

GROWTH AND STRUCTURE OF PAPER INDUSTRY

2.0 EARLY DEVELOPMENT DURING THE 19TH CENTURY

2.1 DEVELOPMENT DURING THE 20TH CENTURY

2.1.0 *Pre-Plan Period Development*

2.1.1 *Plan Period Development*

2.1.1.0 *A Consolidated Picture*

2.1.1.1 *Production Trends during 1981-90*

2.1.2 *Import and Export Trade of Paper
and Paper Board.*

2.2 STRUCTURE OF PAPER INDUSTRY

2.2.1 *Distribution of Mills by Sizes*

2.2.2 *Distribution of Mills by States*

2.2.3 *Handmade Paper Industry.*

2.2.4 *Varieties of Paper.*

2.3 SUMMING-UP

GROWTH AND STRUCTURE OF PAPER INDUSTRY

Before the invention of modern machine-made paper industry, our country was famous for hand-made paper which was introduced and developed first in India in the 18th century by the Mughals. Since then paper manufacturing has undergone revolutionary changes and has expanded with amazing modernisation. The industry in fact has brought about a virtual transformation from scarcity to plenty particularly after mid seventies. There has been a phenomenal growth of medium and small paper mills. At present there are 34 large mills, 54 medium-scale and 217 small mills distributed over the country. The present chapter is devoted to the study of the growth and structure of the Indian paper industry which can be studied under two broad periods :

- a) early development during the 19th Century, and
- b) development during the 20th Century.

2.0 EARLY DEVELOPMENT DURING THE 19TH CENTURY

Like many other matters of antiquairan interest, the history of paper-making in India is also a matter of research. No definite evidence with regard to its genesis exists which can be accepted as authoritative. It is only a matter of speculation to say that India had evolved any art of paper-making independently. However, in "Cambridge History of India" there is reference to the version of Nearchus the Cretan, a friend of

Alexander the Great, that a kind of thin, fine glazed sheet made by felting cotton wood, was used in Punjab in 327 BC as a writing material. However, there is no proof if it were really paper [1].

Before the advent of the modern machine-made paper, a number of hand-made paper industries flourished in India. The improved hand-made paper produced towards the later half of the 18th Century is considered to be both high quality and moth resistant.

Earliest efforts at mechanising the Indian paper industry were made by Dr. Willian Carey, the renowned Baptist missionary of Serampore, in the beginning of the 19th Century. Carey started a paper mill in 1812 with the help of local Kagzis [2]. The mill was located at Serampore, West Bengal [3]. He was the pioneer in erecting the first paper-making machine which did not have drying cylinders. By the year 1832 the first FOURDRINIER type of machine was introduced. But despite all efforts the venture did not succeed owing to a lack of demand for paper and governmental apathy. In 1867 the only fourdrinier machine was transferred to the Royal Paper Mills at Bally near Calcutta. This Mill increased the number of paper machines to four and raised the turn out capacity to 5,000 tonnes per annum. But it produced low grade paper as it used rags, jute cutting and waste paper for raw material. The mill was finally absorbed by Titaghur Paper Mills [4]. Later commercial production was achieved on a sustained basis, when four paper mills, viz. the Upper India Couper Paper Mills, Lucknow (1879), the Titaghur Paper Mills, Calcutta (1882), Deccan Paper Mills, Pune (1887)

and Bengal Paper Mills, Raniganj (1889), came on stream. During the period 1892-94 another unit-Imperial Paper Mills was set up. However, this unit soon went into liquidation and was taken over by Titaghur. Another unit which suffered the same fate was a single machine unit set up at Gwalior in 1881 which was later taken over by the Bengal Paper Mills in 1922. By the year 1900 the production of paper rose to 19,000 tonnes [5].

2.1 DEVELOPMENT DURING THE 20TH CENTURY

The development of the paper industry during the present Century can be studied in the context of either the pre-independence or the post-independence period.

2.1.0 Pre-Plan Period Development

By the year 1913, as many as seven mills were in production manufacturing 24,000 to 25,000 tonnes of paper [6]. The raw materials in common use were subai grass, hemp, rags, jute and imported spruce and wood pulp. The First World War (1914-18) gave a further fillip to domestic paper production and in 1918, the India Paper Pulp Company Limited was established at Naihati, about 50 kms. to the north of Calcutta. This was the first paper mill which used bamboo as the basic raw material. It employed a process that was based on cooking the material and treating the same with a solution of magnesium bi-sulphite. However, the paper industry then was operating under a handicap, which was that they were to depend entirely on imported pulp. It had also to struggle very hard for its survival because of the availability of cheap paper imported from abroad.

