Economic and Financial Review

Volume 32 | Number 1 Article 8

6-1994

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A. P. Awoseyila
*Central Bank of Nigeria*

K. M. Obitayo
*Central Bank of Nigeria*

CBN ECONOMIC & FINANCIAL REVIEW, VOL. 32, NO. 2: 133-162

# Factors Affecting the Supply of Paper in Nigeria

Chief A.P. Awoseyila and Alhaji K.M. Obitayo*

*This study reviews the developments in the paper industry with special focus on the supply and factors affecting the supply of paper in Nigeria. The study appreciates the strategic role of paper on socio-economic activities and is concerned with the downward trend in the supply of paper to the market. The data show the low capacity utilization and heavy revenue losses sustained over the years by the local pulp paper mills as well as the declines in the import supply of paper due to the scarcity of foreign exchange. The study attributes the factors constraining the supply of paper to the dominance of government investment in and control of the pulp paper mills which have made them uncompetitive and unresponsive to technological changes and innovations. Other factors listed are obsolescence of the machinery and equipment, old and low technology inherent in the production system, high production costs as well as inadequate funding due to limited access to the financial markets. The study calls for urgent privatisation of government's share holdings in the paper mills to inject private funds and management for efficiency; re-structuring of the paper mills to medium sizes; re-classification of paper used as intermediate inputs as raw materials for duty exemption; and adoption of new technology or adaptation of the existing ones to process any available local substitutes for the imported long fibre pulp.*

## SECTION I
## INTRODUCTION

Paper has, for a long time, been a vital input in the manufacturing and services sectors and a core ingredient in human resource development. Its use is directly connected with everyday living and industrial activities in various ways. The tremendous rise in the tempo of socio-economic activities in recent times such as the proliferation of newspapers and periodicals, has led to a significant upsurge in aggregate demand for paper and paper products. Moreover, the demand-supply conditions in other socio-economic sectors tend to influence the demand for paper. For instance, the rapid increase in student enrollments at all levels of education from 15.7 million in

* Chief Awoseyila is a Deputy Director of Research and Head, Real Sector Studies Division while Alhaji Obitayo is an Assistant Director and Head of Industrial Studies Office. The views expressed are those of the authors and are not necessarily shared by CBN Management. The authors acknowledge the assistance of Messrs C.M. Anyanwu, B.S. Adebusuyi and J.A. Olorunshola who participated in the survey for the study.

1989 to 20 million in 1993 had profound influence on the aggregate demand for paper.

The paper industry in Nigeria, supposed to be largely inward looking, is still import oriented. The pulp paper industry which needs much resources is constrained by insufficient capital and dependence on imported machinery and equipment and raw materials. Consequently, the Nigerian paper industry has not achieved full integration in the production process but it has only been producing newsprint, printing and writing paper and kraft board paper. The supply of paper is limited and therefore gives rise to a wide demand/supply gap. The assumption therefore is that in spite of the comparative strength in the demand for paper, the constraints in its supply seem to account for the astronomical increase in its prices. The supply of paper appears somewhat very inelastic since the rapid changes in prices have engendered relatively small response in the quantity supplied.

There are many types of paper in use but the main focus is on the supply of four major categories: (i) newsprint, (ii) printing papers, (iii) writing papers and (iv) kraft board papers. Newsprint as intermediate input is in strong demand by firms in the paper products, printing and publishing sectors. The demand for newsprint runs strongest among an estimated 125 paper products firms, thousands of large, medium and small printing units, the print media houses and the educational book publishing groups. Also, the users of kraft board paper as intermediate input include the more than 50 producers of paper stationery (envelopes) and the paper packaging firms. The major users of writing, typing and data processing papers as end-products include the numerous banking and finance houses, business and commercial centres, public offices, educational institutions and individuals. The two major supply sources for paper in Nigeria are the domestic paper producers and the numerous traders who constitute the paper import suppliers. The assumption is that the quantity produced locally is supplied to the domestic market.

The primary objective of this study is to examine the supply of paper, identify the factors affecting its supply and explore ways and means of addressing the constraints through efficient policy measures. This will be done with a view to making domestic production of paper an attractive and profitable investment opportunity. Arising from the paucity of relevant data on the activities of the paper industry, questionnaires designed to elicit relevant information for the last five years were completed by firms in various paper sub-groups. Other sources of information included published official data on domestic manufacturing production, trade summary and journals. Analysis of the information derived is deductive in nature, and survey data were processed to reflect possible trends over time on performance variables: the capacity utilization, quantity of domestic paper output, cost, sales, profitability and capital expenditure. The study relies more on physical unit of output capacity as the ideal measure of a firm's size rather than the capital assets, value added and employment. This position is supported by similar studies which variously found capital asset measure as not being optimal, value added as

susceptible to inflation and deflation, and employment levels as capable of being compromised by technological change. Besides the pulp paper mills, there is a dearth of published data on aggregated level of production for the paper industry's other components: the paper products and packaging sub-groups. Unlike the products of the two pulp-paper mills, the heterogeneous nature, the varied sizes of the paper products and their different unit of measures made aggregation of output capacity, actual output and quantity sold a bit difficult.

