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# The Market Situation in Forest Products in the Year 2000

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THE MARKET SITUATION IN FOREST  
PRODUCTS IN THE YEAR 2000

Demand, Supply, and Trade Group

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## PREFACE

This paper is the result of a joint working group held at IIASA during the Summer 1982. A first version of the paper was prepared by

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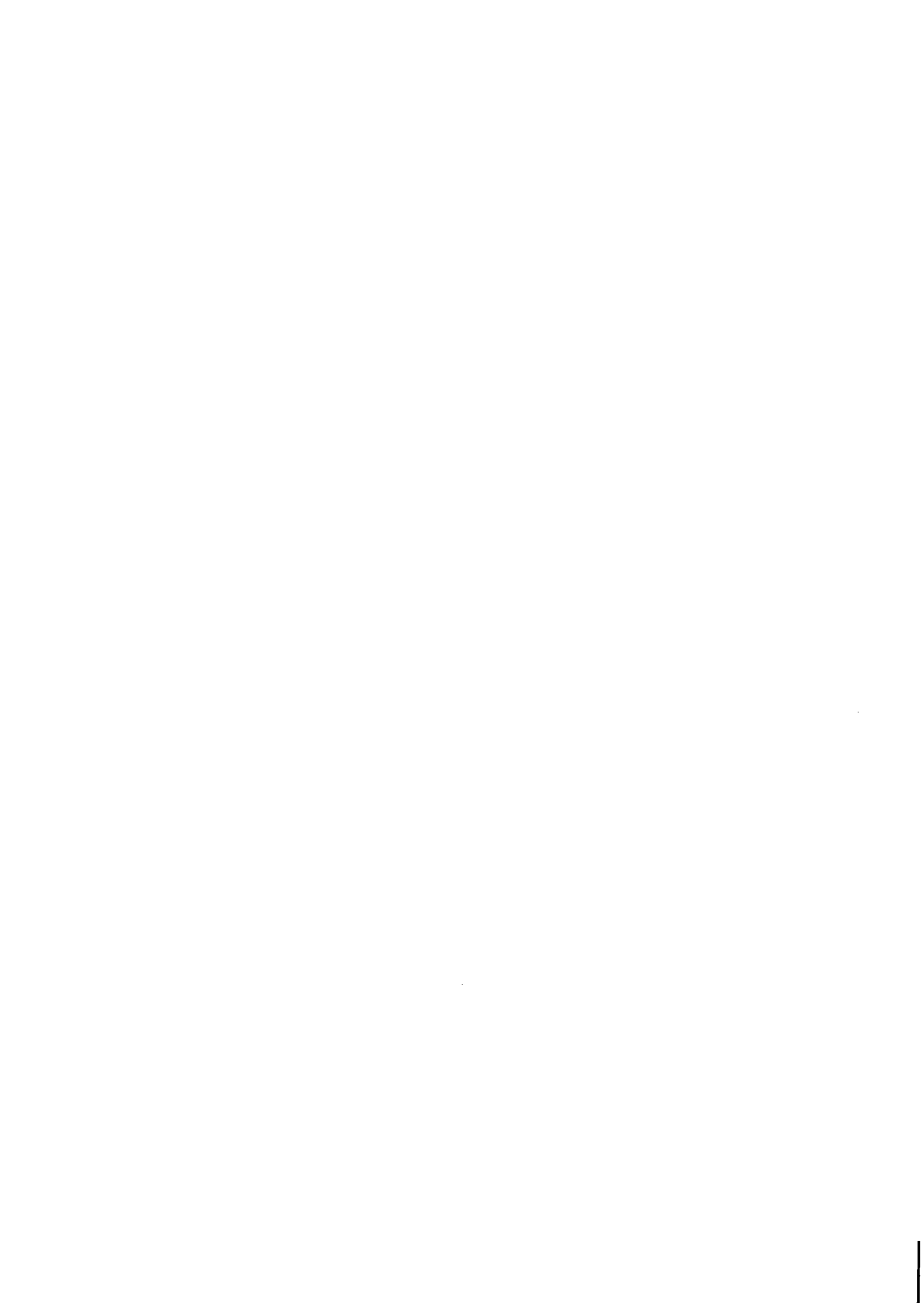
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## SUMMARY

