

Chapter 9

The Issue of Land Degradation

Jhumming in CHTs is often blamed as the primary cause of land degradation and loss of tree cover and wildlife habitat (Choudhury 1972). In a situation of little or no population or market pressure, *jhumming* is environmentally acceptable. This is particularly true when the rotation is extended to a period equal to a forest-crop rotation, which is usually 12 to 20 years for short- to medium-rotation crops. However, with a developing market economy and the inevitable population pressure on land, the system of *jhumming* has collapsed into degradation and retrogression, influenced by factors both internal and external to the system.

Jhumming used to be practised only in small patches and was continued only for one or two years. The land was then left fallow before being cleared for cultivation again. During the fallow period, the *jhum* plots become covered by natural vegetation and recovery of soil potential replenished lost fertility. This natural system of recovery breaks down as the fallow period is reduced. Increasing population pressure in the region and non-availability of suit-

able land for *jhumming* has meant that the fallow period has been reduced from 15 years to three to five years. Such a fallow period does not allow full recovery of soil potential and ultimately results in degradation. When such a practice is extensive, there is a loss of topsoil, tree vegetation, and biodiversity over a vast area.

9.1 Indications of Land Degradation

At first *jhum* used to produce as much as three tonnes of rice but this has come down to only 0.4–0.6 MT (Khisa 1997). This indicates the general decline in productivity of land under *jhumming*. At present, it is commonly observed that on heavily degraded lands, farmers fail to obtain the expected yield even when applying commercial fertilizers. With income from *jhumming*, farmers cannot make a living even below the subsistence level.

Gradual destruction of forests and resurgence of *jhum* cultivation with shorter cycles have taken their toll on the agriculture of the region. Soil erosion from the hills

has resulted in the silting up of various tributaries of the Karnaphuli. It is becoming increasingly difficult to cultivate fringe land around the lake because of both excessive rainfall and drought. The water level of Kaptai Lake now does not rise or fall as was once projected (Chakma *et al.* 1995).

9.2 Perceptions of Scientists and Professionals

Land degradation in CHTs is the result of large-scale forest clearing followed by *jhumming* with a short fallow period (Nuruzzaman 1977). Islam (1982) reports that 92-184 tonnes of soil per hectare per year are removed as a result of *jhumming*. Large-scale burning and clearing ultimately leads to soil erosion during heavy downpours in the rainy season. Removal of fertile topsoil that exposes subsoil results in substantial loss of soil fertility. In a recent paper, Khisa identifies the following as major causes of land degradation in the hills (Khisa 1998).

- Natural factors: steep slopes, unstable geology, short periods of heavy rainfall, flood, and drought
- Demand factors: rapid increase in human and livestock population, increase in people's aspirations for a better livelihood
- Policy-related factors: land-ownership issues, unplanned urbanisation, inappropriate land-use policies, lack of environmentally sound guidelines for resources use, and inappropriate economic policies
- Unsound management practices: uncontrolled and excessive grazing, poor soil management practices, improper forest harvesting
- Other harmful practices: setting of forest fires

Declines in crop yields can take place for a number of reasons besides declining soil

fertility related to land degradation; for example, reduced inputs of fertilizer or labour. There are also difficulties in dissociating short-term from long-term trends in yields, especially in environments with wide fluctuations in annual rainfall.

The belief that ecological degradation, including erosion and landslides, is caused by the prevalence of *jhum* cultivation led in 1988 to a prohibition on *jhumming*. Deveasish Roy, the Chakma Chief, strongly contests this view (Roy 1994). According to him, most forms of hillside cultivation without terracing expose the soil to heavy monsoon downpours and hence result in erosion. The level of erosion, however, depends on both the gradient of the slopes and on the density of the forest cover. Where the gradient is high and cover plants are scanty, the level of erosion will be high, and vice versa. In the case of *jhumming*, most large trees are not felled and this provides a reasonable amount of forest cover. Moreover, many *jhumia* farmers nowadays plant middle- to long-term plants along with traditional short-term crops. For example, banana, turmeric, citrus fruit, palm, coconut, bamboo, teak, gamar, koroi, etc. are now common sights. In such cases, erosion is minimal. In fact, in some cases, *jhumming* is not the causation of erosion but its prevention. What is most important, as far as erosion is concerned, is to maintain sufficient cover plants. Another major objection is to *jhumming* in virgin forest. Roy contests this position also. He maintains that reserve forests and protected forests are beyond the reach of *jhumia*. The prohibition order on *jhumming* was partially revoked in 1991. It is important to mention that the prohibition order did not prevent poor farmers from *jhumming* in the CHTs during the ban period.