The rest of this paper is divided into four sections. Section II, reviews the theoretical issues underlying the supply conditions of a manufactured product. In Section III, the supply of paper in Nigeria is discussed with analyses of the trends in domestic paper production and import supply. Section IV examines the factors affecting domestic and import supply of paper and focuses on the structure of the industry, particularly the role of government and the private sector. Section V presents the summary, conclusions and recommendations.

## SECTION II
## THEORETICAL ISSUES UNDERLYING INDUSTRY'S SUPPLY CONDITIONS

The supply of a product is the actual volume sold to the market at a given price. The supply function derives from a combination of quantity produced and imported less unsold finished goods and exports. The supply factors are those conditions affecting the industry's production and supply of a commodity. The basic supply factors as applicable to manufactured products include the market structure and the influence of firms' sizes on economies of scale (internal and external) and profit rates; adequacy of raw materials supply, the state of technology in the industry, research and innovations; responsiveness to change, capital requirements for investments, cost considerations; pricing and product strategies, and the risk and uncertainty in the industry. A change in any of these factors at any point in time is bound to influence the unit cost of production and hence the supply.

The market structure and the level of organisation tend to reflect the conduct and performance and ultimately the basic supply conditions of an industry. One important element of an industry's market structure is the aspect relating to economies or diseconomies of scale, i.e. the behaviour of average unit costs of production when all input costs are variable as the output increases. Some empirical studies have led to the emergence of diverse views on the influences of firms' sizes on the extent of economies of scale and profit rates. These studies tend to affirm the hypothesis that economies of scale, (the long run average cost) emphasizes more of the supply conditions in an industry. Scherer (1973) contended that the size of an overall market demand, the behaviours of the input supplies and the extent of

economies of scale can influence an industry's performance, particularly its supply conditions. He concluded that large size firm is not synonymous with the existence of exploitation of economies of scale. Similarly, T.R. Savings (1961), Stigler (1963), L.W. Weiss and Bain (1965) are of the opinion that large sized firms are not needed to realize available economies of scale and that many firm plants are larger than needed to exploit optimum levels of production. With respect to firm sizes and the profit rates, Stekler (1964), M. Hall and Weiss (1967) found a strong correlation between firm sizes and profit rates. This contrasted with the earlier position of Robinson and Kaldor (1934) that very large experienced firms would earn lower profit rates because of diminishing returns to fixed factors of production. The latter viewpoint was corroborated by Haines (1970) and Larry L. Deutsch (1977). Haines, using simple correlation on the profit rates and the profitability data of large firms, denied the existence of any relationship between a firm's size and the firm's profit. He found most profitable firms to be the small and medium-sized ones. Deutsch also examined the performance of multi-plant firms (the pulp-paper mills, the oil refineries and petrochemical plants) with regard to profit performance and found the multi-plant firms with lower profit rates than the single plant firms. This gives credence to the increasing tendency of associating dis-economies of scale with multi-plant operations. Similarly, expressing a dissenting viewpoint by emphasising the significant role of management in an enterprise, E.G. Nourse (1941) contended that there is no particular correlation between market structure and performance. Instead, he identified performance primarily as a function of the idiosyncrasies of the individual firm's management.

The capital requirement barriers is another effective factor often employed in discriminating against inefficient and risky enterprises. Money and capital markets do discriminate against unqualified borrowers who presumably bring with them the increased risk of default or failure. Any condition of efficiency in operation or adequate supply of a specific product assumes a given state of technology and technical know-how and serves as a function of the plant's overall capacity as well as its aggregate volume of production. The existing cost conditions and the state of technology can conveniently rule out a firm or industry as inefficient. The obsolescence of machinery and equipment which results in declining production trends, tends to create the need for machine and equipment replacement or repairs and maintenance, given a firm's adequate access to financial resources. Furthermore, existing risks and uncertainty, particularly those that border on the supply of inputs: raw materials, machinery and equipment, spare parts for repairs and maintenance as determined by the availability of credit and foreign exchange, have been found to induce economies or dis-economies of scale in an industry. The effects of such uncertainty on industrial performance were examined by Robinson (1934) who contended that uncertainty will tend to affect an industry's output growth and supply conditions. This hypothesis was later affirmed by David Schwatzman (1963).

Finally, other hypothesis about the production capacity of a corporate manufacturing unit suggests its susceptibility to changes in many ways as the sequence of specific capacity decisions taken over time. Each firm's manufacturing capabilities establish limits on its overall capacity. In a growing market, corporate manufacturing units evolve capacity strategy as a major element of manufacturing strategies, embodying its philosophies, behavioural preferences and driving forces. The capacity strategy determines what the firm's posture should be in terms of the amount and timing of capacity changes in relation to demand changes. A manufacturing unit's capacity strategy is based on a series of assumptions and predictions about long-term market, technology and competitive behaviours. These comprise the predicted growth and variability of primary demand, the costs of building and operating different plant sizes, the rate and direction of technological evolution, and anticipated impact of international competitions, market and sources of supply.

## SECTION III
## THE SUPPLY OF PAPER IN NIGERIA

The supply of paper to the Nigerian market is mainly through domestic production and importation.