About the future trade of that scarce resource -- wood -- the same general pattern in the future is foreseen as in the past for the grades pulpwood and chips. This means that Japan and Western Europe will be the main importing regions and the major exporting regions will be the US, the USSR and Canada. For these grades the price is expected to rise for the period up to the year 2000. In general, the price of pulpwood is expected to rise more than the general inflation rate in low wood cost regions and at the same rate in high wood costs regions. In these low cost regions the expected increase of wood costs will be 20-35% in constant dollars.

For the grade softwood sawlogs a declining trade is foreseen for the future. More and more of this grade will be used domestically. A shift in the trade pattern is also foreseen. The shares of the US will decline and the shares of the USSR and New Zealand will expand. Also for the grade softwood sawlogs there is an expectation that prices will rise more than the general inflation in low wood cost regions and at the same rate in high wood cost regions.

For the grade hardwood sawlogs dramatic structural changes are foreseen both in production and trade. The major supply regions in the past will stabilize at current cutting levels or at a lower level in the future. Another structural change will be the future trade policies of the main supplying regions. In the future hardwood sawlogs will increasingly be used in the domestic production of hardwood lumber. One result of these conditions will be that the international trade in hardwood sawlogs will decline. The situation that hardwood sawlogs represent a scarce resource will push the price upwards dramatically.

Major shifts in the trade pattern for the grade softwood lumber are not foreseen in the future. Western Europe will remain the world's largest importer of softwood lumber. The main supplying region for this area will be Scandinavia. In the future major supplying regions on the world market will also be Canada and Scandinavia. The general conclusion about softwood lumber prices is that prices will rise approximately to reach the level of inflation.

For the grade hardwood lumber a decline in consumption is foreseen in the developed countries. On the other hand the consumption in Asia will grow rapidly. South and East Asia are expected to remain the major hardwood lumber exporting regions in the future. These conditions lead to upward pressures on hardwood lumber prices in Asia and a slow growth of prices in developed countries.

Demand for the grade softwood plywood will stabilize in the future which will lead to significant structural changes in the entire world. On the other hand, the demand of hardwood plywood will increase in Asia but will, as for softwood plywood, decrease in developed countries. The real price of hardwood plywood is projected to increase.

A substantial growth in production of white chemical pulp is needed in the future to provide the world's paper producers. Canada will be the main supplying region of high pulp quality. Scandinavia will continue to expand the value-added exports of finished products at the expense of a reduction in pulp exports. Canada is in a position to remain the price leader for white chemical pulp. In general there will be strong, upward pressures on pulp prices in the future.

For the grade paper and board in general a slow or even negative growth is foreseen for the grades newsprint, sack, wrapping papers, carton boards and other kraft papers. The most rapid growth in consumption is foreseen for printing and writing and packaging grades. The greatest potentials for investments in production of paper and board is in North America.

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## BACKGROUND

The main task for the Forest Sector Project at IIASA will be to build models for use in policy analysis. The main task can be divided into two primary tasks: i) Forest Sector Analysis; and ii) Analysis of World Trade in Forest Products (See Adams, Kallio, and Sappaetae, 1982).

By experience it is well-known that it is difficult to catch all variables which, for example, will influence the world trade in forest products in a formalized mathematical model. The information generated by a model must be complemented by "soft" information about future trade. By including this "soft" information in the developing stage of a formalized model, this "soft" information can be used as a check of the results the model will produce. The purpose of this paper is to build a hypothesis or a mental model about the market situation in the year 2000 by constructing a scenario about this market situation. This scenario can also be used as a reference paper in the further stages of the primary task "Analysis of World Trade in Forest Products" of the Forest Sector Project at IIASA.

