

The Characteristics of the Japanese Paper Industry and Its Concerns for Globalization

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1. Paper production and statistics

Japan is ranked second in paper production following the U. S. (Fig. 1). It is also a big pulp producer in the world (Fig. 2). But, its paper industry is not a major player in the national economy, and is ranked 12th (Fig. 3). This status gap, that is, big in the

world and small in the country is very frustrating to those working in the industry. As the national policy on industrial development favors IT (Information Technology) and is against the paper industry, the paper industry would not expect much support from the government.

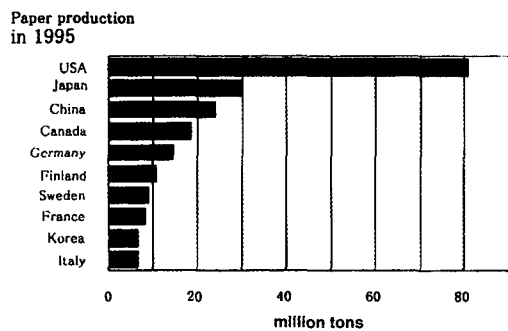


Fig. 1. Paper production in 1995.

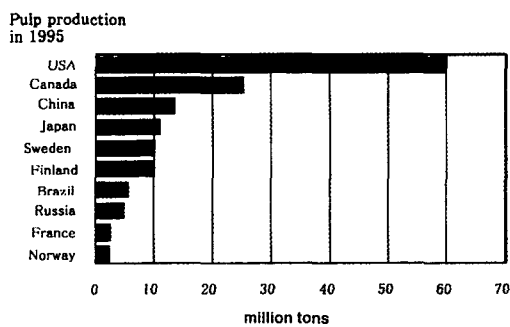


Fig. 2. Pulp production in 1995.

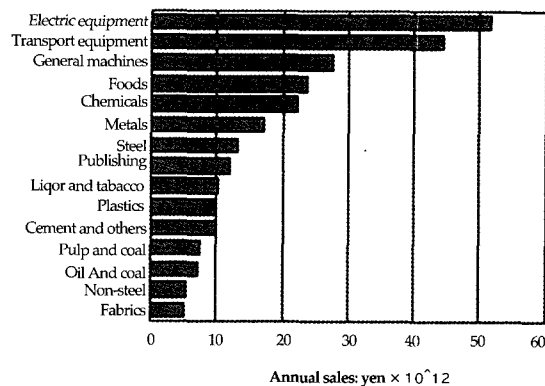


Fig. 3. Paper industry in the national economy(1994).

2. Geography and demography

Geography and demography are key factors controlling business behaviors. The small land with many people gives advantages such as a concentrated big market and easy communication and disadvantages like

sever stress on environment. People there are working to find the best way to compromise advantages and disadvantages. One typical example is the paper industry. The industry produces about 30 million tons of paper and paperboard annually in about 100 mills spread all over the islands. So, many mills are located in residential areas, surrounded with houses. Because of that, the industry has been forced to conserve environment. The pulp and paper industry was once notorious for its poor performance of discharging bad smell and dark effluent 20-30 years ago. With our efforts and big investment for pollution control as in Fig. 4, the industry is now regarded as one of the best performers in Japan. Sustainable development, which makes it possible to be economically competitive as well as environmentally friendly, is not only a concern in the paper industry but also a national consensus in Japan.

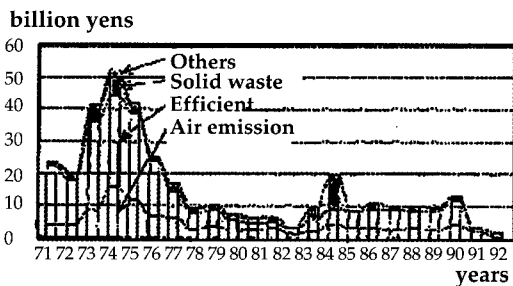


Fig. 4. Investment for environment conservation in the paper industry.

3. Overview of the industry

Fig. 5 gives an overview on the Japanese paper industry. The width of a column is proportional to its volume.