Since 1924 production of paper was largely based on bamboo as raw material. Use of bamboo was further encouraged when duties were levied on some of the imported papers under the Bamboo Paper Industry (Protection) Act, 1925. This Act actually created the requisite atmosphere for the growth of the industry. This Act not only saved the existing paper mills but also paved the way for the establishment of new mills through the utilisation of natural resources of the country. By 1930-31 the annual capacity of these mills increased to 45,600 tonnes as against 33,000 tonnes in 1925. Correspondingly over the same period the share of indigenous production in the national consumption of paper increased from 54 per cent to 71 per cent. The production level reached new heights towards 1935 with the setting up of four mills, viz. Rohtas Industries Ltd., Dalmianagar; Orient Paper Mills, Brajrajnagar; Mysore Paper Mills Ltd., Bhadrawati; and Star Paper Mills Ltd., Saharanpur. With the coming up of these and a few others in later years, the paper industry built up an industrial base which even to-day forms the nucleus for its growth. It must be acknowledged that the growth witnessed in paper industry was entirely due to the security it enjoyed under the Bamboo Paper Industry (Protection) Act of 1932.

Because of competition from imported paper & various troubles at the manufacturing units, paper production almost stagnated around the level of 25,000 tonnes per annum till about 1923. By 1931, it picked up some momentum and reached the level of about 40,000 tonnes per annum. But, thereafter, it again faced

general stagnation that occurred in the context of world wide depression.

The period of protection originally granted to paper industry was upto 1939. In 1939 the Tariff Board reviewed the situation, and considering the satisfactory progress of paper industry under the "Protection Period" recommended continuation of protection for a further period of three years starting April, 1939. It granted protection to wood pulp, all kinds of writing papers, all printing papers other than chrome, marble, flint stereo and super calendered papers. The Indian Tariff (Second Amendment) Act, 1939 imposed a duty on wood pulp at Rs.0.30p. per tonne or 25 per cent ad valorem whichever was higher. The duty on paper was fixed at the rate of 9 paise per pound coupled with an alternative rate of 25 per cent ad valorem. During the Second World War (1939-45), the restricted availability of imported paper provided further fillip in the industry with respect to the establishment of new paper mills and expansion of the existing ones. This was a turning point in the history of native paper industry. But after the war, it again suffered from stagnation for about 5/6 years. Moving up and down unsteadily the production level somehow reached 1,00,000 tonnes, for the first time in 1943. To ensure a general healthy growth of paper industry a Development Wing was formed in 1945 under the Ministry of Industry and Supply. This was highly conducive to the growth of paper industry.

On revaluation it was observed that paper industry had made considerable progress even in those varieties which were

not granted protection. This established the capability of paper industry to grow independent of protection. In some cases the prices of indigenous varieties of paper were just about half of the prices of similar varieties of imported paper. The protection was, therefore, discontinued after April 1947.

Paper once again became a subject of enquiry in 1948 when Indian Tariff Board carried out a detailed investigation into the cost of production of the paper boards industry. It recommended fixing of ex-mill price and selling price of F.O.R. destination of white printing paper. By 1950 paper production had almost doubled when it reached 1,08,812 tonnes.

In 1950, when India launched its programme for planned development, there were 17 units with a total capacity of 1,37,000 tonnes and production touching 1,16,000 tonnes. The production was often confined to common varieties of paper and paper board and there was no production of newsprint. The government have since intervened in the general working of this industry from time to time via price control, production control and distribution control. An idea can be formed about the production of paper in India from 1911 to 1950 from the data presented in Table 2.1.

Table 2.1 : Production of Paper in India during Pre-Plan Period

Year	Production ('000 Tonnes)	Increase (+) Decrease (-)
1911	27.2	-
1921	24.7	- 2.5
1931	40.0	+ 15.3
1941	95.0	- 5.5
1942	92.5	- 2.5
1943	102.6	+ 10.1
1944	107.7	+ 5.1
1945	110.1	+ 3.6
1946	105.1	+ 5.0
1947	NA	-
1948	92.8	- 12.3
1949	106.1	+ 6.7
1950	109.3	+ 3.2

Source : Ahuja, S.P. Paper Industry in India - Retrospect and Prospects, The Institute of Economic and Market Research, New Delhi, 1980, p. 37.

2.1.1 Plan Period Development

Inspite of several difficulties experienced in its early years of development the paper industry has today secured for itself an important place in the industrial structure of the economy. Till the beginning of the planning era at the national level in 1951 the paper industry had suffered and survived many adversaries and had a chequered career.

2.1.1.0 A Consolidated Picture : The planned development of the

industry commenced with the beginning of the First Five Year Plan. The government had a two-fold objective regarding paper: one was to achieve self-sufficiency in the production of paper and the other was to increase the per capita consumption of paper. With complementary objectives like spread of education and the subsequent programme of adult education, it was expected that the paper industry would see better days. The actual achievements of the industry during the successive plans are illustrated in Table - 2.2.