In constructing the actual scenario, the following exercise was conducted. A detailed scenario of prospective developments in world forest products markets was developed from an array of public and private sources covering the period to the year 2000. Examples of the public sources are investigations made by research organizations throughout the world, investigations made by national authorities in different countries, investigations conducted by international organizations like FAO, ECE, the World Bank, Asian Development Bank and so on. Examples of private sources are the market analysis of big consultant firms like Jaakko Pöyry, Stanford International, Data Resources, English China Clay and so on. These investigations involved a lot of thinking about the future market situation. The scenario presented in this paper is an attempt to produce a consistent scenario about the market situation in the year 2000 by using all the sources noted above.

SCENARIO - MARKET YEAR 2000 IN MORE DETAIL

The following scenario, presented in the form of a number of statements represents the market situation in the year 2000.

Pulpwood and Chips

- o The major importing regions will be Japan and Western Europe.
- o Compared with today's situation, the total harvest in the world of pulpwood is expected to increase by 30-40% by the year 2000.
- o Even with an increased harvest of domestic pulpwood, Japan's imports of pulpwood are projected to increase substantially.
- o The most likely sources to meet the projected increase in Japan's pulpwood imports are Australia, the USSR and Papua-New Guinea and to a lesser extent the US and Canada.
- o If Japan chooses a strategy instead to import more pulp and paper in the grades in which the Japanese industry is least able to compete (e.g., newsprint, kraft linerboard, kraft papers), this will affect the amount of imported pulpwood. The main impact will be on Japan's imports of softwood chips.
- o Modest increases in the annual harvest are expected in Western Europe.
- o Western Europe will become a larger importer of pulpwood.
- o The major external supplier to Western Europe will be the USSR and the US. But new suppliers will be North and South Africa.
- o The major exporting regions will be the US, USSR and Canada.
- o The largest exporting region in the US will be the Western and Southeastern regions. The US South can even be of interest to Western Europe.

- o There will be a further harvest increase in the USSR. Most of this increase, however, is expected to be used for domestic consumption.
- o The net export from the USSR around the year 2000 is projected to be 10-15 million cubic metres.
- o Canada will continue to be a net exporter of pulpwood; however, the outward flow is expected to decline.
- o An increase in Australia's and New Zealand's output of pulpwood is projected.
- o Around the year 2000, Australia will have an export capacity of 7-10 million cubic metres.
- o The price of pulpwood is expected to rise more than the general inflation in low wood cost regions and at the same rate in high wood cost regions.
- o Scandinavia will keep their tight wood supply.
- o It is expected that British Columbia's relative wood costs (in fixed prices) will increase by an estimated 35% in the year 2000.
- o In eastern Canada, the wood costs (in constant dollars) will increase by at least 30%.
- o In Sweden and Finland, the wood costs will follow the general inflation.
- o There is a possibility that the wood costs in the southern US will increase by at least 20% (in constant dollars) by the year 2000.
- o On the other hand there is also a possibility that price of pulpwood in the US south will stay at the current level or decrease on a real basis. This projection is based on a future growing inventory of softwood pulpwood, increased chip supplies but most important there will be a very large hard wood supply which is going to be utilized more and more in the industry.

- o Wood costs in Brazil will escalate at the same rate as the general inflation.

Softwood sawlogs and Veneer logs

- o The export of softwood sawlogs from the USSR will increase moderately until 1990, then there will be an increase in exports.
- o The major markets for these exports will be Japan and Eastern Europe.
- o The US will experience a decline in exports of softwood sawlogs.
- o Japan will be affected most by the decline in the US output.
- o The large potential for expanding Canadian output of softwood sawlogs will be constrained by the economic inaccessibility of the resource.
- o Throughout all of Canada the production of softwood sawlogs will grow slowly.
- o Canada's trade in softwood logs will remain relatively small for the remainder of the century.
- o Japan's production of softwood sawlogs will increase substantially in the future.
- o In accordance with this increase, imports to Japan will decline.
- o A shift in the trade patterns is also foreseen.
  - US shares will decline.
  - The USSR's and New Zealand's shares will expand in the Japanese market
- o Sweden, Finland and West Germany have been the largest suppliers of softwood sawlogs in the domestic Western European market. Produc-

tion growth in these countries will be modest in the future, if any growth.

