Keynote Address

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It is a pleasure for me to give an address to the Annual Meeting of our Association for the Year 1979.

This is the third annual meeting since the annual regional lecture meeting was reshaped. I believe that these annual meetings have been fruitful in advancing the technical expertise of the engineers of our industry, and at the same time in providing opportunity for promoting the interchange of ideas and friendly personal relations. All this owes much to the hearty devotion of the members of the host companies. On this occasion I wish to convey my heartfelt appreciation, first of all, to the members of the Chuetsu Pulp Industry Co. and Jujo Paper Co. and to those from various paper-making institutions.

1. General Economic Trends

I should like to take this opportunity to briefly express my views and ideas beginning with the "General Economic Trends" for the year 1979. In the keynote address of last year, I explained in general as follows : "Japanese economic activity achieved high growth during the ten years from 1955 to 1965. But with the outbreak of the first oil crisis in autumn of 1973, the economy was forced to undergo a structural change. The Japanese economy is coping with this situation in full force. And while overcoming various obstacles, the economy is likely to continue growing at an annual rate of around 5 per cent". Actually, the growth rate in rate in real terms showed steady recovery (in fiscal years) : -2.6 per cent in 1974, +1.7 per cent in 1975, +3.9 per cent in 1976, +4.2 per cent in 1977, and +7.5 per cent in 1978.

The OPEC general meeting held in December of last year, however, decided to raise the price of crude oil by 14.5 per cent in four stages. Subsequently, supply and demand tightened due to the disturbances Iran, and the new price level scheduled for the fourth quarter went into effect from April. Moreover, the so-called \$ 20.00 crude became reality at June-end.

Its influence has dual aspects of inflation and deflation : it is said that the wholesale prices will rise by about 10 per cent ; and the annual increase in payment for crude will amount to \$ 12 billion, and the income transfer will cause a decrease in demand by 1.3 per cent in the national economy.

However, in the face of the second oil crisis stemming from a series of rising crude oil prices, together with precarious supply, both business enterprises and consumers-in consideration of the experiences of 1973 oil crisis-appear relatively calm in coping with the situation. And it is likely that the situation would be overcome without such wild swing in economic policy as in the previous oil crisis. Nevertheless, steep hike in the prices of raw materials and energy appear unavoidable, which make future business predictions very difficult.

Here, let us consider the prospects of world oil supply in future. while we can expect some increase in the oil output from the North Sea and Mexico, increase in output can not be hoped for in OPEC. Also, Russia is believed to shift to an oil-importing country from an exporting country after 1985. In conclusion, the world oil output would not be able to keep up with the increase in demand. The result is gradual tightening of supply and demand, which leads to the strong possibility of recurring price increases in future.

2. pulp and Paper Industry Trends

In these circumstances, I wish to consider the trends in the pulp and paper Industry of Japan.

2.1 First is the demand for paper and paperboard.

Assuming an annual growth rate of 5.7 per cent in line with the Government's New Economic and Social 7-Year Plan, the demand for paper and paperboard is estimated to reach about 22 million tons in fiscal 1985.

To meet this projected demand, the required raw materials in the form of pulp and recycled paper amount to 23 million tons—about 10 million tons of recycled paper, assuming a recovery ratio of 45 per cent, and over 13 million tons of pulp. This means an increase of 2.7 million tons above the pulp consumption in fiscal 1978. If all this increase is to be imported, the amount would be about three-fold of fiscal 1978. And if the increased volume is met by the home-produced pulp from imported chips, about 8 million m³ of chips are required, which would represent an increase of about 60 per cent compared with fiscal 1978.

2.2 Next comes energy.

Japan's total energy consumption, in terms of heavy oil, is equivalent to 400 million Kl. Of which, the pulp and paper industry consumes about 10 million Kl, about 2.5 per cent of the total. Our country is dependent on imports as much as 88 per cent of total energy requirements ; this compares with 20 per cent for the United States. Furthermore, the pulp and paper industry is a high energy-consuming industry. According to data from the Japan Paper Association, cost-push from heavy oil in this industry is over ¥10 billion, and its share in the total cost-push is 45 per cent—the biggest single cost-push factor.

Under these circumstances, it can be said that Japan's pulp and paper industry is subject to new competitive handicaps stemming from the limited supply and soaring prices of raw materials and energy.

3. Technological Problems

Confronted with above severe circumstances, the engineers must tackle these problems, and overcome them, for this I believe is the only way for the survival of the paper and pulp industry of Japan.