Table 2.2 : Plan of Targets of Capacity and Production

('000 Tonnes)

Plan	Capacity			Production		
	Target	Actual	Gap	Target	Actual	Gap
1	2	3	4	5	6	7
First Plan (1951-56)	214	214	-	203	190	13
Second Plan (1956-61)	457	430	27	356	350	6
Third Plan (1961-66)	833	669	164	711	558	153
Annual Plan (1966-69)	750	730	20	635	658	-
Fourth Plan (1969-74)	*	992	-	850	825	25
Fifth Plan (1974-78)	1300	1137	163	1050	900	50
Sixth Plan (1980-85)	2050	2400	-	1500	1360	140
Seventh Plan (1985-90)	2700	NA	-	1800	NA	-

Source : Five Year Plans and others related Documents, Planning Commission, Government of India, New Delhi.

* No specific target was fixed.

As seen from the data presented in Table 2.2, the actual production had lagged behind the targets in all successive plans, barring the period under the annual plan. The industry

fared well in the initial planning period. By the end of the First Plan, paper industry had achieved its target in capacity. During Fourth Five Year Plan, no capacity target was fixed. Production target was fixed at 8.50 lakh tonnes. The achievement in the production target fell short by 25,000 tonnes. During the Fifth Plan period, the shortfall in capacity and production targets were 1.63 and 0.50 lakh tonnes respectively, which shows lack of proper development. However, during the Fifth Plan period, a good number of small paper mills were established which made use of unconventional raw materials and second-hand machinery secured from abroad [7]. By the end of the Sixth Plan period, the total national capacity exceeded by 350 tonnes which marked a 17 per cent rise in its target, whereas the actual production ironically, lagged behind by ten per cent. The compound annual growth since 1951 can be seen from Table 2.3.

Table 2.3 : Growth of Capacity and Production

(In %)		
Between	<u>Compound Annual Growth</u> Capacity	<u>Annual Growth</u> Production
1	2	3
1951 and 1961	11.6	10.7
1961 and 1971	8.2	7.9
1971 and 1986	7.5	4.8
1951 and 1986	8.8	7.4

Source : Commerce, December 12-18, 1987. p.7.

A glance at the data on compound annual growth rate reveals that in the first decade of planning (1951 to 1961), the installed capacity geared up at the rate of 11.6 per cent per

annum while production rose by 10.7 per cent per annum. In the following decade, the annual compound growth rates of installed capacity and production fell to 8.2 percent and 7.9 per cent respectively. The annual growth rate of installed capacity declined further to 7.5 per cent during the period between 1971 and 1986.

The rate of growth of production further fell and stood at 4.8 per cent per annum during the period. On the whole between 1951 and 1986, the respective annual growth rates of installed capacity and production stood at 8.8 per cent and 7.4 per cent.

2.1.1.1 Production Trends During 1981-90 : Data on installed capacity and production during 1981 - 90 are presented in Table-2.4.

Table 2.4 Installed Capacity and Production of Paper and Paper Board

(In Lakh Tonnes)

Year	Installed Capacity	Production	Gap
1	2	3	4
1981	18.17	12.35	6.35
1982	18.17	12.06	6.11
1983	19.15	11.20	7.95
1984	21.64	13.15	8.49
1985	23.49	15.00	8.49
1986	26.55	15.80	10.75
1987	27.58	16.80	10.78
1988	28.51	17.20	11.31

1989	30.01	18.50	11.51
1990	30.04	19.50	10.54
1991	32.80	19.60	13.20

Note : Of the total capacity of 32.8 lakh tonnes operational capacity (excluding closed units) is 25.2 lakh tonnes.

Source : The Economic Times, Calcutta, 9 July 1992, p.12.

A glance at the data reveals that there has been an increase in both installed capacity and production but at a slow pace. As regards the gap, between the two we note a fluctuating trend which ranged between 6.35 and 13.20 lakh tonnes implying almost a two-fold rise. This is not a healthy sign for the development of any industry. The major factor responsible for the widening gap is the increasing shortage of raw materials.

2.1.2 Import and Export Trade of Paper and Paper Board

The study of the growth and development of paper industry will remain incomplete unless a reference is made to its import and export trade. It will be interesting to note that from a position of total dependence on import during the pre-independence days paper industry in India has now moved on to self-sufficiency. At the beginning of the plan period. India imported 30,000 tonnes of paper. This import level increased to 50,000 tonnes in 1955-56. In 1985-86 import of paper was 20,800 tonnes. The main varieties of paper and paper board which are being imported are art paper, cheque paper, photo base paper, high strength craft paper. matrix and multiplex boards. Export from India on the other hand has been affected because of domestic needs and internal requirements. Till 1959-60 India