- o China's harvest of softwood logs is projected to grow rapidly.
- o Brazil's production of softwood sawlogs is expected to grow steadily, although at a lower rate than in the past.
- o The majority will be used for Brazil's domestic market.
- o If the political situation in Chile is stable, the level of softwood sawlog production and exports could be much higher in the future.
- o Log production in New Zealand will be higher in the future unless a catastrophe will happen to the monocultures of Pinus Radiata.
- o Even the exports from New Zealand of softwood sawlogs will expand.
- o See the section on "Pulpwood" concerning price development.

#### Hardwood Sawlogs

- o Large inventories of lumber are found in tropical hardwood forests, but they are in many cases unexploitable because of a lack of existing infrastructure and relative paucity of commercial species. This situation is not expected to change during the next 20 years.
- o The production in the US and USSR is expected to grow at very slow rates in the future. This production will have little bearing on global movements of hardwood logs.
- o In Indonesia, one of the world's biggest producers of hardwood sawlogs, a major constraint to further expansion is forest degradation. Another constraint is the future trade policy in Indonesia. Overall, the future production of hardwood sawlogs will grow significantly in Indonesia.

- o South Korea and Taiwan will become less important in the hardwood log trade in the future.
- o Malaysia will be hard pressed to maintain current production levels in the future.
- o Log production in Malaysia is expected to stabilize at current cutting levels, but log exports will be reduced to zero in the future due to domestic production of sawnwood.
- o To meet growing domestic demands for lumber, the Brazilian harvest will continue to increase steadily, although at a slower rate than in the past.
- o Chinese production is expected to grow very rapidly to meet domestic requirements.
- o Production of hardwood sawlogs in Papua-New Guinea will grow in the future. Exports are expected to increase substantially by the year 2000.
- o Production of hardwood sawlogs in West and Central Africa will expand slowly.
- o Exports from Africa will continue to decline.
- o The price of hardwood sawlogs will increase rather sharply in Asia and Africa.

#### Softwood Lumber

- o U.S. production is projected to be only moderately higher during the next 20 years when compared to the current situation.
- o Both imports to and exports from the US will increase during the next 20 years.

- o Western US softwood lumber industry is placing more emphasis on supplying markets abroad, but the production in this region is expected to decline.
- o The Southern US lumber has a favorable softwood supply situation, and is also expected to increase output for export.
- o The projection for Canada's production of softwood lumber indicates only modest growth over the next 20 years.
- o Canadian softwood lumber will continue to be produced primarily in the western provinces.
- o Canada's increase in production will be sufficient for a high level of export.
- o The destination of Canada's exports is not expected to change significantly. The largest export markets will be:
  1. US
  2. Japan
  3. Europe (especially the UK)
- o Japan's imports of softwood lumber will increase by 15-20% over the next 10 years.
- o The West Coast of Canada and the US will be the main suppliers of most of Japan's imports.
- o Major shifts in the pattern of Western Europe's supply and trade of softwood lumber are not expected in the next 20 years.
- o The EEC will remain the world's largest importer of softwood lumber.
- o Scandinavia will continue to be the most important exporter to Western Europe.

- o USSR exports of softwood lumber have been given low priority as a means of earning foreign exchange. It is expected that in the future softwood will be given a higher priority concerning the earning of foreign exchange, and this will result in increased exports to Western Europe.
- o Compared with the current situation, Chile's exports are predicted to triple during the next 20 years.
- o New Zealand's export potential of softwood lumber will be approximately 1.5 million cubic metres by the year 2000.
- o North Africa will be an important importing region in the future.
- o Price links between the US and world markets will exist in the future.
- o Lumber prices will depend on wood costs and wood costs will depend on the wood paying capacity of the lumber industry.
- o The general conclusion about lumber prices is that prices will rise approximately at the level of inflation.