3.1 Raw Material Problems

To begin with, I must state that since Japan is in want of natural resources timely acquisition of raw materials to meet the annual increase in the demand for paper and board

is of paramount importance.

Therefore, it is desired to establish a consistent policy from the long-term point of view for the acquisition of raw materials at home and abroad, whether they be pulpwood or recycled paper. An urgent problem concerns the development of various technologies for securing raw materials, including the saving of resources through intensified use of raw materials, utilization of unused low-grade species of wood, etc.

The next concerns the use of recycled paper. At last year's annual meeting significance of recycled paper was emphasized. Subsequent developments have shown that the supply problem of recycled paper as a source of raw materials for paper-making in Japan is hardly less severe than pulpwood. The recovery rate of recycled paper in our country has already exceeded 40 per cent, and stands high in the world standards. In particular, the recovery rate is about 60 per cent for corrugated board, which represents the principal share in the total volume of secondary fibers; and around 70 per cent for waste newspaper. However, it should be noted that there are many difficulties in raising the recovery rates. Along with the growing interest in the recycled paper, the time has come for serious reconsideration concerning the structural problems involved in the recovery of recycled paper, import problems, as well as problems related to its treatment technology,

3.2 Energy Saving

Our next concern is the question of energy conservation. Steam and electric power consumption per ton of paper for fiscal 1978 was 0.6 Kl in terms of heavy oil. This is an improvement in unit consumption by around 10 per cent in comparison with 1975. But I have already pointed out in describing the trends in the pulp and paper industry that uncertain supply and higher prices of energy are looming to be a threat for our industry. Energy conservation by means of rational utilization of power and heat was already mentioned at last year's annual meeting. But I wish to emphasize here that the situation has obviously worsened since then. Also, as regards energy alternatives, I feel pressing need of promoting studies in this field taking into consideration their application conditions, geographical factors, environmental effects and others.

Some time ago, "Special Committee on Energy policies" was established in the Japan paper Association to study such matters as the volume of energy, prices, energy conservation, etc. Japan TAPPI's Energy committee will cooperate with the Paper Association in the technical fields in order to contribute to the solution of the industry's energy problems. I wish to ask your cooperation in this matter.

3.3 Environmental Problems

Finally, I wish to deal with the environmental issues. As of June this year, the total emission control was applied to the three water areas of the Seto Inland Sea, Ise Bay, and Tokyo Bay. The establishment of regulation standards is expected, followed by apportioning of "pollutant load" for each factory.

Since almost all portion of mill water of the pulp and paper industry is used as process water, sophisticated series of treatment are required for the recycling and reuse of the effluent. Therefore it is necessary to promote a thoroughgoing rationalization of water usage

in consideration of the tightening water resources and the total emission control.

As for air pollution, the environmental standard on NO_2 was revised last year, and in areas where the environmental standard is exceeded, application of the on total emission control is prepared. As for NO_x , phase 4 Regulation has been proclaimed which brings the matter to a temporary pause. It is said that tightening of the "soot and dust" regulation is forthcoming.

When two or more pollutants coexist, there is possibility of compound pollution through a synergistic reaction. Future regulations are believed to be forthcoming in this respect. Not only should we keep an eye on the future developments, but we should also study and examine effective counter-measures.

Regarding industrial wastes, recycling is most desirable. But there are difficulties involved in transforming wastes into independent, bona fide market goods, due to restrictions on the product quality which is affected by the impurities in the waste materials, as well as restrictions from the cost phase. In order to enhance efficiency of the development activities, it is necessary to carry on projects not only within the pulp and paper industry but jointly with other industries—in other words, a systematic and unified development stance is desired involving the government, academic society, and the private enterprises.

Regarding environmental protection, individual companies are already bearing sizable environmental protection costs under severe business circumstances. In view of the fact, it is important to promote the development of highly efficient and less costly environmental protection technology in future.

So far, I have offered my views on the general trend of the pulp and paper industry and the role of technology, against the background of this year's economic conditions. Indeed the business circumstances have become severer. The engineers are burdened with an essential role to cut a break through under the present difficult situation. I fervently hope that the members of our Technical Association will make your best efforts at each post, conscious of the gravity of your role.

Because of the exigency of the current situation, I dealt with only the pressing matters. But I must add that the value of basic research is unchanging for all times. I earnestly ask for the persistent effort and devotion of all the basic researchers.

May I close my speech by saying it is my hope that this annual meeting will serve not only as a training ground for the engineers, but will also provide the opportunity for social and intellectual interchange among the fellow engineers in our industry and also will help promote the development of the entire pulp and paper industry.