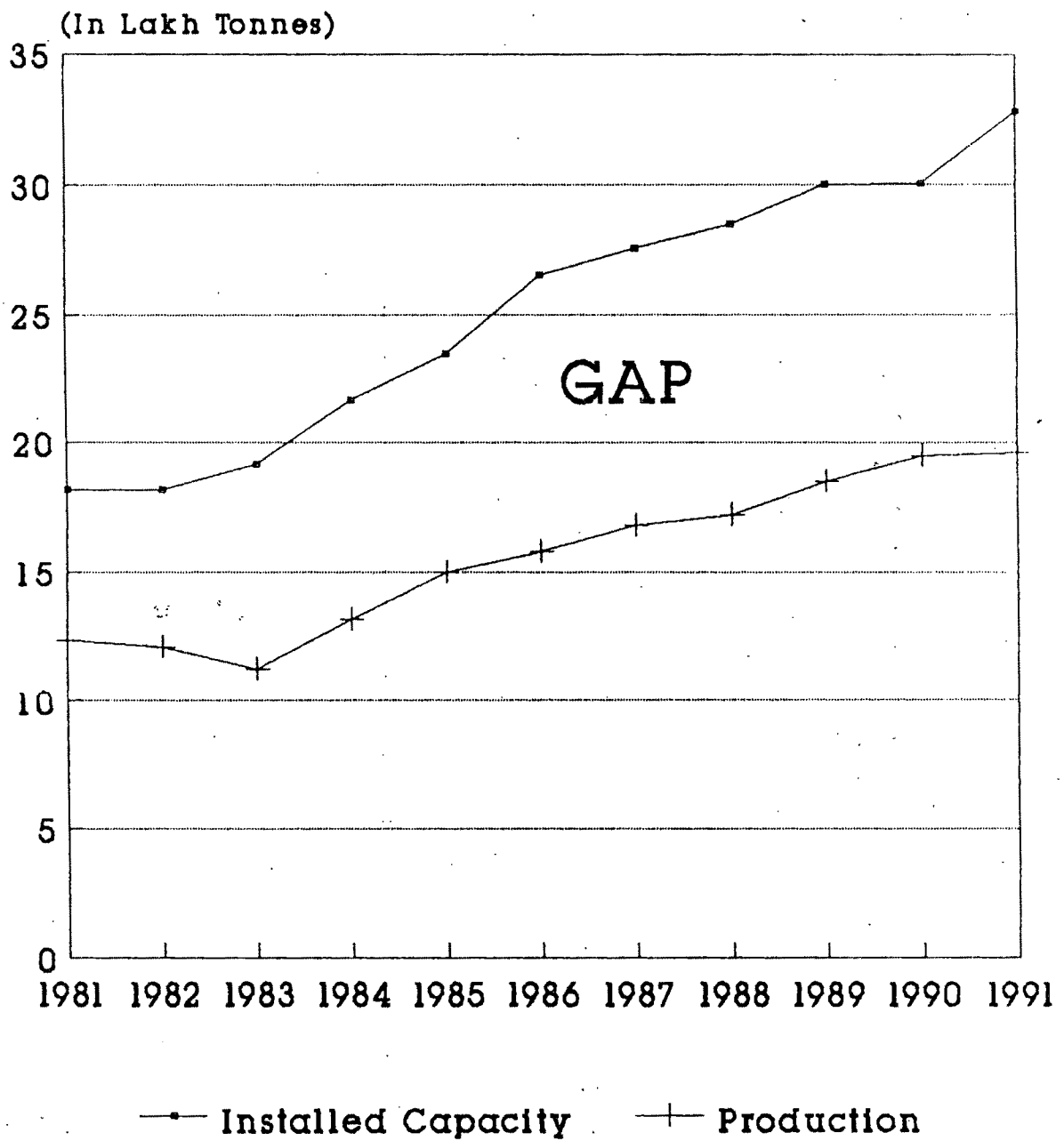


Fig. 2.1 Installed Capacity & Production of Paper and Paper Board

could not export paper. It was only after 1960-61 that export of paper started which was a meagre 1,000 tonnes only. India's export of paper consists of special quality paper mostly to neighbouring countries like Nepal. The export and import data on paper are presented in Table 2.5

Table 2.5 : Import and Export of Paper and Paper Board

('000 MT)		
Year	Imports	Exports
1	2	3
First Plan	40.5	-
Second Plan	27.6	0.2
Third Plan	25.6	0.9
Annual Plans (1966-67 to 68-69)	16.3	10.5
Fourth Plan	16.1	17.3
Fifth Plan	17.2	6.5
Sixth Plan	31.8	5.0
Seventh Plan		
1983-84	24.3	2.0
1984-85	27.1	6.7
1985-86	20.8	1.9

Note : Planwise data on imports and exports are taken as average of the respective plan period.