#### Hardwood Lumber

- o In the US, a shift from the general consumption trend is foreseen for the future:
  - a lessening of the decline in consumption in most major end uses
  - continued growth in the use of materials for handling
- o US consumption will grow by approximately 1% per year.
- o The US will be self-sufficient in hardwood lumber in the future.
- o Consumption in Western Europe, in comparison with the current situation, will grow at a slower rate.

- o Consumption of hardwood lumber in South and East Asia is expected to continue to grow rapidly.
- o Japanese consumption is expected to recover from its depressed condition.
- o The consumption pattern in Latin America will be at a lower level than it is currently.
- o Western Europe's production will decline, and its imports will grow by the same degree.
- o South and East Asia are expected to remain the major hardwood lumber exporting regions of the world:
  - Malaysia's export capacity will grow at a slower rate than in the recent past;
  - Indonesia's exports will grow at a very rapid rate;
  - Philippine's exports are projected to double or triple by the year 2000.
- o Latin America's exports will grow up to the year 2000. (Peru's exports are projected to expand rapidly.)
- o Japan is expected to increase its dependence on imports of hardwood lumber.
- o With regard to prices, two general trends are discernable:
  1. Real prices for lower grades of hardwood lumber are expected to rise very slowly in the US and Canada;
  2. The second trend is illustrated by indications in Malaysia, Indonesia and the Philippines, where upward pressures on hardwood lumber prices are expected.

#### Softwood Plywood

- o Over the next decade, prices of softwood plywood are likely to increase because of long-term cost pressures, rather than from growing demand.

- o Demand is projected to stabilize during the next 20 years.
- o Demand is not expected to grow and capacity to produce competitive products will expand significantly.
- o There will be significant structural changes in the industry throughout the entire world.

#### Hardwood Plywood

- o The main consuming regions will be Japan, the US and Western Europe.
- o An expanded use of thick, fully waterproofed hardwood plywood is predicted for Japan.
- o The use of hardwood plywood for interior paneling in Japan will continue to grow as housing units become larger.
- o There are indications that the real price of hardwood plywood consumed in Japan will increase at a faster rate than for most other panels.
- o This statement is based on the following factors:
  - South Sea log producers will restrict log exports to Japan;
  - South Sea producers will export more plywood than logs;
  - South Sea producers want to strengthen their control over log and plywood prices.
- o Overall, hardwood plywood consumption in Japan is expected to stabilize over the next 20 years.
- o Future US hardwood plywood consumption is expected to remain at current levels.
- o EEC consumption is projected to stabilize at recent levels for the following reasons:

- Domestic capacity is expected to decline in France and West Germany;
  - Imports from South Sea regions will be constrained;
  - The production of Finland's output will stabilize.
- 
- o Japanese production of hardwood plywood is projected to decline.
  - o Imports of hardwood plywood will increase substantially in Japan.
  - o US production of hardwood plywood will stabilize at recent levels, due to the competition with other panel products,
  - o Indonesian exports of hardwood plywood to the US will increase, and the imports from Korea and Taiwan will decrease.
  - o Overall, US imports of hardwood plywood will decrease in the future.
  - o South Korea's production and export of hardwood plywood will decline significantly, due to difficulties in importing logs from the South Seas.
  - o The same situation is foreseeable in Taiwan.
  - o The production of hardwood plywood in Indonesia will expand substantially.
  - o Indonesia's production will be primarily export-oriented.
  - o The growth of production of hardwood plywood in Malaysia will be moderate, due to constraints on raw materials.
  - o Philippine's production and export of hardwood plywood are projected to increase significantly.
  - o The log-rich countries of the South Seas region will be able to retain a production cost advantage in exports of hardwood plywood to international markets.
  - o The real price of hardwood plywood will increase.