### (a) (i) *Domestic Production of Paper*

In the domestic scene, the two functioning pulp and paper mills are the Nigerian Newsprint Manufacturing Company (NNMC), Oku-Iboku in Akwa Ibom State and the Nigeria Paper Mills Limited (NPM), Jebba, Kwara State. The third paper plant, the Iwopin Pulp and Paper Company (IPPC), formerly the Nigerian National Paper Manufacturing Company (NNPMC), Iwopin, Ogun State, has just been completed and are ready for commissioning. The three predominantly publicly funded paper mills were established with the aim of achieving national self-sufficiency in paper supply. The NNMC, Oku-Iboku, was established with a capacity to produce 100,000 tonnes of bleached and unbleached newsprint and writing papers per annum for both the domestic and export markets. The NPM, Jebba, has capacity to produce 65,000 tonnes of industrial grade kraft board papers per annum for numerous downstream industries. The Jebba mill's inclination to promote self-sufficiency made it to diversify its production base and expand its capacity with additional stocks of plant and machinery to produce 300,000 pieces of industrial paper cartons and 140,000 grams of exercise books per annum. The NNMC at Iwopin was designed initially to complement the two other pulp mills with capacities of 600,000 tonnes of long fibre kraft and 100,000 tonnes of fine bleached paper per annum. Only the first phase, with a capacity to produce 138,000 tonnes of newsprint, is ready to be

commissioned.

Aggregate quantity of paper supplied to the Nigerian market between 1988 and 1992 was estimated at 1,491,614.5 tonnes (see Table 1). Supply through imports totalled 1,300,118.5 tonnes and represented 87.2 per cent of the total, while local pulp paper mills accounted for only 12.8 per cent. The volume of paper supplied to the market declined averagely by 1.7 per cent during the period. Total supply, which rose by 14.0 per cent to 317,030.2 tonnes in 1989, increased by 21.5 per cent in 1990 to 385,118.7 tonnes. The increase followed largely the surge in paper importation. However, due to foreign exchange constraints, which drastically reduced the quantity of paper imported, aggregate supply of paper fell substantially by 28.8 and 13.4 per cent to 274,072.9 and 237,403.3 tonnes in 1991 and 1992, respectively.

Production of paper from the two functioning pulp paper mills at 196,496 tonnes registered an average decline rate of 18.9 per cent annually from 1988 through 1992 (see Table 2). The NNMC's share in the aggregate output was 126,271 tonnes or 64.3 per cent while NPM accounted for 73,794 tonnes or 35.7 per cent of the total. Annual production from the pulp paper mills varied from 54,035 tonnes in 1988 to 21,047 tonnes in 1992. Production of newsprint at the NNMC, Oku-Iboku, recorded an average annual decline rate of 8.5 per cent. Even though production rose by 17.2 and 29.9 per cent from 24,670 tonnes in 1988 to 28,927 and 37,582 tonnes in 1989 and 1990, respectively, the volume of production was relatively low (averagely 29%) when compared to the overall plant capacities. The level of output however fell substantially by 42.0 and 39.0 per cent to 21,792 and 13,300 tonnes in 1991 and 1992, respectively. Similarly, output of basic kraft board paper from the NPM, Jebba, declined annually by 26.5 per cent. The production of kraft paper fell sharply by 43.9, 24.1 and 38.3 per cent from 29,365 tonnes in 1988 to 16,477, 12,498 and 7,707 tonnes in 1989, 1990, and 1991, respectively. However, output of basic kraft paper increased marginally by 0.5 per cent to 7,747 tonnes in 1992.

### (ii) *Domestic Supply of Paper*

Aggregate quantity of paper sold to the market by the local pulp paper mills at 196,496 tonnes decreased averagely by 26.2 per cent from 1988 to 1992 (see Table 3). Total supply of paper fell by 25.5 per cent from 59,959 tonnes in 1988 to 44,650.7 tonnes in 1989 but rose by 7.1 per cent to 47,809 tonnes in 1990. The volume of paper supplied locally decreased sharply by 39.9 and 46.5 per cent to 28,712 tonnes and 15,365.3 tonnes in 1991 and 1992 respectively. Only one mill, NNMC exported newsprint in 1988 and 1989 while inventory of finished goods at the mills stood at an annual average of 1,542.7 tonnes.

At the initial stage, the NNMC had to contend with the issue of relatively poor quality, high pricing and market resistance from the Newspaper Proprietors Association of Nigeria (NPAN). In its first 18 months of operation, the NNMC

increased the price of its newsprint from ₦500 to ₦2,822 per tonne which compared favourably with the price of imported newsprint at US$550 per tonne (f.o.b.) at the 1986 exchange rate in addition to 45 per cent custom duty. In spite of the relatively cheaper price of NNMC's newsprint, some NPAN members continued to import newsprint. Consequently, the level of newsprint inventory for the mill rose to 5,000 tonnes in 1986 as against an acceptable level of 1,000 tonnes in the newsprint industry. This forced NNMC to rationalise its production processes, improve the quality of the newsprint by further bleaching its brownish colour and ensure reasonable and competitive pricing. The NNMC later tested its improved newsprint in the export market with 2,061.5 tonnes in 1987 and carned US$692,162.7. Nevertheless, due to persistent operational problems, export of newsprint declined to 9.9 tonnes in 1988 and fetched only 36,679 French francs. The situation changed for the better in 1989 when export volumes rose to 501 tonnes valued at US$230,502.