Source : Orissa Paper Dealers' Association, Cuttack.

2.2 STRUCTURE OF THE PAPER INDUSTRY

Integrated pulp and paper mills based on forest raw materials set up in the early years of the paper industry were of a relatively small size. The average capacity of paper units in 1955 was only 8,870 tonnes. With a setting up of a few average

size of a paper unit went up to 16,000 tonnes in 1960. Thereafter, followed a period of stagnation. However, there was some additional expansion through commissioning of small paper mills. For the purpose of the present study, the paper mills have been divided into three categories : Large Mills (category A), Medium Mills (category B) and Small Mills (category C).

2.2.1 Distribution of Mills by Sizes

The Mills in categories 'A' and 'B' were integrated pulp and paper mills based on forest raw materials, with the exception of Mandya National Paper Mills which was a bagasse-based unit. The mills in categories 'C' were based on agricultural residue and waste paper. As seen from the data presented in Table 2.6 the installed capacity increased by about 277 thousand tonnes of which expansion of existing units in category 'A' accounted for about 137 thousand tonnes, the balance being through small paper mills. Besides, the increase was due also to the fact that two mills utilising forest raw materials viz. India Paper Pulp Mills and Mysore Paper Mills, increased their capacity and moved from category 'B' to category 'A'. The only new unit in category 'A' was Laxmi Board and Paper Mills. The number of small paper mills in category 'C' increased from 39 to 51. Thus there was no marked change in the structure of the Indian paper industry between 1970 and 1975 which is reflected in the marginal growth of production from 7.50 lakh tonnes to 8.29 lakh tonnes.

During 1980 both the number of units and their

installed capacity registered a 50 per cent growth. In category 'A' there were three new units viz. Ashok Paper Mills, Sree Rayalaseema Paper Mills and Bhadrachalam Paper Boards with a capacity of 1.19 lakh tonnes. Besides, another two units viz. Straw Products (Bhopal) and Puralur Paper Mills expanded and moved up from category 'B'. Moreover, eight existing units undertook expansion and reached total output of 90,000 tonnes. Three new units viz. Sehgal Paper Mill, Ellora Paper Mill and Ashok Paper Mills (Bihar Unit) came up during this period. The period witnessed 43 additional units in category 'C' i.e. Small Paper Mills sector [8]. Thus the period 1975-80 marked the following features :

- * Commissioning of the large integrated pulp and paper mills after more than a decade.
- * Expansion of existing units to optimum capacity, and
- * Growth of small paper mills.

In 1985 the number of paper mills increased by more than 100 per cent as compared to 1980 with paper mills registering a growth of 129 per cent. The Nagaland Pulp and Paper Mill was the only large integrated Pulp and Paper Mill to be commissioned in this period. A few large mills [9] expanded their capacity by 44,500 tonnes. Only one mill, viz. Rohit Pulp and Paper Mills moved to category 'A' by expansion. The number of medium paper mills increased to 17 with the addition of 6 new units. The number of small paper mills were more than double and crossed the 200 mark with the addition of 121 new units. Thus the period 1980-85 is marked by the following features :

- * Only two integrated pulp and paper mills based on forest raw material, one in the large and one in the medium category, were commissioned.
- * There appeared a few medium agro-residue based units utilising second-hand paper machines [10], and
- * There was a spectacular increase in the number of small paper mills.

The increase in installed capacity during the period 1975-85 was of the 226 per cent, while production increased by 181 per cent.

The most remarkable feature of this period was the emergence of many more small paper mills, their number rising from 51 to 211.

In the beginning of 1989 there were 305 paper manufacturing units out of which 34 were large, 54 medium-sized and 217 small paper mills. The mushroom growth of small-sized paper mills has been due to the government's policy of favouring locational decentralisation in order to create a balanced regional development of the country. Thereafter the production capacity increased from 2,361 thousand tonnes to 3080 thousand tonnes indicating an overall rise of 30.45 per cent. The large paper mills registered a rise of 34.11 per cent and medium mills 140.87 per cent with regard to their production capacity between 1985-1988. In case of small mills there was a decline in the capacity to the extent of 58 thousand tonnes.

2.2.2 Distribution of Mills By States

An examination of the data presented in Table - 2.7

shows that the installed capacity is geographically distributed throughout country. Till 1982 there were no paper mills in States like Nagaland and Union Territories of Pondichery and Chandigarh. The data further reveal that two paper belts have emerged viz. one belt stretching over Assam, West Bengal, Bihar and Orissa, and the other over Madhya Pradesh, Maharashtra, Andhra Pradesh and Karnataka. The large mills are invariably located near the raw material base.