White Chemical Pulp

- o Scandinavia will continue its expansion of exports of value-added products at the expense of a reduction in pulp exports.
- o Canada is in a position to expand exports of high pulp quality.
- o Brazilian and other South American and African pulp suppliers will increasingly be needed to fill their countries' paper-making needs, but exports are expected to grow substantially.
- o Despite large supplies of indigenous hardwoods, lesser developed countries are not likely to receive the financial and governmental support required to encourage investments in capital-intensive pulp capacity.
- o Oceania is expected to increase mechanical pulp output (especially to Japan). No substantial change in chemical pulp production is expected, due to the high costs of bleached mills vis-à-vis mechanical pulp mills.
- o The US will continue to increase its net self-sufficiency in wood pulp.
- o Considerations of capital costs and infra-structure availability cause expanding capacity at existing mill sites, rather than construction at new sites. This will lead to further concentration of pulp production in developed regions.
- o In spite of the fact that China needs wood pulp, its shortage in foreign currency hinders the country to import pulp in large quantities.
- o Japan will import more pulp and paper to supply its growing needs.
- o New Zealand and Australia will produce increasing amounts of pulp. Japan is a likely outlet for this.

- o The US will continue to import Canadian wood pulp. In line with reduced domestic pulp consumption, the US will seek to increase pulp exports, especially to Europe.
- o Pulp trade flows could change significantly if there are major changes in national currency exchange rates or governmental policies.
- o The US and Canada are expected to retain a pulp manufacturing cost advantage over Scandinavia.
- o There will be strong, upward pressures on pulp prices.
- o There has been a clear trend toward greater hardwood pulp use and this trend is expected to continue.
- o A substantial growth in pulp production will be needed to provide the world's paper producers.

#### Newsprint

- o There will be extensive investments in the newsprint industry in the US.
- o There will also be much investment in the Canadian newsprint industry; most of this will be, however, replacement.
- o The investments in North America are expected to cause some overcapacity.
- o The Nordic countries and Canada will account for a growing share of Western Europe's production.
- o With regard to the EEC region, only West Germany will experience considerable production increases.
- o The EEC's newsprint market will tighten. The North American oversupply will force Canada to increase its exports to Western European markets and to Asia.

- o The United States, especially the US South, will decrease its dependency on Canadian imports.
- o Western Europe will have a nearly balanced net trade position. But an increase in Canadian imports to Western European countries will force Scandinavia to seek overseas trade outside of Europe.
- o Scandinavia should continue to hold most of its European markets, but costs will continue to be high.
- o Japan will increase its imports of newsprint, principally by increased participation in overseas, joint-venture newsprint projects.
- o China will expand its imports of newsprint, but will be constrained by its cash trade balances. It will be unable to purchase or produce the quantities of newsprint that would bring its consumption up to levels consistent with its needs.
- o We will see a downward trend in the imports of newsprint in Africa.
- o Only three regions will be net-exporters:
  1. North America
  2. Scandinavia
  3. Chile
- o The grammage weights of newsprint will continue to decline.
- o Overcapacity in the near future may occur.
- o When the growth of newsprint demand decreases, the exporting countries lose market shares to domestic producers.
- o Countries are likely to use direct or indirect government subsidies to stimulate domestic production of newsprint.
- o Canadian producers are actively seeking to expand exports to Europe and Asia, but this effort is expected to fall short of filling Canada's expanded capacity for export shipments.

- o Due to high costs, Scandinavia will have great difficulty in maintaining satisfactory operating rates.
- o Canada is likely to remain a low-cost newsprint producer but will foresee problems with the aged structure of their industry.
- o US producers have favorable costs in competing in domestic markets but are not expected to add enough mill capacity to participate in world trade.
- o A substitution of newsprint by electronic information media is foreseen.

