



**IMPACT OF BIOTIC
FACTORS ON FLORA
AND VEGETATION**

IMPACT OF BIOTIC PRESSURES ON THE VEGETATION

The vegetation of hilly regions is of the dry deciduous type but it has been modified considerably by biotic factors. On interviewing the local tribals in hilly regions, it was clear that some 20-25 years back these forests were very dense and thick. At present the total forest cover has decreased considerably (table # 3E). It is mainly due to indiscriminate cutting and lopping of trees and shrubs by the local people for their lively hood as well as for fuel wood. The primary effect of such indiscriminate cutting is observed in crooked or mutilated forms of some trees and shrubs, such as Butea, Tectona etc., which otherwise are elegant with straight and tall trunks. It might have also caused either complete disappearance of some trees or shrubs or some of them becoming rare. E.g. Sterculia urens Roxb., was mentioned as a common tree around Vagasthal in Chhota-udepur range; now there are only 3 trees leftout at the same place. Similarly Terminalia ariuna (Roxb. ex DC) Wt. and Arn., has now been observed only at the edges of agricultural fields where the locals might have planted it. Also certain plants such as Ougenia oujeinensis Hochr., Oroxylum indicum Roxb., Radermachera xylocarpa Decne and Hardwickia binata Roxb., are occasionally met with in this forest.

The clearing of some of the area for agriculture purposes has accelerated further destruction of forests. In the past the tribals used to adopt "Shifting cultivation", which caused severe damage to the flora. This method is now abolished with permanent settled conditions of agriculture in the forest area. Animals, which graze in the forests, feed on the seedlings of trees and shrubs and also the herbaceous vegetation. Therefore, many herbaceous species, especially the rare ones would not be seen in all stages of development, and seedlings of trees and shrubs, being grazed upon, would seldom develop into new trees or shrubs.

Severe effect of biotic factors on the flora and vegetation of the study area is due to increase in the human population as well as due to urban development. In the interior of the forests the fair season roads on temporary or permanent basis have been constructed. The forests in vicinity of Kadipani and Ambadungar in Kawant range have heavily suffered due to establishment of the Gujarat State Metal Corporation, as evident from the forest working plan data and also remote sensing data (Table # 3). Exploding the forest areas with dynamites for the metals has further aggravated the situation.

Total forests area of Kawant range = **104.68** sq. kms. Open Forests by area = **47.40** sq. kms = **45.28** % of total forest area. Degraded forests by area = **30.8964** sq. kms = **29.51** % of total forest area. In all total of **78.30** sq. kms out of total forest area of Kawant range is degraded which accounts to **74.80** %.

Following are the threat factors, which play major role in the degradation of vegetation and flora of the region **PLATE 49 AND 50**.

MINING

Chhota-udepur forest division being rich in mineral deposits is extremely vulnerable against the land use in shape of mining, like that of Flourspur, Quartz, Calcite etc. Mining produces Rubbles, gravels and grit. Stones are broken in to small pieces by heavy –duty crushers. The effects of such mining are as listed below.

- 1). Land area is lost, the loosened surface soil gets lost in the subsequent years and big pits results due to such processes.
- 2). Dust clouds are produced constantly. Dust fall-out affects the surrounding flora and vegetation. Mining for Flouspur and Quartz take place at Ambadungar and Chhota-udepur respectively.

GRAZING

The grazing is one of the major threats to the flora and vegetation of Chhota-udepur forest division. The major reasons for this is the non-availability of permanent pasture land called as “Gauchers” in the area. Due to this reason the cattles are allowed to move freely in the forests. Moreover the tribals are in close proximity with the forests of Chhota-udepur since long, due to which the strict law inforcement is very difficult as there are chances of conflicts between the forest department and the locals. The third reason being the gap between the cattle population and the availability of the fodder. All this lead to the grazing pressure even in more protected areas such as Dolariya range, Kevdi, Mithibor, Dun, Mal and Jamli dam.

ILLICIT CUTTING AND COLLECTION OF MINOR FOREST PRODUCTS

The prime aim of illicit cutting is for building and repairs of the tribal houses and agricultural implements, selling the wood in nearby townships and to obtain the necessary fuel wood. The cutting takes toll of the best trees in the forest and also

PLATE 49



Grazing: threat to the forest flora.



Mining of quartz



Bags packed with flourospur after mining at Kawant.



Fuel wood collection from forests- Minor threat to the forests of Chhota-udepur.

PLATE 50



← Illicit cutting of forests for fuel wood and other uses.

Cultivation within forest areas. Threat to the forests. Limbani to Kevdi road. Chhota-udepur forest division.



← Effect of monoculture plantation on forest areas. Zoz – Kevdi road. Note the stunted Butea monosperma (Lamk.) Taub. trees in front.

Grazing – minor but destructive threat to the forests. View of grazing along dry riverbeds. Kevdi forests.



← Grazing in dense forests patch. Dolariya range of Chhota-udepur forests division.

young trees of species like Tectona grandis L. f. Although the tribals get the wood required for house building by act, illicit cutting takes places **PLATE 51**.