Table 2.6 : Structure of the Indian Paper Industry

Category of Mill	1970		1975		1980		1985		1989(1.1.1989)	
	No. of Units	Capacity	No. of Units	Capacity	No. of Units	Capacity	No. of Units	Capacity	No. of Units	Capacity
1	2	3	4	5	6	7	8	9	10	11
A. Large Paper Mills (Capacity 7,20,000 tpa)	13 (22.80)	571 (75.63)	16 (21.62)	775 (74.38)	21 (17.07)	1044 (67.88)	23 (9.16)	1146 (48.54)	34 (11.5)	1537 (49.90)
B. Medium Paper Mills (Capacity 10,000 to 20,000 tpa)	5 (8.78)	71 (9.40)	7 (9.46)	98 (9.34)	10 (8.13)	144 (9.36)	17 (6.77)	274 (11.60)	54 (17.70)	660 (21.43)
C. Small Paper Mills (Capacity 10,000 tpa)	39 (68.42)	113 (14.97)	51 (68.92)	169 (16.22)	92 (74.80)	350 (22.70)	211 (84.07)	941 (39.86)	217 (71.15)	883 (28.67)
Total	57	755	74	1042	123	1538	251	2361	305	3080

Note : Figures within parentheses indicate percentages to total.

Source : 1. Rao, A.Y. The Paper Industry in India : Status and Prospects, Oxford & IBH Publishing Co. Pvt. Ltd.

2. List circulated by the I P M A.

A further examination of the State-wise distribution of capacity suggests that substantial new capacities were generated in the States of Andhra Pradesh, Assam, Madhya Pradesh,

Karnataka, Uttar Pradesh and Maharashtra.

State-wise distribution of paper producing capacity had undergone a change between 1951 and 1988. In 1951 West Bengal was at the top with 42.3 per cent of the total productive capacity followed by Orissa with 22.6 per cent and Bihar with 8 per cent. Among the States by 1988, Maharashtra, Gujarat and Uttar Pradesh had registered an increase in the share of installed capacity and the states like West Bengal and Orissa, Andhra Pradesh and Bihar had registered a decline in capacity.

2.2.3 Handmade Paper Industry

The handmade paper industry, which survived as a traditional craft, is a recognised village industry under the Khadi and Village Industries Act, 1957, and receives special assistance from the Khadi and Village Industries Commission (KVIC). This sector utilises textile fibre derived from rags, gunny bags, cotton linters and other waste material. Handmade paper has higher average strength, and is preferred for its permanence and durability which is a result of its high cellulose content and restricted chemical treatment. The total production of handmade paper is about 5,000 tpa, with a sale value of about Rs. 40 million. However, high cost and limited availability of raw materials, and marketing problems have limited the growth of the handmade paper industry in India.

2.2.4 Varieties of Paper

Paper can be classified into different varieties, which

may be broadly divided into two categories, viz. cultural paper (or writing and printing papers) and industrial papers. Writing papers require brightness, smooth and shiny surface, and the ability to absorb ink without spreading. Printing papers require a high degree of capacity in addition to being more absorbent towards printing ink, They must have the strength so as to be used on printing machines without breaking. Wrapping and packing papers do not require colour and surface finish, but strength is the primary requirement. Wrapping and packing papers are usually machine glazed, so as to have a glossy surface on one side which permits printing. There are also some variations of paper broadly referred to as speciality papers, which are meant to be used for specific purposes, and possess distinctive properties. Electrical insulation papers for wrapping of cables, security paper, cigarette paper, airmail paper and filter paper are examples of some special papers. Paper board is basically a thick paper, comprising either a single thick layer, or a combining of thinner sheets to form a multi-layer structure. Category wise production data are presented for a few years in Table 2.8.

Table 2.7 State-wise Distribution of Paper Mills by Capacity

Sl. No.	State	1951-52			1975-76			1988		
		No. of Mills	Capacity	% Share	No. of Mills	Capacity	% Share	No. of Mills	Capacity	% Share
1	2	3	4	5	6	7	8	9	10	11
1.	Andhra Pradesh	2	7	5.1	2	137	12.1	16	340	11.4
2.	Assam	-	-	-	-	-	-	4	229	7.6
3.	Bihar	1	11	8.1	3	77	6.9	8	92	3.0
4.	Gujarat	1	2	1.5	9	42	3.7	39	234	7.8
5.	Haryana	1	8	5.8	7	69	6.2	17	148	4.9
6.	Karnataka	1	4	2.9	2	36	3.1	15	184	6.1
7.	Kerala	1	4	2.7	6	107	9.3	2	36	1.2
8.	Madhya Pradesh	-	-	-	4	104	9.2	14	174	5.7
9.	Maharashtra	2	5	3.9	17	139	12.3	51	432	14.3
10.	Orissa	1	3	22.6	3	122	10.0	6	185	6.1
11.	Punjab	-	-	-	-	-	-	17	122	4.1
12.	Rajasthan	-	-	-	-	-	-	9	43	1.4
13.	Tamil Nadu	1	1	0.7	3	56	4.4	18	192	6.4
14.	Uttar Pradesh	2	64	4.4	8	62	6.1	53	285	9.5
15.	West Bengal	4	581	42.3	11	192	15.7	20	232	7.4
16.	Nagaland	-	-	-	-	-	-	1	33	1.1
17.	Pondichery	-	-	-	-	-	-	1	9	0.3
18.	Himachal Pradesh	-	-	-	-	-	-	13	44	1.5
19.	Chandigarh	-	-	-	-	-	-	1	2	0.1

Source : Orissa Paper Dealers' Association, Cuttack.

