COMMENTS ON THE PROPOSED INTENSIVE FOREST MANAGEMENT IN THE TEMPERATE CONIFEROUS FORESTS

Ali Asghar Khan*

Summary. *Intensive forest management is being introduced in moist temperate forests of Kaghan Valley based on a combination of shelter-wood system with clear-felling of trees down to an advanced growth of upto 12 inch d.b.h., with artificial regeneration, mainly through planting. Necessary planting stock is being raised in the nurseries consisting of conifers with emphasis on deodar (Cedrus deodara) and Kail (Pinus wallichiana). The prognosis of this approach is discussed briefly, to create awareness about the effects of unwarranted changes in environment and need for studying the factors involved on pilot basis.*

Introduction. The need to manage the valuable coniferous forests of northern Pakistan on intensive basis has been felt since the early decades of this century. Introduction of Indian shelter-wood system to chir pine (Pinus roxburgii) and Blue pine (Pinus wallichiana) forests in Hazara District was the pioneer effort in this regard in the early twenties. Since independence, this need has been felt more acutely owing to the scarcity of forests and rising demand and price of the wood products. In the late sixties, a model working plan was prepared for intensive management of Kaghan reserved forests (2), by the Economics branch of the Pakistan Forest Institute in collaboration with the U.N.D.P. experts. The revision of the working plan for Kaghan reserved forests had been undertaken on these lines in the early seventies and this plan is now proposed to be put into operation under aid from the German Technical and Economic assistance (3).

The Rationale. The desirability of applying an intensive management system with emphasis on artificial restocking is quite obvious, not only from the commercial point of view but also from the fact that the natural regeneration under a selection system is either insufficient or takes too long to establish. The biotic hazards to which these forests are generally exposed and the need to shorten unreasonably long rotations further accentuate the necessity of applying intensive management, commensurate with efficient reforestation and maximum utilization of the available resource. Given the site conditions and normal environs and given the necessary skill and infra-structure, there can be no better substitute, albeit with some exceptions, to such a system where man has the entire control over all the facets of crop husbandry.

The effects. Although highly desirable, yet intensive management based on clear-felling needs to be applied with caution. The abrupt introduction of the system means drastic changes in the local environment which may entail a constant change that might

* The author is Divisional Forest Officer, Aerial Forest Inventory Project, Peshawar.

be entriely different from the biological balance attained through centuries of ecological evolution. The conversion of once luxurient forests into deserts, in the tropics as well as in the Indus basin, may be a living example. This grave possibility demands a pragmatic approach towards actions involving lasting consequences.

Results of research. No studies have been conducted locally on the effects of clear-felling in the high hill coniferous forests. Much research has however been done abroad and the effects of clear-felling have been studied in sufficient detail. The effects of fire, which are considered comparable to clear-felling when the fire damage results in destruction of vegetative cover, have also been the subject of intensive study, specially in the United States. A valuable research has recently been concluded summarizing findings and identifying certain areas where major interference with the natural biological system may cause damage (1). These areas, termed as least stable sites, comprise the following:

(*i*) Steep, long slopes

(*ii*) Shallow soil over impervious bed rock

(*iii*) Large precipitation surplus

(*iv*) Short, cold, dry or otherwise unfavourable growing season

(*v*) Climax forest type on sites

(*vi*) A site with no history of fire or catastrophic forest destruction.

Besides destruction of the natural ecological balance, the loss of nutrients from the soil due to removal of organic matter and leaching, without being adequately replenished, may be another important factor. The shallow soils developed under a particular pedo-climate may be quickly lost destroying the site productivity and rendering it entirely inert and sterile.

If the conditions of forests proposed to be worked under intensive management are studied in the light of the above classification, it will be abundantly clear that these forests tend to belong to the above categories of the least stable sites. It will be very unwise if such areas are subjected to severe management changes over-night without prior research or demonstration. It will be more so when it is kept in view that sufficient financial backing may not be forthcoming and the present socio-political conditions as well as scientific and administrative skills may not at all be conducive for such a delicate enterprise.

An alternative. The need for such cautious approach is also valid when a more favourable recourse is available. It is a common experience of all foresters and can best be demonstrated on many spots even today that natural regeneration springs up profusely where-ever adequate openings are provided or created in the canopy. The only requirement is a proper, not too drastic openning and affording proper protection. Even Silver fir (Abies-webbiana) considered to be a problem species so far as its regeneration is concerned, is known to regenerate successfully whenever partial openings occur in the canopy.

Natural regeneration has its own merits. It is inexpensive, extensive, rapidly obtained and covers the ground closely and fully. Artificial planting cannot compete on any of these scores. For our conifers particularly, there should be no difficulty in natural regeneration, given the favourable conditions. The fear of any calamity occuring to this regeneration is very less and these get established in thick crops at a very fast pace.

The only effort required of the foresters in this respect is the creation of favourable conditions and providing adequate protection. Any losses or blanks can easily be beat up by artificial aids. The affording of protection and provision of minor artificial aids are far less expensive as compared to total planting. This will be in addition to the thorough regeneration cover and protection of the ground obtained against erosion hazards without much loss or deterioration of natural environmental conditions. It will be in the fitness of things that a more natural and promising system is applied unless otherwise essential.

It is, therefore, imperative that the new intensive management system is first tested on a pilot basis vis-a-vis a modified shelter-wood system which is ideally suited for our high hill coniferous forests.

References

1. DEBYLE, N.V. 1976. Fire, Logging and debris disposal effects on soil and water in northern coniferous forests. U.S.D.A. Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah 84401. (pp. 201-212)· U.S.A.

2. FOREST ECONOMICS BRANCH. 1968. Proposed intensive working plan for the Kaghan Reserved Forest (manuscript) Pakistan Forest Institute, Peshawar.

3. KHAN, ALI AKBAR. Revised Working Plan for Kaghan Reserved Forests, N.W.F.P. Forest Department (under print).