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The problems of growth of this industry can broadly be divided into three main divisions viz. a) Adoption of modern scientific and technological development b) Economic viability of the new development programme and c) Difficulties experienced by the industry today in getting adequate supply of raw materials at a reasonable cost.

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In the pulp and paper industry the innovation introduced by the fuller application of new technological development have made tremendous progress to meet the challenge posed by the rising cost of production. The recognition of the vital role of technology must be considered a key factor for strengthening the economy of the industry as a whole. The important role of technological changes that have come into existence in the paper industry in the developed countries must be allowed to have full role to play in the new development of the industry in the country. In the field of high yield pulps, the yield of unbleached chemical pulp in India is about 45% and that of bleached chemical pulp is only 40%. Pulp of this purity is commonly used in India for making paper required for different uses. Whereas new technological development has rapidly changed in the economies of the same and many new processes

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have been introduced in foreign countries for the manufacture of high yield pulps and the yield from such pulp has come up considerably in the range of 65 to 85 percent.

These pulps are being made by the mechanical process or Neutral Sulphite Semi Chemical Process (NSSC), Mechano-Chemical Monosulphite, Process etc. There are several advantages in making high yield pulps and, therefore, more and more paper is made in those countries, from the new technological processes of high yield pulp. Adoption of such new technological processes is also needed to replace the use of long fibre for paper making; besides that less chemicals are required for making high yield pulp. Cost of production of such pulp is considerably lower than chemical pulp which is rapidly being replaced for making common varieties of paper, generally consumed and particularly the low grade writing and printing paper. These high yield pulping processes are especially suitable for use of greater percentage of hardwoods.

Introduction of continuous digester is another notable feature in the recent development. The use of continuous digester requires less steam and chemical consumption as compared to the conventional system of batch digesters, and we can get pulp of good quality. Temperature and other controls are regulated automatically and at the same time gives more efficient and economic operat-

ion, saving on steam and chemical consumption and at the same time giving better washing of the pulp.

Pre-steaming and pre-impregnation of chips before feeding the continuous digester actually helps cooking especially in case of hardwoods. All these functions are built-in in the continuous digester resulting in economising the cost of manufacture. Use of Hot Stock Refining has also been useful in bringing waste percentage down and at the same time getting higher yield is possible by hard cooking.

In the field of paper machine, the higher capacity of paper machines installed in foreign countries in the range of 400 to 500 tonnes/day has resulted further in adopting the economy of the sale. We would be able to economise the rising cost of manufacture only if we are allowed to adopt the recent technological development that is available in the developed countries.

At least some of the units in the paper industry should be permitted to aim at producing paper which can be made and sold at competitive prices not only on the domestic market in competition with the existing low cost units but also in the international market by using such technological development; otherwise it would never be possible to economise in the cost of manufacture or think in terms of exporting paper from the old conventional designs

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of the equipments supplied by the indigenous machinery manufacturers at practically double the prices of imported equipments.

Serious efforts are needed for the utilisation of other raw materials like mixed hardwoods, bagasse or other agricultural residues which have comparatively lower fiber value both from the strength and length point of view as compared to bamboo which is still dominating and used upto 80%. Since the availability of bamboo resources being very limited, it becomes imperative that sooner than later we shall have to use more and more of these alternate available raw materials like bagasse or hardwood. For this purpose also we may have to modify our existing equipments in such a manner that they are capable of processing shorter fibre than what is used today.

In other words, the new paper machines have to be designed in such a way that processing of shorter fibre may not create any difficulty. It is essential, therefore, that new paper machines are such that they can utilise the pulp made out of local hardwoods or agricultural residues like bagasse successfully and economically so that the cost of production may be comparable. Proper control and regulation is essential for the quality production which is possible only by means of modern gadgets and instrumentation along with other controls built in to be adequately provided in the paper machines.

It is a well known fact that setting up of totally a new unit at a new place will take not less than five years, may be even more. This is

mainly because so many new facilities of infra-structure will have to be created at a site to be developed for the purpose. This includes water, power, rail, road communication, housing, development of new township, workshop etc. Therefore, the entire programme of achieving the target of paper production will have to be split up into two categories, viz. 1) short-term programme and 2) long-term programme. The short term programme must aim at increasing paper production every year minimum by one lakh tonnes, whereas today our rate of annual growth is hardly 50,000 tonnes. Whatever was possible to achieve by way of crash programme through balancing equipments have already been put in the processing. Now the substantial increase in the paper programme is possible in short term period only by the existing bigger unit. The immediate shortage of paper prevailing in the country can be overcome only by the existing units programme. There are a few selected units favourably situated from the raw material angle having other infra-structure facilities, who can not only wipe out the prevailing shortage of paper but also create surplus and at the same time develop new export potential.

In respect of those existing units who have the required infrastructure facilities, rapid expansion programme can be undertaken and completed within two years time and with a minimum capital outlay ranging between Rs. 4000 to Rs. 5000 per tonne of annual capacity.

Of course, the long range programme should aim at issuing licences only for developing industrially backward regions with a view to encourage establishing units under the joint sector, with the result the State Governments could also undertake interest and participate actually in developing their States. This will provide large employment potential and industrial development towards achieving self-sufficiency in respect of paper production.