The supply of newsprint to the domestic market by the NNMC at 118,073 tonnes accounted for 60.1 per cent of aggregate supply between 1988 and 1992. Total volume of newsprint sold by the NNMC declined annually by 12 per cent, the quantity of newsprint sold, reflecting brisk demand, represented 90.5 per cent of actual domestic production. Aggregate quantity sold increased by 18.3 and 34.8 per cent from 23,359 tonnes in 1988 to 27,630 and 37,246 tonnes in 1989 and 1990 respectively. The upward trend in the quantity sold was later negated by the substantial declines of 44 and 57.1 per cent to 20,875 and 8,963 tonnes sustained in 1991 and 1992, respectively. The decrease in the proportion of newsprint sold (67.4 per cent) relative to the level of output was due to the 39 per cent fall in output and the 87.5 per cent increase in the unit price of newsprint in 1992. The inventory of finished goods at NNMC, which maintained an annual average of 1,542.7 tonnes for all the plants, fluctuated between 1,301 tonnes in 1988 and 4,337 tonnes in 1992. Sales turnover registered an average annual growth rate of 47.3 per cent from 1988 to 1992. It rose by 97.2 and 34.8 per cent from ₦91.1 million in 1988 to ₦179 million and ₦242 million in 1989 and 1990, respectively. Even though the gross sales reflected a decline in demand, the unit price increased by 87.5 per cent from ₦7,200 to ₦13,500 per tonne in 1992. Corresponding to the quantity sold, aggregate turnover fell by 38 and 19.5 per cent to ₦150.3 million and ₦121 million in 1991 and 1992, respectively (see Tables 9 and 10).

The NPM at Jebba concentrated on the domestic market where it controlled about 14 per cent of the corrugated carton's market as it could not meet the enormous potentials in the export market. At the initial stage, the company enjoyed good patronage as it sold kraft board papers, corrugated cartons and exercise books directly to corporate units that use kraft paper as inputs, and retail outlets such as the stationery stores. The NMP's inability to meet its demand was first attributed largely to production constraints, but later the mill was beset with stiff competition from relatively cheaper imported kraft paper which adversely affected its sales volume. Total quantity of kraft papers sold by the NPM totaled 78,423 tonnes or 39.9

per cent of aggregate domestic paper supply. Domestic supply of kraft papers fell averagely by 33.9 per cent annually. The quantity of kraft papers sold fell gradually from 36,600 tonnes in 1988 to 6,402.3 tonnes in 1992. The slump in sales resulted in considerably large inventories of finished good in the warehouses between 1990 and 1992. Gross sales of kraft paper declined annually by 7.3 per cent. Except in 1992 when sales revenue increased, turnover at the mill declined gradually. Gross sales at ₦137.6 million in 1988 fell by 5.7 per cent to ₦129.8 million in 1989. Turnover, which reflected much of decreases in the quantity sold, recorded respective declines of 13.9 and 19.5 per cent to ₦111.7 million and ₦89.9 million in 1990 and 1991, despite the relative increases in the unit price by 102.8, 38.7 and 8.5 per cent to ₦7,626, ₦10,574 and ₦11,471.9 per tonne in 1989, 1990 and 1991, respectively. Following largely the 34.5 per cent increase in the unit price per tonne to ₦15,432 in 1992, the turnover rose by 9.9 per cent to ₦98.8 million while aggregate quantity sold declined.

(b) *Import Supply of Paper*

The proportions of imported pulp and paper as inputs by the mills and paper converting units vary from 20 to 80 per cent of total raw materials, depending upon the specific units' products mix and ability to obtain adequate credits and foreign exchange. Imported paper, on the average, represented 80 per cent of total raw materials used by the corporate paper products, paper packaging, printing and publishing sub-groups, while locally produced paper accounted averagely for the remaining 20 per cent. But arising from the dwindling foreign exchange resource, sharp depreciation in the naira exchange rate and high import tariffs on paper, the quantity of imported paper, especially newsprint, kraft papers and kraft board and writing paper, decreased substantially in 1991 and 1992.

Printing paper accounted for 31.9 per cent of total imported papers as kraft paper and board, printing paper and writing paper represented 30.8, 26.4 and 4.8 per cent of the total, respectively, while other imported papers accounted for 6.1 per cent. The quantity of printing paper imported increased annually by 24.9 per cent. Imported newsprint, writing paper and kraft paper and board increased averagely by 19.7, 10.3 and 4.7 per cent, respectively, during the period. Even though the quantity of printing paper rose averagely by 74.4 per cent in 1989 and 1990, it fell to respective levels of 74,095 and 72,692 tonnes in 1991 and 1992. Similarly, imported newsprint which rose by 65.3 and 3.5 per cent to 79,489.3 and 82,310 tonnes in 1989 and 1990 fell to 68,902.5 and 64,501.4 tonnes in 1991 and 1992, respectively.