Table 2.8 Category-wise Production of Paper

(In Lakh Tonnes)

Year	Category			
	Writing & Printing	Packing & Wrapping	Paper Board	Speciality Paper
1	2	3	4	5
1971	4.64	1.63	1.26	2.80
1981	5.95	3.66	1.61	0.23
1982	6.46	3.97	1.74	0.25
1983	6.54	3.90	1.70	0.24
1984	6.57	4.52	2.19	0.42
1985	7.20	4.95	2.40	0.46
1986	7.56	5.21	2.53	0.48
1987	8.06	5.54	2.69	0.59
1988	9.15	5.35	1.70	0.61
1989	9.55	5.57	1.77	0.60
1990	10.09	5.88	1.87	0.66

Source : 1. Data Bank 1989, The Economic Times, Calcutta, p.145.

2. Facts for You, February 1991, p.19.

It is observed that during 1989-90 writing and printing papers (Cultural) comprised more than 50 per cent of the total production of paper and paper board. The production of wrapping and packing papers (industrial) consisted of 33 per cent, paper board 12 per cent and other specialised papers about 4 per cent. As is evident, this proportion production of various categories of papers and paper board is expected to continue for the next 10 years or more. The existing capacity over the industry plus that which is likely to be implemented over the next five years or so might be capable of maintaining this pattern of production.

