Foundation's experience practically all these innovators have been proved tragically wrong.

The principles behind many of the innovations are sound, and some would indeed provide total or partial solutions to particular environmental problems. The Con-

servation Foundation refers to developments which benefit people as well as the environment as 'Symbiotic Technologies', and it believes that these sorts of ideas should be encouraged wherever possible. They are, however, much the same as any other in having to stand alone in the market place on the twin merits of their price and consumer satisfaction. Their ecological superiority may or may not be a relevant selling-point.

To get this message across, the Conservation Foundation teamed up with the National Westminster Bank and produced its 'Guide for Environmental Entrepreneurs'. The guide outlines many of the common pitfalls and aims to make environmental entrepreneurs think about their projects in *commercial terms* as soon as possible. It is available free from the Foundation at Fairholt House, 2 Pont Street, London SW1X 9EL, England, UK—telephone 01-235-1743. Meanwhile the Ford Conservation Awards have shown that such people needing guidance are by no means unique to the UK—organizations in other countries may well find a demand for either their own guide or for copies of the Foundation's with an insertion giving specific local information and orientation. Who knows what vital new *Symbiotic Technology* might succeed with the right encouragement at the right time!

STEPHEN ROBINSON
The Conservation Foundation,
Fairholt House, 2 Pont Street
London SW1X 9EL
England, UK.

The Recent Bangladesh Flood Disaster Was *Not* Caused by Deforestation Alone

It is my intention to bring a greater degree of rationality into the discussion of the causes of the recent flood disaster in Bangladesh, so that in future more appropriate remedies may be administered. To do this I must slay, or at least grievously wound, a 'sacred cow' syndrome held by a great many people. This syndrome was succinctly expressed in several article headlines in various newspapers recently. Thus one which I have at hand is a release from Knight–Ridder Service by Marc Kaufman and exclaims: 'Bangladesh Flood Disaster Blamed on Deforestation.' This widely-held belief is expressed later in the article as follows: 'By almost all accounts, the main environmental problem is the widespread and growing deforestation of the Indian and Nepalese mountains to the north of Bangladesh, a country that is little more than an overpopulated delta region.'

A flood of this magnitude is caused by too much rain falling in too short a period, or prolonged rain falling on land that is already saturated with water. The extent of the damage is caused by too-great human occupancy of the floodplain of the Ganges and Brahmaputra Rivers. This occupancy is increasing each year, with more and more non-absorbing surface being added by urban infrastructure, thus aggravating the problem of rapid runoff. Moreover the increase in roads, bridges, and riverside buildings, all add to the problem of river channels handling floodflows.

This part of Bangladesh, as is indicated in the above-cited article, is an overpopulated delta. Deltas are the product of river-flow and deposition of sediments, and are naturally prone to flooding owing to channel changes. Solutions involve: restricting occupancy of the most seriously flood-prone areas, structurally improving buildings to make them less subject to damage, and flood warning and evacuation programmes. Floodwater storage reservoirs further upstream might also help, though they will *not eliminate* floods. All of these remedies are in-country, but are terribly expensive and difficult. It is much easier to point the finger of responsibility at other people especially when they live high in the mountain watersheds, which in this case means largely in other countries.

It is true that some kinds of deforestation (but not all) in the remote mountains may make a contribution to the flood situation. But this is usually very small when dealing with major meteorological events such as summer monsoons. These monsoon rains would produce (and historically have produced) floods even if the entirety of river basins were in forest cover wherever trees will grow. The problem is that when the soil is saturated from previous rain, practically all of the ensuing rain will produce stream- and river-flow.

It is clear, of course, that removing the forest, and replacing it with an abusive, soil-compacting grazing or cropping use, will reduce the ability of the soil to accept and store water. However, forest removal and conversion of the land into terraced agriculture (the beautiful, benign, rice-paddy terraces are also 'deforested'), does not aggravate flooding appreciably. Well-managed grazing land, though deforested, is also not a major contributor to floods. Unfortunately, some of the agriculture and grazing that has replaced forests in the mountain country is abusive, and results in more-and-more-rapid runoff of water. However, the soils here are generally not deep, and therefore cannot store much water even in their natural state. Also, the increased runoff from these remote mountain-watershed lands is small, even in a major storm or monsoon situation, compared with the water accumulated from all natural sources in major basins such as those of the Ganges and Brahmaputra. It is moreover to be remembered that, usually, rain will be falling not only high in the Himalaya, but also in Bangladesh, where it will fall directly on large river surfaces, on cities, and on all the associated non-absorbing surfaces.

It is true that sediment in the river channels reduces the ability of the rivers to accommodate a given water-flow. This sediment comes from riverbank erosion, riverbed erosion, and erosion from the land. There is unquestionably more soil erosion where the lands are steep than in the lower parts of the rivers. Forest removal and inappropriate use of the land will accelerate surface erosion and may even increase the incidence of shallow landslips.

The displaced material eventually finds its way into the stream- and river-channels and adds to the local problems. However, this contribution tends to be dwarfed by the natural sources of river sediment. The Himalaya is an area of mountain building and general movement due to earthquakes, which results in great instability and the occurrence of an incredible number and size of natural landslides.* Added to this are glacial-lake outbursts which can be disastrous in producing a wall of water and moving vast amounts of sediment down into lower stream areas. Poor-

* *See*, for example, 'Geo-forestry of Landslide-affected Areas in a Part of Central Himalaya', by Drs A.K. Tiwari, J.S. Mehta, O.P. Goel & Professor J.S. Singh, *Environmental Conservation*, **13**(4), pp. 299–309, 11 figs, 1986.—Ed.

https://doi.org/10.1017/S0376892900029945 Published online by Cambridge University Press