Consequent upon the sharp (28.3 per cent) decline in the supply of all brands of imported papers in 1991 and particularly in 1992, both the wholesale and retail prices of imported paper rose five-fold above their respective levels in 1988. For instance, the price of a tonne of imported newsprint at ₦9,637 in 1988 rose to ₦45,000 in 1992. The corporate users of imported paper as inputs were constrained in 1992 by a general

low level of raw materials inventory that could not exceed two weeks as compared with 1988 when the standard level of stocks could sustain six months to one year production. Some of the paper products and paper packaging sub-groups had recourse to procuring paper from local importers rather than importing directly. But this too proved unsuccessful with low stock levels of imported paper at the wholesale and retail ends.

The Benelux countries of Norway, Finland and Sweden are the dominant import supply sources of newsprint to Nigeria, accounting for over 70 per cent of the total, while imports from Germany, France and other countries accounted for the rest. The import supply sources for kraft paper and board are the United States, Canada, Sweden and Portugal, with imports from the U.S. accounting for 64 per cent of the total. The Republic of Germany and the United Kingdom are the dominant import sources of writing paper (see Table 5).

## SECTION IV
## FACTORS AFFECTING THE SUPPLY OF PAPER IN NIGERIA

Despite the inadequate capacities of the local producers, accounting for less than 20 per cent of aggregate supply, they still encounter constraints. These constraints are as highlighted below:

### (a) Management Problems

The pulp paper industry is highly capital intensive with greater component of its investment capital in foreign exchange for the procurement of machinery and equipment, spare parts and raw materials. The strategic importance of paper and the highly capital intensive nature of the pulp paper mills as well as limited resources mustered by the indigenous private sector at the underscored the sheet dominance of public ownership in the domestic paper production. For instance, the NNMC is jointly owned by the Federal Government (90%), the Cross River (5%) and Akwa Ibom (5%) state governments; the NPM, Jebba, is wholly owned by the Federal Government while the latter's joint equity participation in the IPPC is 70 per cent with the Parson and Whittemore Investment B.V. of U.S. owning the remaining 30 per cent.

Like other state-owned enterprises, the oligopolistic market structure of the pulp paper mills, reflecting huge government ownership and control, has persistently produced certain types of undesirable effects. For example, the paper mills have recorded dismal performances due largely to the administrative controls placed on their product pricing, politically influenced management selection and appointment and investment policies. The predominance of public sector ownership implies incessant government intervention in management. The enterprises have to adhere to complex bureaucratic controls which place some limitations on the exercise of

discretion or initiatives. Such firms have no clear-cut autonomy to plan their expansion, recruit their staff and maintain discipline. The overall quality of management ultimately declines and dis-economies of scale occur. Furthermore, such state-owned enterprises are usually under-funded due to poor pricing policy and reliance on government subventions. All these combined have contributed to the high degree of inefficiency in the existing paper plants, thus presenting a prima facie case for the privatisation and mandatory restructuring of the pulp paper mills. The inefficiency in the industry is underscored by the very low (25%) capacity utilisation jointly recorded between 1988 and 1992 for both the NNMC at Oku Iboku and NPM at Jebba. The government's role and participations in the paper mills actually influenced their conduct with respect to apparent mild responsiveness to changes and performances in terms of rate of output and technological changes. But unlike the pulp paper mills, about 80.4 per cent of the paper converting firms were wholly owned by Nigeria's private enterprises while the remaining 19.6 per cent are with foreign equity participation. Similarly, 77.8 per cent of the paper packaging firms are owned by the private sector and the remaining 22.2 per cent jointly owned by Nigerians and foreign investors.

(b) Technological Problems

(i) *Obsolete Machinery and Equipment*

Like manufactured products, the existing technology in both capital equipment and the production processes has a life cycle. As most machinery and equipment used by the pulp paper mills were installed over 25 years ago, the technology has become obsolete and little investments have been made in procuring new ones. The use of machinery and equipment over time has necessitated extensive rehabilitation or their complete replacement. Some operators of the equipment allege that the production of the installed machinery and equipment have long been phased out, thus making procurement of their spare parts difficult, except on special and often very expensive arrangements. Moreover, the overall expenditure invested by the domestic paper mills on repairs and maintenance has been relatively low and has decreased gradually over the years due to limited financial resources. Consequently, production became further constrained by frequent breakdown of machinery and equipment, often culminating in plant closures.

Unlike the raw materials used in Nigeria, most pulp paper mills in northern and southern parts of Africa and some mills in Europe and South-East Asia have adopted and perfected the use of non-wood fibres, mostly kenaf, as raw materials in paper production. The obsolete technology of the machinery and equipment and the types of raw materials in use in the Nigerian paper mills are reflected in the quality of paper produced locally compared with imported specialty papers, such as the electrical insulation papers, food packaging, wrapping and tracing papers, the

business form papers and copying papers. The obsolete and low technology in the local plants, in addition to the continued use of wood-pulp, the imported component of which remain scarce because of inadequate foreign exchange, have resulted in low and declining rate as well as quality of output and supply of paper.

(ii) *High Production Cost*

Arising largely from inappropriate and outdated technology, the production costs in the paper industry increased sharply in spite of the continued declines recorded annually in the quantity of output. Substantial increases were recorded in the costs of the raw materials, spare parts, factory labour, energy as well as in repairs and maintenance costs, and these varied considerably with increasing level of output. Much of the increases in the variable costs were a reflection of the environmental factors such as the changes in the foreign exchange and interest rates as well as the need to provide infrastructural facilities.