It is undeniable that there has been serious deforestation in CHTs in recent years, but *jhumming* was only marginally responsible for wanton wastage (Roy 1994). In

fact, Roy proposes that various 'development' and 'security' measures of the government were far more responsible for deforestation and bad *jhumming* practices. There have been cases in which destitute and landless peasants, both old residents and new settlers, have been responsible for appropriating trees from the public forest. The usual response has been to prosecute offenders. However, it is invariably only minor or first-time offenders who are punished whilst large-scale organized criminals, including corrupt Forest Department personnel, remain undetected and unpunished.

In defence of *jhum*, Chakma put forward the following argument (Chakma 1995).

- *Jhum* is an agricultural method that produces an abundance without the use of chemicals. Ash produced from the initial burning acts as both a natural fertilizer and pesticide. Food produced from *jhum* is disease-free and free from pesticide residues.
- *Jhum* utilises the natural watershed of the mountain to feed paddy and plants. It does not require dams or environmentally degrading irrigation systems.
- After the crops are harvested, *jhum* is left fallow for five to six years to regain its fertility before the next cultivation. Abandoned *jhum* becomes a feeding ground and sanctuary for wild animals, birds, and insects.
- The cropping and diversity of indigenous *jhum* agriculture secures the land from the ecological destruction caused by narrow genetic bases and monocultures.

They also think *jhum* cultivation is not a miracle cultivation promising limitless growth but is growth within the limits of nature. Over-*jhumming* may cause as much damage to the environment as other unsustainable agricultural systems.

9.3 Perceptions of Local People

Anwar Hossain, a Bengali inhabitant of Shalbangram, claims that he is not aware of the government's forest policy. However, he thinks the indiscriminate felling of trees that is being carried out now will have a deleterious effect on the environment. Hossain is also not aware of the land policy of the present government. He knows that previous governments created cluster villages where large numbers of people reside. Most of these people do not possess homestead land and have built their huts on *khas* land.

Bibhuti Bhushan Tripura of Surendra Master Para told us that the government has evicted many families in this village in the name of afforestation and has deprived them of their livelihood from *jhumming*. The hills from where people have been evicted are being brought under rubber plantation. Now many hill people work in the rubber plantation as labourers. Most people in this locality are landless, and the government should settle these people in the hills. Bibhuti feels the condition of the environment is satisfactory in his locality, but he too is worried about the indiscriminate felling of trees. He thinks that the felling of trees should be stopped for the next 10–20 years. He is of the opinion that landless people should be settled on *khas* land, because everybody has a right to land. He is in favour of afforestation, but not by evicting people.

Aksaymani Chakma of Pablakhali village of Khagrachari district opined that destruction of forest indicates lack of proper conservation policies. He thinks forest officials should be more careful and give up corrupt practices. People should be made conscious about conserving forests and maintaining the quality of the environment. Since the population is increasing the problem will continue to persist. The land commission should conduct a survey to strike

an appropriate balance between people's livelihood requirements and the needs of environmental protection.

Mongtu Choudhury of Mandirpara village of Khagrachari district told us that the government has established a number of nurseries to make afforestation programmes successful. However, in the name of afforestation, the government is acquiring the land of the hill people at a greater pace compared to other groups. Land-owners are not being adequately compensated. He thinks more attention should be given to the conservation of reserve forests rather than fresh afforestation programmes.

9.4 Perceptions of *Jhumia*

Jhumia claim that traditional *jhum* was not harmful. They used to select a small patch of land in a suitable place, preferably bamboo forest, and practice a long fallow period. They did not cultivate excess land beyond their needs to produce rice and other crops for family consumption. When they had to select a piece of land in virgin forest, they would cut branches from the tree to increase light on the ground and clear small bushes. In traditional *jhumming*, they used to cultivate crops on the middle slopes leaving the hill tops and the lower

slopes under vegetation. They used to leave standing trees with light crowns in the plots; if they needed to cut standing trees for their use, they would cut at around one metre above ground and allow the stump to develop again. They never used a site close to rivers or streams; they used to keep those areas under forest cover. They used to avoid steep slopes since there was a high risk of crop loss during heavy downpours. Soil work was minimum as they used a knife to make a small hole for sowing seed. The crop soon covered the ground and protected the soil from rain. These are no longer common practices.

In the course of time, with the introduction of root crops such as turmeric, ginger, arum, etc, they have started to use spades for soil work, particularly at harvesting time. This had led to a loosening of soil and the loss of fertile topsoil during rain. *Jhumia* admit that using a spade is harmful to the soil. However, they argue that decline in soil fertility in traditional *jhum* plots is caused by repeated crop production rather than removal of topsoil. With increased population and increased competition for land, they are compelled to use extensive areas and reduce the fallow period, and this has led to destruction of vegetation and land degradation.