#### Linerboard

- o The principle flows will be from North America and Scandinavia to the EEC and Japan.
- o Faced with a highly competitive and low profit domestic market, US producers are expected to make a more sustained commitment to the European and Asian market.
- o The US share of the European market will increase as its major competitor - Scandinavia - only modestly expands its production capacity.
- o The Scandinavian manufacturing costs will remain high, thus reducing the attractiveness of expansion in this business.
- o Scandinavian producers are likely to stay at the present production level or to close linerboard mills or change them to manufacturing other products.
- o In Western Europe, the expansion of capacity will be in the main consuming countries.
- o An increase in exports in the US will require that production capacity increases more rapidly than domestic consumption.

- o In Japan, the capacity will expand in waste based testliner.
- o In Europe, a greater production of testliner on new and highspeed machines is foreseeable.
- o Production costs in the US will, in the future, rise more rapidly than inflation.
- o The Southern US will still be the most cost-effective producer in the world.
- o Prices of Scandinavian kraftliner, US kraftliner and domestic testliner will tend to merge.
- o The only region that will profitably increase capacity is the US South.
- o Manufacturing costs will be the major influence on kraftliner prices.
- o There will be two strong upward pressures in kraftliner prices over the coming decades:
  1. Production costs of low-cost producers in the US South;
  2. Costs of plants and equipment, which arise even faster than the increase in production costs.
- o There are, however, two pressures to keep prices down:
  1. Competition from other packing and shipping systems and testliner.
  2. The expectation of other Western Europe regions to increase their exports of liner to the EEC.
- o The net import requirements of linerboard will increase strongly in Japan and China.

### Printing and Writing Paper

- o The US will account for a large increase in printing and writing paper.
- o Canada is also expected to increase its production of printing and writing paper. Some of the newsprint machines are expected to be converted to printing and writing paper production.
- o The largest increase in wood-containing grades is foreseeable in Western Europe and North America.
- o Structural changes in the Western European wood-free paper industry will continue.
- o The production of coated wood-containing printing and writing paper will increase in all sub-regions of Western Europe. A large proportion of the increase will be in the Nordic countries. Increases are even foreseen in West Germany, Italy and France.
- o North America's import deficit in printing and writing paper will temporarily change to an export surplus.
- o Western Europe's export surplus of printing and writing paper is expected to remain unchanged.
- o The production of printing and writing paper is expected to grow quickly in Africa and in certain Latin American countries.
- o Strong growth in the production of printing and writing paper in the USSR is expected. Their import requirements will grow.

### Sack kraft

- o The increase in production in North America is expected to be marginal.
- o Sack kraft production will hardly grow in Western Europe and Scandinavia.

- o The Western European surplus of sack kraft will rise.
- o The exports of sack kraft from Nordic countries to the Eastern Bloc will grow.
- o Exports from North America to oversea markets will grow.

#### Other Kraft Paper

- o No change is foreseen in the trade pattern for the grade, other kraft paper.
- o Production will decrease in both North America and Western Europe.
- o The grades sack kraft and other kraft paper are stagnating.

#### Carton Boards

- o The overall growth in total production will be in North America.
- o There will be a shift in the different carton boards in the US; the lower quality will lose.
- o In Western Europe a need may arise for grades with a high content of virgin pulp.
- o US exports of carton boards to Western Europe will continue to grow.
- o The Western European export surplus of carton boards is expected to decrease.
- o The USSR will import increasing quantities of carton boards from the West.

Household and Sanitary Papers

- o An temporary overcapacity situation will occur in the US.
- o A large increase in the production of tissue paper will occur in Western Europe. This increase will take place in the main consuming countries.
- o No radical changes are to be expected in the trade in household and sanitary papers.
- o Scandinavia will export its surplus to the EEC and Southern European Countries.
- o The production of household and sanitary papers is expected to grow substantially in the USSR.
- o This grade is a typical domestically produced grade. International trade will be limited.
- o Very strong demand is expected in developing countries.