Broadly, the production costs of the paper industry increased at an annual rate of 12.8 per cent from 1988. It rose by 9.4 and 51.5 per cent to ₦282.5 and ₦428.1 million in 1989 and 1990 but fell by 21.8 per cent to ₦334 million in 1991, respectively. It rose again by 11.8 per cent to ₦374.2 million in 1992. The cost of raw materials on the average accounted for 40.1, 76.9 and 69.7 per cent of total production cost of the paper mills, paper products and paper packaging groups, respectively. The production costs at the NNMC increased averagely by 37.2 per cent annually. It recorded a substantial increase of 157.5 per cent from ₦92.5 million in 1989 to ₦238.2 million in 1990, but fell by 16.0 per cent to ₦206 million in 1992. Similarly, the production costs at the NPM grew annually but at a lesser rate of 1.1. per cent, due to increased efforts at sourcing raw materials locally. The production costs at the NPM rose by 13.2 and 12.1 per cent in 1989 and 1992 respectively.

The unit cost of producing newsprint at the NNMC increased averagely by 49.9 per cent over the period. It fell by 16.3 per cent to ₦3,197.7 per tonne in 1988, rose substantially by 102.1, 31.1 and 83 per cent to ₦6,483.2, ₦8,475.6 and ₦15,488.7 per tonne in 1990, 1991 and 1992, respectively. The relatively high production costs attributable to technological problems, declining rate of output, and the rise in the plants excess capacities are all underscored by the less than optimal scale or dis-economies of scale in the pulp paper industry during the review period.

(iii) *High Unit Selling Price*

With outdated and low technology and lack of competitiveness with imported paper, low foreign exchange earnings and inadequate supply of foreign exchange with the attendant further depreciation in the domestic currency, the price of newsprint, kraft papers, printing and writing papers as intermediate input became very expensive.

The unit price of newsprint at the NNMC increased at an annual average of 55 per

cent. At ₦3,900.00 per tonne in 1988, the unit price rose by 66.7 per cent to ₦6,500 in 1989 through 1990. The unit price further increased by 10.8 and 87.5 per cent to ₦7,200 and ₦13,500 per tonne in 1991 and 1992, respectively. The unit price of kraft paper at NPM similarly registered average annual growth of 46.1 per cent. It rose by 102.8, 38.7 and 8.4 and 34.6 per cent to ₦7,626, ₦10,574, ₦11,471 and ₦15,432 per tonne in 1989, 1990, 1991 and 1992, respectively.

**(iv)** ***Operating Losses***

The paper manufacturing units as buyers and sellers were expected to compete in the resource markets to generate enough revenue to plough back into business. But as a result of inappropriate and outdated technology, the pulp paper mills actually sustained losses throughout the period under review. The losses were attributed to the mills' inability to operate optimally and produce in large quantities. The operating losses sustained by the NNMC increased from ₦29.4 million in 1988 to ₦205.2 million in 1990, while the magnitude of the losses reduced to ₦60.1 million in 1991. The losses sustained by the NPM were relatively low at ₦28,920, ₦83,640 and ₦72,519 in 1988, 1990 and 1992, respectively. The difficulties in making profits worsened the problems of achieving financial self-sufficiency in the paper industry.

**(c) Limited Financial Resources**

The pulp and paper industry could not operate at the optimal scale of production owing to limited access to adequate financial resources which arose from its inability to raise funds through the money and capital markets. As a result of mounting external loans and local indebtedness, the paper plants resorted to internal sources of funds to complement the meager funds received through the Federal and State Governments' subventions. Hence, there was lack of adequate funds especially working capital to meet short-term expenses for the procurement of spare parts and raw materials, especially the imported long fibre pulp. The pulp paper mills also lack adequate long-term funds required to boost current efforts at adapting the temperate long fibre pulp (pine) trees in local forest plantations. The mills could not maintain the level of inventories of spare parts necessary for replacing worn-out parts of the old machinery and equipment.

**(d) Inadequate Supply of Raw Materials**

Both the NNMC and NPM rely largely on local raw materials which account for about 80 per cent of their raw material needs while the remaining 20 per cent is imported. The raw materials locally sourced by the pulp mills comprise the short fibre wood chip, bamboo, starch, aluminium sulphate, sodium silicate, sulphuric acid, kaolin, limestone, low pour fuel and diesel oil. On the other hand, the imported materials are made up of long fibre pulp and chemicals. The proportion of imported raw

materials varies from 2.0 per cent in the pulp mills to 80 per cent in the paper products and paper packaging groups. The proportion depends on the ability of the respective units to get adequate foreign exchange supplies. The long fibre pulp, representing 20 per cent of total raw materials, has been a critical constraint on operational performances of the pulp paper plants due to the scarcity of foreign exchange. Similarly, the production and supply of paper by the paper mills as intermediate inputs for the paper products, paper packaging and publishing groups continued to be constrained by inadequate funds, high cost and shortage of raw materials. Consequently, the level of integration has remained low for an industry that has achieved high domestic resource content and 80 per cent self-sufficiency ratio.

