

which were the subjects of the research projects.

The editors state that it was decided to focus this work on the technological and economic implications of alternative management strategies without considering the longer-term biological and environmental issues. This was done in order to encourage industrial participation in the programme but it remains to be seen whether or not such an approach is still viable in Australia. Their report clearly shows that a significant proportion of Australia's future hardwood needs can be met by thinning some regrowth forests to increase wood production. It may even be true, as they state, that it is simplistic to believe that there is a choice between plantations and logging native forests. But to our trans-Tasman neighbours it should be obvious that the public and their elected representatives are keen on simple solutions to forestry problems!

This is nevertheless a very readable report on an ambitious and successful cooperative project. It should be prescribed reading for anyone interested in the management of natural forests, and also contains useful information relevant to eucalypt plantations and the utilisation of young eucalypt wood.

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International passport for goods in transit

Almost every log of timber leaving New Zealand carries its own "passport" – a barcoded label with a unique number which identifies its vital statistics of type, grade and origin.

It is essential information a ship's captain needs to know, like ballast, to keep the ship steady. It is also used by everyone else along the transport and distribution chain to keep track of the goods, whether logs, food, machinery or other products.

Labels on logs relate to the forestry company which grew the trees, the transport company taking the logs to dockside, the stevedores in the marshalling yard handling them, the ship taking them overseas and their ultimate destination.

Harry Malone, Managing Director of one of New Zealand's biggest labels and barcode manufacturers, Allmark Industries in Auckland, says labels and barcodes are passports – unique travelling numbers – for any goods in transit within New Zealand or overseas.

Internationally, barcodes with a grid of thick and thin black lines or computerised numbers, identify all details of the

product, from its country of origin to its batch number.

Manufacturers are increasingly asked to barcode the outside of packages as well. A supplementary international code has been devised to go on the outside of cardboard cartons and other packaging to identify the number of units inside.

Transport and distribution industries are paying a lot more attention to labelling and barcoding for all types of goods, from logs to trays of kiwifruit, says Mr Malone. Scanning systems are now an integral part of the manufacture, transport and sale of goods.

They are also security measures to keep track of goods and to ensure delivery. Barcoding is increasingly used in-house to improve stock control, reduce handling and eliminate errors.

At Tauranga port, export logs have barcoded labels stapled on to them before delivery to the ship. Each log's unique number is downloaded into a central computer, where every detail about the log and its movements will be recorded.

Bill Rutherford, manager of a major company in charge of marshalling and labelling the timber at Tauranga port, says the changeover from a manual system to barcoding has been a steep learning curve for the industry over the past few years.

The kiwifruit industry was one of the innovators with pallets of kiwifruit barcoded at dockside. But unlike kiwifruit, which cannot be loaded in wet weather conditions, timber logs are moved in any weather. Labelling hardware technology had to be developed to withstand the snow, rain, sleet and burning sun.

"Barcoding has to be done to eliminate errors," says Mr. Rutherford. "The industry cannot function without it. That is the bottom line. We're motoring very fast. We'll see some sharp innovations this year as more barcoding is used for marshalling and stevedoring."

previously been abused. Developments in Sweden also prove that planned, cultivated forestry can be successfully combined with action strategies that safeguard and preserve the values inherent in nature itself as well as biological diversity, the author adds.

Plantation forestry – road to revitalise a natural resource

Well-organised plantation forestry is perhaps the best example of a strategy aimed at solving the problems of raw materials. The systems must be based on an economically sound approach in harmony with the great natural cycles that control the global environment, says Jan Remröd, a Swedish forestry professor and author of the new book "The Forest of Opportunity".

Plantation forestry is based on thoroughly planned silviculture and management, as well as prudent application of the forest resources. Because growth and felling are in balance, the forests will never run out, but continue to be a constantly producing natural resource.

It is in this way that Swedish forestry has been pursued for more than a century. Nowadays, there is more forest

in Sweden than ever before and forests have been drawn upon as a source of raw material for an industry which has made a very tangible contribution to the development of prosperity.

It should be remembered, however, that at the end of the 19th century the forests of Sweden were in a deplorable state, Professor Remröd says. The situation was very similar to that being experienced today in many of the developing countries. Then work got under way at the turn of the century on the enormous task of restoring the forests. Bare lands were afforested and sparse forests made larger and denser. This work was extremely successful. During the current century, the Swedish timber stock has almost doubled, while annual growth has trebled. This proves that it is possible to revitalise a natural resource that has