Further, it would be necessary to encourage few selected units to go in for developing export market as every unit will not be able to enter such highly competitive market. Those units need sophisticated equipments which would enable them to compete at international markets and to be able to export their products. It is pertinent to note that only those units will be able to not only earn back foreign exchange sanctioned to them but would be able to earn valuable foreign exchange for all time to come and also come in production in shortest possible time and most economically too.

It is also very important to note a basic fact that today except in India there is a surplus production of paper in the developed countries and because of this phenomenon the paper machinery prices abroad are comparatively lower and delivery period much shorter. Why should we not avail of this unique opportunity of getting the equipments in keen competitive market at a very low cost to keep our capital outlay within a reasonable means? On the basis of this programme our new production of paper will be not only viable one but will also be a contributing factor to generate substantial

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national and foreign exchange resources in the country. Government earns a premium of 150% on the foreign exchange saving within a period of two or three years of the working of such units. Over and above this premium the units undertake to earn back foreign exchange released to them and it becomes a permanent source of exporting paper.

The concept of minimum economic size of paper machines has also undergone substantial change In Europe and other developed countries nobody would conceive setting up of new project below the capacity of 400 to 500 tonnes to begin with. In our country also the minimum economic size has undergone substantial change from 100 tonnes/day to 200 tonnes/day. In other words, the minimum economic size of the plant would be at least in the range of not less than 50,000 to 60,000 tonnes and going upto 1.00,000 tonnes. For setting up a new project of 200 tonnes/day, minimum capital outlay required for developing a completely new site would be in the vicinity of Rs. 40 crores, whereas a 100 tonne/day unit may be around Rs. 28 to Rs. 30 crores.

For a new unit to sustain economically the rate of interest and enable it to repay its long term loans in the range of 10 to 15 years, the additional per tonne cost as compared to the existing unit would be roughly of the order of Rs. 1000 per tonne. The problem will be how to compensate the new units built at such high cost and at the same time maintain uniformity of prices in the country, as it is aimed at by the Government. The only possible

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way to look at this problem realistically would be to totally exempt such unit from excise duty or give substantial rebate on the excise duty so that some relief could be achieved as the unit comes into production.

The more tangible decision will have to be taken by Government in order to enable the new units to come into existence and satisfy the norms as required by the financial institutions, particularly as to whether such a unit set up at such high capital outlay would be able to pay interest as well as principal amount borrowed from these institutions.

The cash flow of such a company must prove beyond doubt before the institutions agree to lend substantial amount to such a unit. The amount of loan needed by each unit would be ranging between Rs. 15 to 20 crores and above. Therefore, none of these institutions would concede granting loan unless they find it well secured with the possibilities of repayment coming as per schedule.

Besides this, there has been a constant pressure of increasing cost on an average of about 8 to 10 percent every year as is quite evident from the past performance of the industry. On top of this, all the State Governments and the State Electricity Boards continue to increase the rate of royalty and/or power tariff. These are the problems which have to be faced in a more realistic manner and a workable solution has to be found out.

To achieve the economy of the scale, it is necessary that the industry is allowed to go in for high speed machines with bigger capacity in the range of 200/500 tonnes/day. To

achieve this production the conventional design will not work and we shall have to aim at high speed paper machines in the range of 800 to 1000 metres and above. More essential features will have to be incorporated considering the short fibre length and other peculiar characteristics of hardwood or the use of bagasse available in India. Modern davelopments of sophisticated equipments like de-watering, hydro foils, wet suction boxes, compact high efficiency presses, deflectors etc. are still not manufactured in the country.

A new generation of paper machines allowing high capacity where a minimum of long fibred pulp can be used in the stock and capable of making papers of various grammages have also come into existence.

We in this country are trying to supplement bamboo with hardwoods for paper manufacture. Our difficulty is that we are required to use all kinds of pulps on one and the same paper machine which is not designed for use of short fibred pulps. The result is that we find it extremely difficult to use more than 20 to 30 percent of hardwood pulp in blend with bamboo pulp for making paper in our existing machines.

No doubt, we would like to see the rapid development of the pulp and paper machinery and equipment to be manufactured in India. At present a number of equipments are manufactured in this country. However, most of the indigenous machinery manufacturers have been giving us equipments of old designs which are out of step with modern technology developed abroad. Their prices have

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doubled in four to five years time and they refuse to fall in line with normal practice of retaining even the last 10% against fulfilment of the performance guarantee of the equipments supplied by them. To meet the challenge of the rising production cost, such outdated machines will not help our paper industry.

We do want to help the development

of indigenous machinery in the country but they will have to put in more efforts to improve and incorporate the latest technology in their machines.

The machinery development of Textile, Cement or Sugar industry has, by and large, originated and continue to be with those who are themselves operating those industries and as such they are fully engrossed and involved in the process of development, keeping pace with the modern technology. Whereas in the case of paper machinery, the growth and development has been rather tardy and indifferent to meet the changing requirement of the industry. This is mainly because of the protective patronage enjoyed by them under the present policy of the Government.

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