3.1 Raw materials—chips

Though the forest occupies 70% of the land and this number is almost the same in

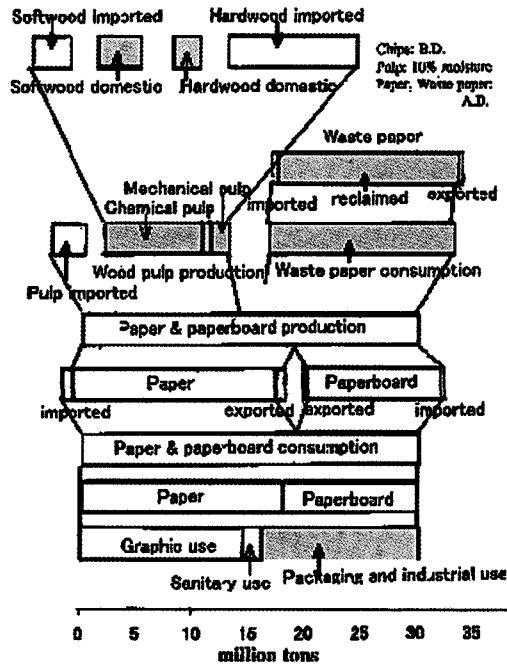


Fig. 5. Material Flow Balance in 1998.

Finland, the industry relies on foreign wood sources. Their share is 68% in 1998, and hardwood chips imported covers 47% of the total consumption.

Fig. 6 shows annual hardwood chips imported from each country. Fig. 7 is on softwood chips.

At the present, about 90 chip carriers are bringing chips to Japan. As chips from abroad have been a major source, the paper

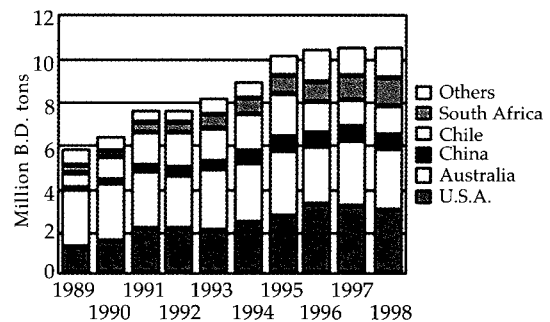


Fig. 6 Hardwood chips imported.

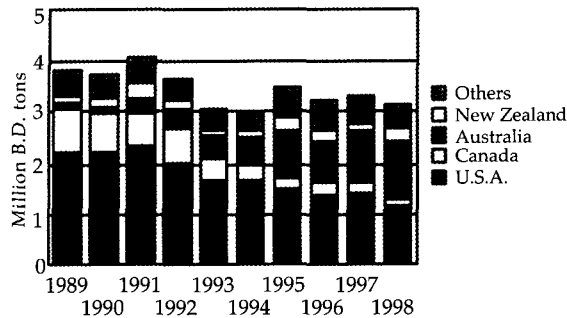


Fig. 7. Softwood chips imported.

companies have installed their large mills adjacent to ports in order to save transportation cost on the land. So, a typical Japanese production system is installing a big continuous digester near a port, cooking imported hardwood chips to bleached kraft pulp and making printing papers with resulting pulp. The mills are so called integrated mills. The Japanese paper industry developed this system to survive against imported products.

3.2 Raw materials-recycled fiber

The other source is recycled fiber. Our recycle rate is close to 56%. Most of recycled fiber goes to paperboard. But, recycled fiber is being used more and more in paper grades especially in newsprints, where recycled fiber shares 70% of its furnish. It works as replacement to mechanical pulp, and mechanical pulp is not much produced in Japan.