Though it is known that NTFPs play vital role in tribal economy, the most important point to be discussed under is the improper as well as destructive methods of collecting the NTFPs or MFPs. In case of small herbs generally whole herbs are collected, dried and used as medicines. While in the case of climbers, shrubs and trees, one of the plant parts is used. Therefore, as and when Important plant parts are used, the reproduction and subsequent survival of progeny is affected resulting into a very gradual disappearance or depletion of species number.

In case of gums and other exudates, the bark is roughly chopped down. In such cases either the species dies of ringing or by a secondary infection. Some common species that meet such fate are Sterculia urens Roxb., Anogeissus latifolia Guill., Terminalia arjuna (Roxb. ex DC) Wt. and Arn., Bombax ceiba Linn., Boswellia serrata Colebr., and Borassus flabellifer Linn.

Another point that needs efforts is the collection of material in a large quantity than the actual need of a tribal. E.g. wood for agriculture implement, house repairs or material for thatching the house or the medicine to treat their diseases. Since the user collect himself, just guided by the human mentality, and also the fact that one does not have to pay for it, one collects liberally, more than the actual need and leftover is the waste.

CULTIVATION WITHIN THE FORESTS AREAS

This is not the common practice in the area. It is very difficult to realize that the strict maintenance of law and order is impossible in such areas that is economically backward. Another point is the mind set of the tribal people. Forest is their property and all the surrounding land is their motherland/homeland. Obviously they are therefore possessive and such feelings are very strong among them. Their feelings towards their nativeness and closeness with the forests restrict them to obey any outsider. Hence some marginal encroachments for cultivation into the forest areas take place mainly due to the poor social and economical conditions in which this locals live.

FORESTATION PROGRAMMES

Reforestation of forestlands and degraded hills has been attempted and one must appreciate the magnificent task fulfilled by the officials of the forests

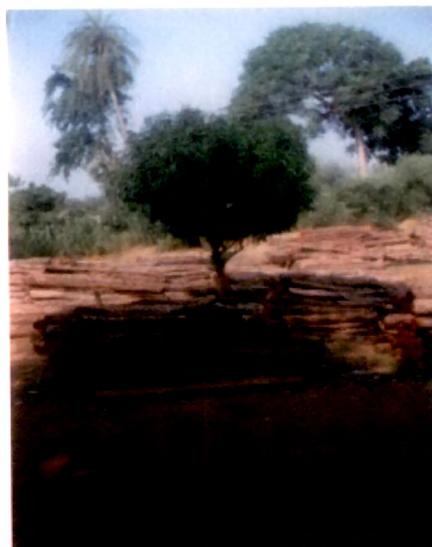
PLATE 51



Recovery of wood pieces- 1



Recovery of wood pieces- II



Timber wood recovered by forest officials -Dolariya range.

department. It is interesting to note here that when the people hardly thought about the biodiversity and its conservation, they did think about the benefits that can be obtained from the forests. Out of this thought, more attention was given to the trees like Tectona grandis L. f., Acacia chundra Willd., etc., converting these mixed forests or miscellaneous forests into a large sized monocultures. Generally such monoculture plantations receive utmost care like regular irrigation, thinning, pesticide spray, fertilizers and manuring etc. Such artificial ecosystems cannot derive benefit for longer span. In the area explored the classic example are the monocultures of Acacia chundra at Pavi-jdepur range and Eucalyptus plantation at Tejgadh village of Chhota-udepur range.

INFLUENCE OF URBANIZATION ON SOCIAL LIFE

In olden days tribals believed in their own deities like a stone or wooden idols and wooden magics. The village "Badava/Badavo" (witch doctor) was their spiritual leader. Right from the birth to death the tribals used to take the advice of the Badavas PLATE 52. The scenario has greatly changed now. The dresses, ornaments, food etc are under the influence of urbanization. Vehicles also have become common among the tribals. They now spend money for the purchase of items made out of plastic and similar materials.

DEVELOPMENTAL PROJECTS

Each and every project, has its influence on forest areas and exhibits adverse effects on the ecosystems. Dams, roads etc occupy large areas in mainly two ways.

- 1). The establishment of the dams, roads etc utilizes the acquired land.
- 2). Displaced people have to be rehabilitated on another cleared land.

Since, the detailed baseline data are not available, it is not possible to estimate where and what kind of loss has occurred due to such developmental projects. Much work is still required to be done on this line in the study area especially Kawant and Chhota-udepur ranges.

POLLUTION AND OTHER THREATS

Pollution occurring due to the industries and automobiles affects the soil, water and air. Chhota-udepur being one of the major mining areas, having the largest flourspur deposit at Kawant range, the impact of pollution on vegetation is clearly seen. A lot of accumulation of dust is observed on the leaves of plants. This aspect thus requires detailed study spread over a long period of time.

PLATE 52



“Badavo” Tribal Witch Doctor and their family as well as community head. Chhota-udepur.