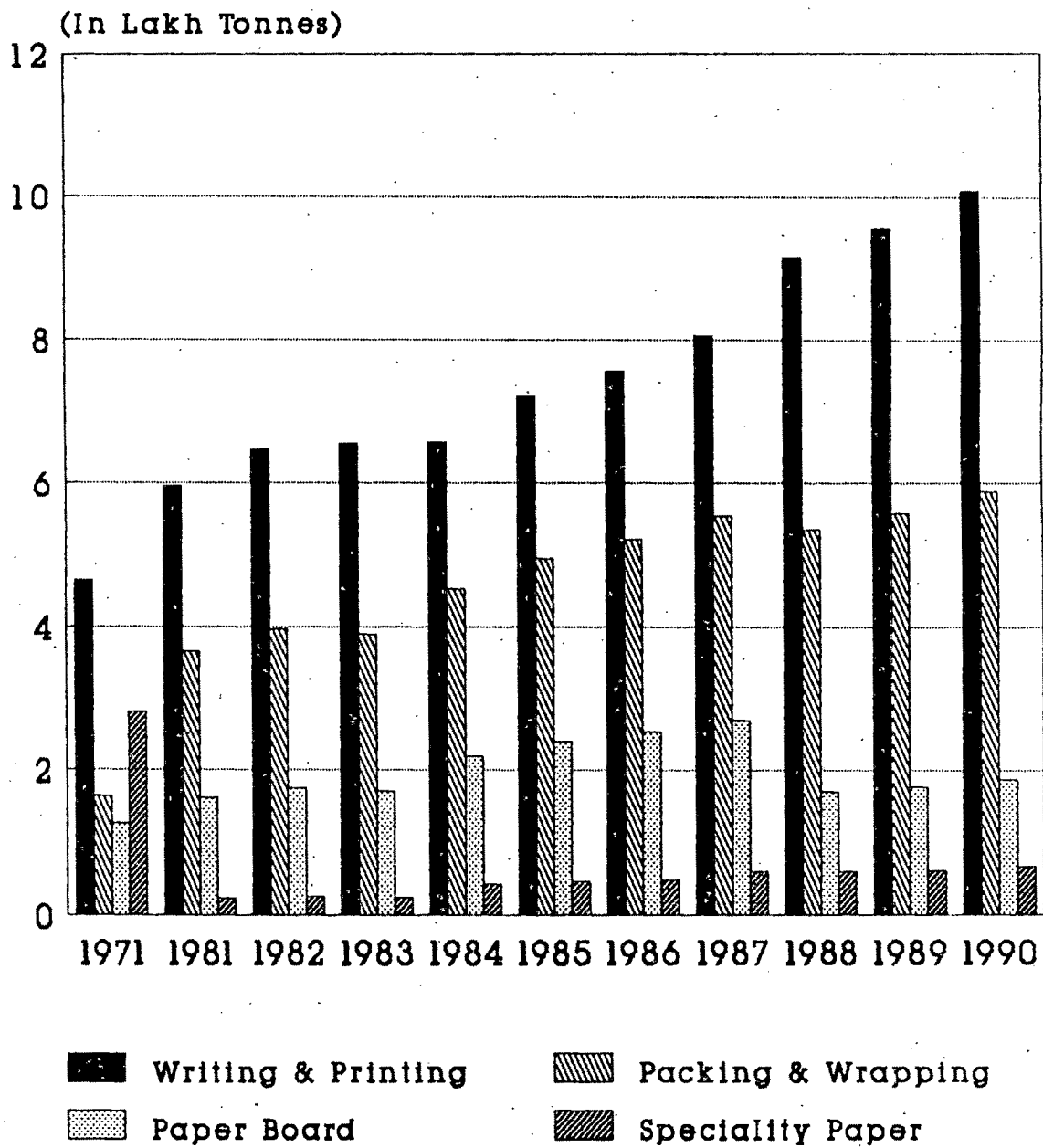


Fig. 2.2 Category-wise Production of Paper.

2.3 SUMMING-UP

The first paper mill was established in 1812 and at Serampore near Calcutta. The production of paper was only 19,000 tonnes on the eve of 20th century. Till 1924 the industry operated under a handicap since it had to depend entirely on the imported pulp. Further it was confronted with acute competition from cheap imported paper. The enactment of the Bamboo Paper Industry (Protection) Act, 1925, gave a fillip to the growth of the industry. As a result, by 1930-31, the total annual capacity of the industry increased from 33 thousand tonnes in 1925 to 45.6 thousands in 1930-31. A careful observation of the development of the industry in the pre-plan period reveals that it went through a chequered career.

The industry got a fillip during the world war II. However, after the war it suffered from stagnation for about 5 to 6 years. It was in 1945 that a Development Wing was formed under the Ministry of Industry and Supply to take care of a healthy growth of the industry. The protection was withdrawn from April, 1947.

Upto the beginning of the planning era in 1951 the paper industry had undergone a fairly zig-zag career. It was expected that consequent upon the spread of education the paper industry might have a very bright future. The industry fared well in the initial planning period. A good number of small paper units based on the use of unconventional raw materials were established during the Fifth Five-Year Plan. However, though the

target for both capacity and production were set at higher levels actual achievements lagged behind most of the plan periods. During 1951-86 the gap in the compound annual growth rate of capacity and production was 1.4. A year-wise analysis of the data on installed capacity and production during the decade 1981-90 reveals an increase in both capacity and production but at slow pace. The gap was widening because of increasing shortage of raw materials.

At present the country is almost self-sufficient in respect of paper and paper board. However, our exports have woefully declined and imports have been limited to certain special varieties of paper.

The structure of the Indian Paper industry reveals three categories of mills : large, medium and small. The small mills are based on agricultural residue and waste paper. The period between 1975-80 witnessed a mushrooming of small paper mills. A few large mills expanded their installed capacity. The rise in the number of small mills had been due to the government's policy of favouring locational decentralisation in order to create a balanced regional development in the country. By the close of the present study there were 34 large, 54 medium and 217 small mills distributed all over India. Two conspicuous paper belts emerged. One belt stretched over Assam, West Bengal, Bihar and Orissa and the other over Madhya Pradesh, Maharashtra, Andhra Pradesh and Karnataka. Substantial new capacities have been created in the States of Andhra Pradesh, Assam, Madhya Pradesh, Karnataka, Uttar Pradesh and Maharashtra.

The hand-made paper making survived as a traditional craft among the villages. Such paper has higher average strength. But high cost and limited availability of raw materials and marketing problems have stood on the way of this branch of paper industry.

As regards the varieties, it is seen that we manufacture broadly two categories of paper : cultural paper and industrial paper.

Notes and References

1. Sharma, L.C. "The Pulp and Paper Industry-I", Facts For You, February, 1991, p.17.
2. The paper making families.
3. Ahuja, S.P. Paper Industry in India : Retrospect and Prospects, The Institute of Economic and Market Research, New Delhi, 1980, p. 35.
4. Ibid.
5. Kulshrestha, N.K. Analysis of Financial Statement of Paper Industry in India. Navaman Prakashan, Aligarh, 1987,p.4.
6. Ahuja, S.P. op. cit.
7. Rao, Y.A. The Paper Industry : Status and Prospects, Oxford and I B H Publishing Co. Private Ltd., New Delhi, 1989, p.10.
8. Ibid.
9. Bakarpur, Straw Products, Seshasyel Paper and Boards and Mysore Paper Mills..
10. Rao, A.Y. op. cit. p.12.
