

Wood Resources for Pulp

The increase in population (over to existing 547 million) and the rising standard of education and living means a big jump in the requirement of pulp and pulp products. The forests of the country, therefore, have to bear a big responsibility in meeting these requirements. Unlike other productions, forestry production is not quickly stretchable as plantations cannot be grown to harvesting stage in matter of a couple of years (even in case of fast growing species), hence the immediate solution is to maximise utilization of the existing resources.

At a very early stage, in this paper, I have to mention that with the rise in standard of living in developed countries the use of raw wood as such has almost disappeared and today the requirement is that of processed materials. In India, however, the situation is different as there are some areas where the use of firewood represents a big form of wood use and a case in point in Kashmir Valley where even some timber part of the resources is being converted into firewood to cope with the firewood requirements of Srinagar. This is also the case in many forest areas which are accessible to some big cities. Here again there is no immediate solution as the demand for fuel will grow without any chance of a reasonably cheap substitute in the near future. To find additional raw material resources in such areas is,

To cope with the fast increasing requirements of pulpwood material in India, it has been stressed that the resources of a few pockets of good forests in the country be fully utilized.

A case has specially been made on the use of wood resources of Andaman and Nicobar group of Islands. It is suggested that the wood be brought to the mainland in chip form with a view to establishing a big pulp mill on the mainland.

therefore, only possible if annual cuts are increased by bringing down rotations, by working forests which are hitherto considered inaccessible and by carrying out heavier fellings (even clear felling) in areas where crops have reached a stage of stagnant growth or in some cases even negative growth. There are not very many such areas in the country, but still wherever forest resources exist these should be tapped to fullest capacity.

A few pockets of low population and a large proportion of forests however exist in parts of the country. Godavari Catchment in Central India and Andaman and Nicobar group of Islands are two such cases in point.

Godavari Catchment is situated on the mainland and with ordinary development of infrastructure (which is being actively pursued) it will be possible to extract and utilise the wood resources properly. V.K. Seth (*Indian Forester*, Jan. 1972) has already discussed the resources of this area and the possibilities of chip export to Japan from the catchment. Most of what Seth has said in the paper is true, but there are no possibilities of export of chips to Japan because Japan, though a bulk importer of chips, is not interested in hetero-

geneous types of hardwood chips. The present position of import of chips in Japan is that it is importing about 6 million m³ of wood chips (both hardwoods and softwoods) annually. Due to pollution fear it has been estimated that the maximum that Japan would like to import in the shape of chips by 1980 would not be allowed to go above 10 million m³. Japan needs wood chips for pulp and paper products, but it is seriously thinking of processing the chips outside Japan (as a Japanese industry of course) and import the processed materials in the shape of pulp and paper. Even in this 10 million m³ Japan would like to have mostly softwoods and amongst hardwoods it is mostly interested in rubberwood and a few mangroves. Japan is not at all interested in mixed hardwoods. Even otherwise the use of hardwoods is very tricky, particularly when the mixtures are not homogeneous. Why should Japan, therefore, import out hardwood chips where more than a dozen different species are involved and that also in an inconsistent proportion particularly when Japan does not want to expand its imports of chips and also when it can, alternatively, get specific chips from areas close by such as Malaysia, Indonesia, Sri Lanka, Philippines.

Ramesh Chandra, Chief Executive Officer, Logging Training Centres Project, P.O. New Forest, Dehra Dun.

In India, the situation is, however, completely different because we are short of raw material and have, of necessity, to use all types of mixtures to cope with our requirements. It is also heartening to note that, as far as the use of hardwoods is concerned, India both at Government and private industry level, has got the maximum information and by far the biggest technical know-how. The resources of Godavari Catchment will, therefore, find fuller utilization in the country itself in the not too distant a future. The author has recently been connected with a logging survey in the area and he has no doubt whatsoever about the feasibility and possibility of the utilization of Godavari Catchment resources. Already big headway is made and progress is expected to be accelerated very soon.

With regard to Andaman & Nicobar group of islands, the situation is completely different. These islands are situated on the main sea route of South East Asia. There is also a fair proportion of mangroves. So Japan can be considered as a prospective buyer of the chips of mangroves and a selected few other species provided they are allowed to arrange their own shipping with modern huge bulk carriers. Even here Japan will not be interested in heterogeneously mixed hardwoods. Why not, therefore, try to use the resources of these group of islands in the country itself particularly when we have shortage of raw material and the technical know-how on the use of hardwoods exists to some extent. It has been estimated that the non-commercial species and the waste wood of commercial species can provide approximately 1.5 m³ of solid

wood chips annually. This is a large quantity of wood and can cater to a daily production of over 1200 tons (which is a very big unit from Indian Standards).

Coming to the siting of the mill the best would have been if a pulp mill could be established in Andamans itself, but this does not seem possible due to restricted water resources in the island. It may look surprising, but it is true, that Andamans do not have enough permanent supply of water in spite of two distinct heavy monsoons in the year over there. Due to small width of the islands all the rain water rushes to the sea and bulk storage is not possible. The mill will, therefore, have to be sited on the mainland coastal area such as in one of the developing ports like Paradip. Andamans has a number of natural harbours, so shipping of wood can be efficiently organised. In the island itself much of land transport is not involved; so the development of modern land communications (infrastructure)—which are rather backward—will not be a very essential activity.

For the transportation of pulp wood material the best method will be to introduce chip transport as chippers can be conveniently placed along the coast from where these can be blown (pneumatically) straight to the ships. The method of chip transport has been fairly standardized in various developed countries and it has been found to be more economical than transportation in log form etc. One definite advantage is the ease in loading and unloading which are the two main items of expenditure in sea transport. Another big advantage is the high speed of operation

which reduces the need of the number of ships and the harbour charges.

It may be of interest to mention here that in case of resinous and gummy species, it is a distinct advantage to resort to chip transport because storage of chips reduces resin and gum problems on the paper machine. Those who are against chip transport method, sometimes argue that there is considerable deterioration in the stored wood chips. This is true to some extent, but not a great deal, and Japanese importers are experiencing this particularly when they are working in tropical wet areas like Malaysia, Indonesia, Philippines etc. They, however, regulate the flow in such a way that the storage is not far too long a period and little bit of deterioration is compensated by convenience and speed of handling.

A very recent development on storage of chips is worth mentioning for the benefit of the delegates (because I am sure that few know about this.) *Radi-pulp Research Ltd., a subsidiary of Vancouver's Radiation Development Co. Ltd., has made a surprising discovery while trying to find out ways to reduce deterioration during storage of chips. In their pilot scale trials on bombarding the chips with electrons, it was found that the treatment speeds the pulping process which has indicated power savings, reduction in lignin loss and reduction of pulping chemical requirement while noticeably increasing yield. The tests are going to be verified at the 1000 ton/day Toledo mill which will tell us the commercial findings as well. On the deterioration side also, the programme initiators feel that by

years end results on reduction in deterioration during storage will also be known at least on laboratory scale. In any case for the time being we may have to live with some chip

deterioration and this can be adjusted towards the normal cost of production and in money terms it is lower than the savings by means of handling facilities and the speed of loading

and unloading

*Chip irradiation "first" benefits the pulp industry. By Duncan Cumming B.C. Lumberman. Editor—B.C. Lumberman, Vol. 56, Number 5, May 1972.