Total values of raw materials used by NNMC rose annually by 43.6 per cent while output decline averagely by 8.5 per cent. The amount of raw materials used increased from ₦41 million in 1989 to ₦112 million in 1990. Out of the ₦112 million worth of raw materials used, imported raw materials, representing 20 per cent of the total, amounted to ₦80 million. The decline in the amount of imported raw materials by 36.5 and 25 per cent in 1991 and 1992 corresponded with the fall in the level of output by 42.0 and 39 per cent, respectively. Similarly, the quantity of raw materials, mostly long fibre pulp, imported by the NPM decreased averagely by 39.6 per cent annually from 13,841 tonnes in 1988 to 3,646 tonnes and 1,768 tonnes in 1991 and 1992, respectively.

**Low Capacity Utilization**

In spite of the fact that the pulp paper mills were designed to operate with high domestic resource content, production has remained stultified and overall capacity utilization low because of raw materials problems, especially the shortage of imported long fibre pulp which proved a critical constraint to the production system. The capacity utilization rates maintained a downward trend from 1988 to 1992, resulting in excess plant capacities. The overall capacity utilization rate for the pulp paper mills at 25.4 per cent was lower than the average for the paper product group (44%), paper packaging group (32.8%) and the overall for the manufacturing sector (38.2%). Average capacity utilization rate for the pulp paper mills fell from 35 per cent in 1988 to 27, 27.3, 16.9 and 12.7 per cent in 1989, 1990, 1991 and 1992, respectively (Table 6).

**Efforts on Material Sourcing**

The persistent low capacity utilization is partly a reflection of the technological problem but largely due to shortage of imported long fibre pulp. The NNMC's recent efforts at increasing the capacity utilization involving the development of a pine plantation to produce long fibre pulp were handicapped by shortage of funds. But the NPM has achieved some modest success in establishing integrated pulping

facilities that use local raw materials and promoted active afforestation project of long fibre pine wood. It has acquired extensive wood plantations and pulping technologies for mixed hard woods. The production mix comprises wood chips adapted from the medium fibre pulp trees domesticated in the savannah grassland belt, the short fibre pulp (gmelina) obtained from its extensive forest plantations and the bamboo chips from local suppliers on contractual basis. The evolving production mix has enabled NPM to reduce the required proportion of imported long fibre pulp. In addition, the NPM uses re-cycled waste packaging paper as inputs. Recently, however, this has become a scarce resource due to increased use of waste paper for wrapping goods in the local markets.

## SECTION V
## SUMMARY AND RECOMMENDATIONS

### Summary

The demand for paper has increased in response to the expansion in socio-economic activities in the economy. But the supply of paper has continued to decline due to decreases in domestic production and importation.

(i) The Nigerian paper industry has not performed efficiently due to poor management arising from the predominance of government investment participations in the pulp-paper mills which have made them less competitive and profit oriented. Even though the financial resources of Nigerian entrepreneurs have improved over the years, not much of private investments from indigenous entrepreneurs have been channelled to establish new pulp mills or restructure the existing ones. In spite of the significance of paper as exportable products, little foreign investment has gone into the paper industry.

(ii) The pulp paper mills have proved inefficient with declining output rate, high production costs (and unit prices) as well as huge excess plant capacities. Scale economies have not been achieved and the mills continued to incur losses instead of profits. The inefficiency in the mills spills over to the paper industry's other components.

(iii) The machinery and equipment used in the paper industry are obsolete and therefore tend to break-down often. The technology, relative to the age of the plants, is old and low in terms of the differentiation of products from the industry which excludes exportable specialty products such as the copying papers, tracing papers, data processing papers and food packaging and wrapping papers.

(iv) The pulp plant sizes are too large and unmanageable when compared with the average size of pulp plants in Northern and Southern Africa and South East Asia. The frequent breakdowns of machinery and equipment are the direct consequence of their age and the difficulties in sourcing foreign exchange, and the inability to generate funds locally have constrained domestic production and supply of paper.

(v) The level of integration in the industry is still low. In spite of the high domestic resource content and high self-sufficiency ratio of 80 per cent, the industry is constrained by the importation of long fibre pulp which constitutes 20 per cent of the required raw materials resulting in critical constraints on production.

(vi) The import cost of paper as intermediate input and end products have risen astronomically since 1988 as a direct result of foreign exchange cost and high interest charges. Furthermore, other costs incurred simultaneously to provide vital infrastructures to the production processes have reduced effective demand for imported paper.

(vii) Given the proliferation of socio-economic activities that require paper as essential input in Nigeria, the increasing volume of paper imports from Europe and North America and the assumed importation of paper by countries in Africa estimated to equal the level of exports, then the real volume of inter-regional trade in paper is low in Africa. Out of the estimated 230,000 metric tonnes of newsprint exported annually from Africa, Swaziland exported the largest quantity at 180,000 tonnes or 78.3 per cent, a small proportion of which went to other African countries.

(viii) Government's set objectives concerning the utilisation of local raw materials in domestic production process have achieved modest success for the sub-groups in terms of varieties and production mix, but not in terms of the required volume. Government's objective to earn more foreign exchange with the establishment of the pulp paper mills has not been realised while its goal to conserve scarce foreign exchange by reducing imports has not been achieved. By and large, product qualities have been relatively poor making exports difficult. The paper products industry has not devoted enough attention to the improvement processes of the resources used for the continuous improvements of products.