3.3 The market with few import

The paper and paperboard market is very isolated with little import and export as in Fig. 5. We are complained of these few import due to a non-tariff barrier like keiretu, which means strict control of wholesale

and retail systems. Japanese society in general asks high efficiency and reliability of products. One example is a newsprint roll. Our news printers operate their printing machines at the rate of 150 thousand copies per hour, with 40 pages a copy, of which 12 pages are four-color printed. Because of their huge investment for printing presses, they want to operate them with as much efficiency as possible. They ask paper companies the reliability of one web break per a few thousand printing rolls. Their request is not a global standard and sounds very ridiculous. Japanese paper companies somehow have been satisfying their requirement. The secret is not by excess strength of the products. The static strength of our roll is similar to that of world market rolls. The difference is its uniformity in everything, like very flat cross directional profile, small machine directional variation and sever defect control, which come from careful and fine-tuned operations in mills. This causes some extra cost and our news printers buy our rolls with a higher price than that of the world market. But, with rolls of high reliability, they operate their machines very efficiently, and as a result, can reduce their overall costs for printing, which means profitable to them. With rolls of three breaks per 100 rolls, which is acceptable in the world, their printing presses would be down very frequently and they might need one more printing line to meet their time schedules.

The wholesale and retail systems in Japan, on the other hands, have not been efficient. IT revolution that is coming is shaking them and will surely restructure them.

Society with products of high reliability needs less material and consumes less energy in total. With this type of products, society becomes more economical and more ecological.

As a recent trend of globalization will continue, the Japanese market will be more

open, and the share of imported products will surely increase.

3.4 Market Growth

It has been said that the growth of the paper and paperboard demand has been proportional to that of GDP. As in Fig. 8, regression analysis between X(GDP) and Y(Demand)

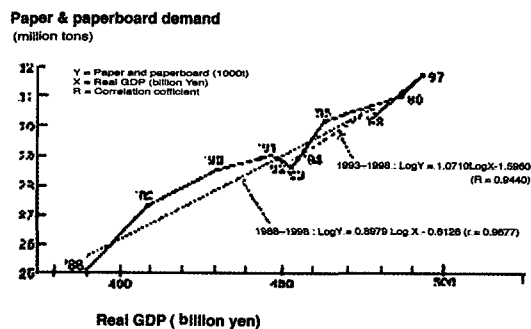


Fig. 8. Correlation between demand real GDP.

gives a factor F. This F varies from 0.9 to 1.07 depending on the span of years. So, in the long term, it has been about 1.

Then, what will happen in the future in Japan? The revolution in information technology will increase the volume of information exponentially and F will be well over 1. The share of information based on paper will surely decrease and F will be expected below 1. The two trends will react together. Some are optimistic and expect a constant increase in demand as in the past. Some are very pessimistic about the future.

One sure thing is that not all grades of papers will increase. Fig. 9 shows outputs of every grade of papers. Their ratios based on outputs in 1989 are in the Fig. 10.

Newsprint and uncoated printing are rather stable. Coated paper, especially slightly coated grade, and paper for infor-

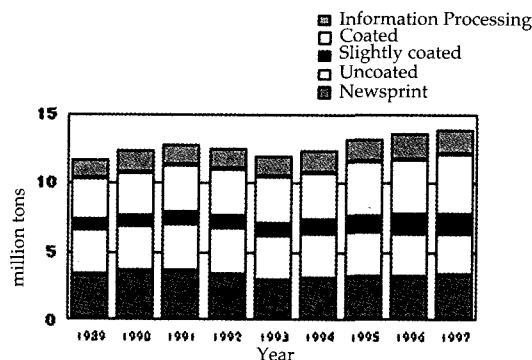


Fig. 9. Annual Production.

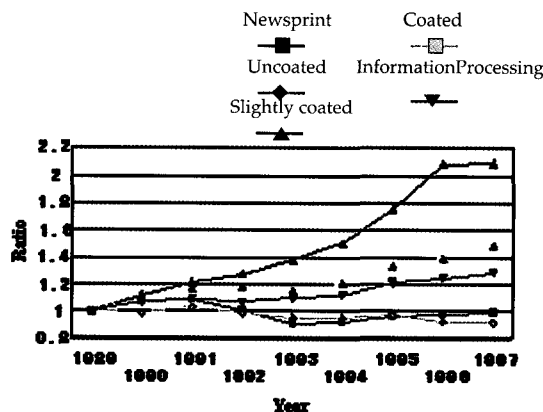


Fig. 10. Output Increase.

mation processing are on the rise. This trend will continue.

4. Trade with countries abroad

Fiber supply has been one of the objects of international trade of the Japanese paper industry. Fig. 11 shows overseas venture projects.