Paper and Board in general

- o The consumption and production of paper and board will grow sharply in Africa.
- o The main producing areas in Africa will be South Africa, Nigeria and Egypt.
- o Printing and writing paper production is expected to grow fastest in relation to other paper grades in Africa.
- o Due to the production expansion of paper and board in Africa, the net imports will remain almost unchanged in the future.
- o The production of paper and board in Latin America will grow.
- o Brazil, Mexico and Chile will be largest producers.

- o Latin America as a whole will not become a net exporting area, because the increase in production will be balanced by the strong increase in domestic consumption.
- o Thus, all countries in Latin America will have an import deficit, except Chile.
- o Yugoslavia, Czechoslovakia and Poland will account for most of the production increase in the grades of paper and board in the Eastern Bloc.
- o The main question concerning the expansion of paper and board industries in centrally-planned economies is connected with the possibilities of solving the raw material supply problem (transportation, human resources).
- o The USSR will import increasing quantities of kraftpapers, box boards and other packaging grades from the West.
- o Import deficits in Eastern Europe will increase. About half of the import requirements will be covered by the USSR. The other half must be purchased from the West.
- o China's import of liner, fluting and newsprint from market economies is projected to continue and grow.
- o The consumption of newsprint will triple in Asia (excluding Japan) by the year 2000 compared with the current situation.
- o The same projections hold for printing and writing, and industrial papers in Asia.
- o Consumption growth in Japan will decrease, as compared to the current situation, in memoprint grades, and printing and writings and industrial grades.
- o On the other hand, growth will be particularly high for household and sanitary paper consumption in Japan.

- o A strong demand development for packaging grades is also foreseen for Japan.
- o Growth will be slowest for sack kraft and other kraft papers in Japan.
- o The most rapid consumption growth by subregion in Asia will be in East Asia, concerning paper and board.
- o Consumption growth in Japan will be particularly fast for coated grades and printing and writing specialities.
- o The consumption of paper and board in Oceania will double by the year 2000.
- o Asia's paper and board capacity clearly exceeds the pulping capacity, indicating a requirement for development of the latter.
- o Oceania's future market prospects for the paper industry seem quite favorable.
- o Rising cost pressures on export prices will reduce Japan's competitive edge over North America in bulk grades such as newsprint, kraftliner and carton boards.
- o Japan's future imports will primarily comprise pulp, newsprint and kraftliner.
- o Growth in production of paper and board in the centrally-planned economies will follow the growth of demand.
- o The import deficit will increase in all centrally-planned economies. The USSR is estimated to have a negative trade balance.
- o There is a latent demand for paper and board in all centrally-planned economies, which cannot be materialized because of supply and import restrictions.
- o The global prospects for future paper and board consumption indicate a decisive shift in the growth potential from the traditional western market to the developing areas of the world.

- o Printing and writing papers - especially coated grades - is expected to have a rapid growth in the future.
- o The same rate of growth applies to household and sanitary papers.
- o Linerboard and fluting will also show a substantial growth potential.
- o Slow growth is foreseen for newsprint, sack, wrapping papers, and other kraft papers.
- o The degree of integration in existing pulp and paper mills in the Nordic countries will continue to increase.
- o The use of recycled fibre is estimated to increase from its current level.
- o In Western Europe, there are signs that an increase in domestic capacity will become necessary due to political decisions.
- o The forest sector will be given high priority by domestic authorities and international organizations in developing countries.
- o The forest sector will require substantial funds from the world capital markets in the future.

#### Potential for Investments

- o The greatest potentials for investments in newsprint production will be in decreasing order in the following:
  1. North America
  2. South America
  3. Nordic countries
  4. Japan

o The greatest potentials for investments in printing and writing paper production will be in:

1. North America
2. The EEC
3. Nordic countries
4. Japan
5. South America

o The greatest potentials for investments in industrial grade production will be in:

1. North America
2. Japan
3. The EEC
4. South America
5. East Asia

#### Reference

Adams, D., Kallio, M. & Seppälä, R., (1982) Structural Change in the Forest Sector. IIASA Research Plan, September 1982.