

Thinning in natural forests: an experience from Nepalgunj Forest Development Project

D.P. Parajuli¹ and S. M. Amatya²

Thinning is one of the important silvicultural operations, which aims at overall growth of the remaining stands. Thinning operations, especially in natural stands, are very limited. Recently, in the Baniyabhar Sal Regeneration Area belonging to Nepaljung Forest Development Project has been thinned out. The thinning works carried out in that area, the forest products obtained and the money realized at the constant rate (Fiscal Year 2000/2001) have been briefly described. It has been expected that this thinning exercise would be a reference for similar works in future.

The approach

Thinning works was carried out in October / November 2000 at the Sal Regeneration area of Baniyabhar forest. Sal regeneration area having the size of 0.25 hectare (ha) was laid out. Before thinning the species were enumerated and their diameter at breast height recorded. Out of the total (436 trees), 235 trees of various species and having different diameters were thinned out leaving 201 trees (53.9 percent) to grow. Out of the thinned out trees, the maximum diameter at breast height (over bark) of Asna (*Terminalia alata*) was bigger (42 cm) than Sal (*Shorea robusta*) (15 cm) and others (23 cm).

Findings

The thinning grade

Heavy thinning was carried out removing many but not all codominant trees. It was thought that the heavier thinning would create temporary canopy gaps, which would accelerate crown expansion for the remaining trees. Looking at the original density of trees (1744) and the removed ones (53.9 percent), it may be very well anticipated that D grade of thinning was employed.

Composition of species

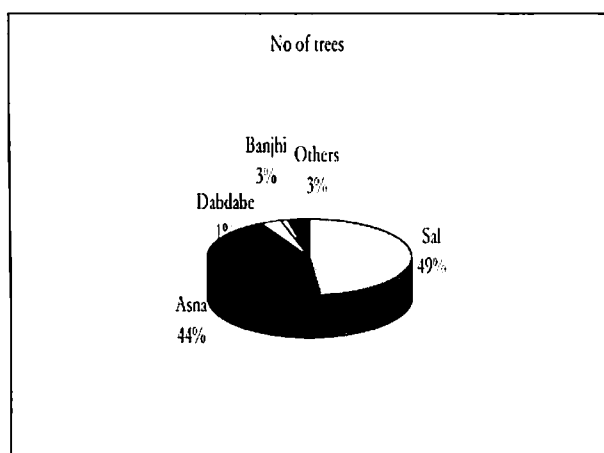
The area could be categorized as Mixed Tropical Hardwood with Sal (*Shorea robusta*) and Asna (*Terminalia alata*) being the major tree species (Figure 1).

Yield of forest products

The thinning yielded 0.25 chatta of firewood, 28 koro of Asna, 16 Koro of Sal, and 11 Koro of Dhauti (Miscellaneous species) comprising a total of 10 cubic feet. Koros are small timbers used for rafters and perkins for construction of small huts. Normally the size of koro is less than 10cm diameter and up to 4m length. These are obtained from saplings and top portion of

felled trees. It also yielded 10 number of *Balli* (small sized timber, less than 25 cm in diameter, used for constructions).

Figure 1: Proportion of tree species in thinning area



Cost incurred

Before thinning brush cutting activities were done, as the area was bushy. A total of 46 man-days were incurred in the thinning operations. The wage rate per labor was NRs 70 per day. Therefore, a total of NRs 3220 per hectare was incurred for the thinning activities. The breakdown of the costs were as follows:-

Activities	No. of man days
Brush cutting	8
Actual thinning works	20
Chatta preparation	18
Total	46

¹Chief, Foreign Aid Co-ordination Division, Ministry of Forests and Soil Conservation, Kathmandu, Nepal

² Director General, Department of Forest Research and Survey, Babar Mahal, Kathmandu, Nepal

Revenue generated

The revenue figure shows that a total of NRs 29,640 per hectare was generated from the thinning activities. The income generated from different products were as follows:-

Type of products	Income (NRs/ha)
Fuelwood	8,500
Koro	3,640
Poles	17,500
Total	29,640

Conclusions

Thinning in natural forest is one of the important silvicultural operations. It is expected that the trees retained after thinning would get adequate light and moisture and less competition for below ground nutrients there by the volume of these retained trees would be more. As the thinning was carried out only in last October /November one has to wait for the overall growth performance of the retained trees.

The thinning yield indicates that fuelwood and small construction timber are the major components from natural Terai mixed hardwoods. The income expenditure figure suggests that revenue generated is more in comparison to the expenditure. Initiation of thinning operations is not end itself. Growth data has to be continuously collected and monitored so as to examine the expected silvicultural out turns. It has been suggested that similar type of thinning works should be initiated in other sites having similar forest conditions.

Expectations from the study

As a very little work on thinning operations have been carried out in production forests, and grading on thinning have not been studied yet, this study is expected to provide useful information for similar future works. Such information will help carrying out thinning operations while implementing operational forest management plan. It has been expected that the result of the present study, although small in scale, would be useful for field level officers and forest managers.