Before 1985, the investment was for chips and pulp projects that were regarded as one option for securing fiber supply. In 1990s, chips and plantation, and converting which is one of categories the industry has some technical edges have become major concerns.

Historically, finding wood resources for

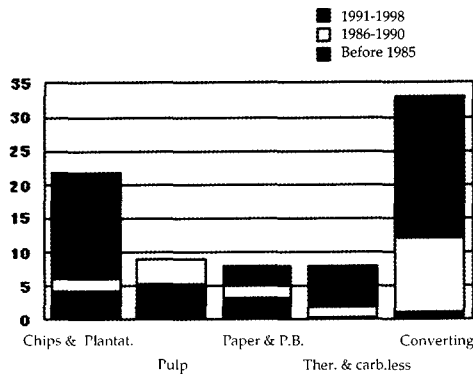


Fig. 11. Overseas Investment Number of projects.

expanding paper demand has been an important strategy in Japan. The paper and paperboard production has increased ten times in forty years. It has been a tough job to keep supplying wood sources for this increasing demand. As we do not have good softwood reserve, the industry was interested in hardwood and developed technology of using it for printing paper in 1950s. Next came chips imported from abroad. In 1980s, the industry was looking for other sources and recycled fiber became a candidate for newsprint and printing paper production. Now, Japanese newsprint contains recycled fiber up to 70%.

In 1990s, the industry needed to prepare for expected demand increase once again. The consensus now is to accelerate plantation overseas by itself. Fig. 12 shows the project going on in foreign countries.

Moreover, the paper industry announced its voluntary plan in 1998 as its guideline of reducing carbon dioxide emission to meet the national goal of 6% less than in 1990.

They are:

1. Reduce the unit purchased energy consumption to 10% less than that in 1990
2. Plantation : 550,000 hectares by 2010

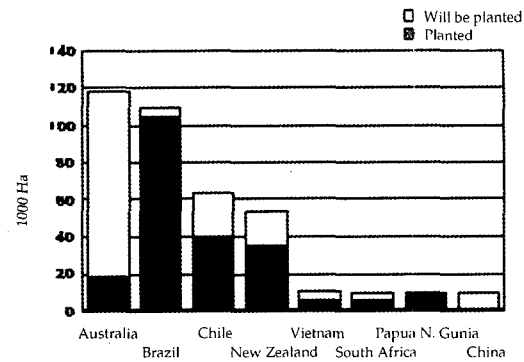


Fig. 12. Plantation project overseas.

3. Paper recycle rate : 56 % by 2000

Plantation overseas is a consensus in the industry.

5. Future

5.1 Threats from abroad

Fundamentals of the Japanese paper industry have not been favorable, as it has been relying on imported wood chips and the labor cost is expensive. With constantly developing technologies needed to be competitive, the industry has kept its status. Now, we are facing new problems.

1. Big projects in South Asia. Their equipment is usually of a large scale and is well equipped. Though it is said that the projects aim at Chinese market, they are still threatening to us.
2. As the Japanese market is matured, few big projects will be expected. This means that we will have few chances of developing new technologies.
3. Our level of technology has been refined by severe requirements of customers in Japan, which are different from those of

global standards. As the world is becoming more and more open, our customers would shift to products of global market. That will make our technical refinement less meaningful.

5.2 IT revolution

The revolution in information technology will certainly affect the paper industry in every aspect. Its effects are still to come yet. But, it is definitely sure that the revolution will influence the market growth and a type of technology needed in the industry.

5.3 Emerging Asian market

Historically, the paper industry has been planning strategies against the U. S. and Canada. Now, the emerging Asian producers and its market are really important concerns to Japanese paper companies. Every company is studying them, and there is not any definite movement yet. One clear understanding is that every player has to be big enough to compete against newly formed big paper companies in the world, and consolidation of the industry will be going on.

5.4 Flexible and challenging spirit

We know from the history of our industry that technological breakthroughs by the industry have made it adapt to new circumstances successfully and kept it growing. These technological breakthroughs have been made by flexible and challenging spirit of the industry. This spirit is needed once again and will open a new age for the industry. JAPAN TAPPI as a technical organization like Korea TAPPI could do a lot for it.

Acknowledgement

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