**Recommendations**

In recognition of the strategic importance and the multiplier effects of paper on the economy, particularly on the development of human resources to enhance the nation's capabilities, the following policy recommendations are proffered to address

the issue of inadequate supply of paper and the consequent scarcity and high prices of books.

**(A) Short term**

(i) Government should ensure full capacity utilization of the two operating pulp paper mills and put the third (Iwopin) mill into operation as soon as possible as this will address the issue of meeting the demand for paper.

(ii) There is need to discard the old and low technology in the industry and substitute them with modern high technology to stem the increased import supply of paper.

(iii) The demand for paper is 95 per cent domestic market oriented, and the supply of foreign exchange has been a critical constraint in the paper industry. Massive efforts must be made to exploit the comparative advantages inherent in sourcing 80 per cent of the required raw materials locally and make all brands of paper exportable goods.

(vi) Efforts should be made to reduce the cost of production in the paper industry. There is need to use some of the local productive resources to increase the industry's capacity to meet future needs. The paper industry should secure a stable supply of raw materials through vital research and development programmes to evolve viable local substitutes for the imported long fibre pulp.

(v) The demand for importation and use of basic newsprint will continue to rise as long as further expansion in the print media, periodicals and book publishing continued. Paper and paper materials should be classified as raw materials and removed from the categories of finished goods for import duty exemption and for purposes of foreign exchange allocation (prioritisation) until the local pulp mills operate optimally with increased output to improve the supply situation and save the industry from collapse.

(vi) The UNESCO recommendation advocating non-payment of duty on paper to facilitate its ready procurement and supply should be adopted. Nigeria can take a cue from Brazil which sustained its subsidies on printing and publishing units whose output are relevant to educational promotion and development. Even the reduction of duty on paper to 10 per cent as contained in the 1991 budget statement is yet to be implemented. The Customs Department was alleged to have continued to collect 60 per cent duty on imported paper thus worsening its supply costs.

(vii) Government should make duty-free the importation of printing machinery and paper or anything that can reduce the cost component of paper to less than 50 per cent of present cost of production. Government should monitor to ensure that the duty-free imported item is on the paper materials such as the newsprint, kraft paper and printing machinery.

(viii) Government should also curb the activities of the book pirates who control 30 per cent of the book market and who make the pathetic situation in the industry somewhat unreal.

(ix) The recycling of paper products as inputs should be encouraged and maximized to reduce costs, boost raw materials supplies and conserve resources.

**(B) Medium to Long-Term**

**(1) Capitalisation and Ownership**

A number of production facilities in the paper industry require immediate rehabilitation to improve efficiency and quality of output. To expand paper output and enhance increased revenue generation, the very large pulp and paper plants should be restructured into smaller units. The Federal Government should divest its interest in the pulp mills and involve indigenous entrepreneurs in injecting new funds, entrepreneural spirit and capacities and rapid technological changes in the pulp paper mills to enable them achieve their set goals.

**(2) Boosting Local Material Inputs**

**(i)** ***Adoption of non-wood Fibres***

In Europe, South East Asia, North and the Southern Africa sub-regions, the use of non-wood fibre has contributed significantly to paper production and supply. Efforts should be mustered to adopt and adapt non-wood fibre plants, such as the kenaf plant and the raffia palms, straw bagasse, stalks of maize and rice plant. The national demand for long fibre pulp, estimated at about 150,000 tonnes per annum, is met through importation. The scarcity of foreign exchange has compounded the problem of adequate supply of the imported long fibre pulp. Incidentally, the Raw Materials Research Development Council (RMRDC) has, through commissioned research, identified and used kenaf, an indigenous plant, to produce pulp of excellent properties similar to the imported long fibre pulp. There is urgent need to provide and adopt new machinery and equipment that will process the kenaf fibres or adapt the existing machinery for the same purpose to enhance self-sufficiency in pulp paper production.

**(ii)** ***Developing a Plantation Culture***

The NNMC should, like its counterpart NPM, go into commercial plantation farming by taking advantage of the collaborative efforts initiated by the RMRDC with the Institute of Agricultural Research and Training, Moore Plantation, Ibadan and Kenaf Association of Nigeria to embark on kenaf seed multiplication for the production of long fibre pulp. The mill should, like the Nigerian Tobacco Company, encourage farmers to engage in the production of raffia palm, kenaf and bamboo trees on

commercial scale to substitute the imported long fibre pulp.

**(iii)** ***Speciality Paper***

Efforts should be made to diversify the production of paper to include the speciality paper currently being imported as value added exportable products. This requires the introduction of modern paper technology and the beefing-up of local technical skills and training in paper production.

**(iv)** ***Research and Development***

There is only one research institute that has shown interest in researching into raw materials for the paper industry. The Raw Materials Research Development Council (RMRDC) has a greater role to play in effecting maximum adaptation of the non-wood fibres. The RMRDC requires some additional funding in fulfilling this obligation. Government may wish to increase the one per cent annual revenue on import allocated to RMRDC to three per cent.

(v) There is a need to investigate the types of raw materials that mills in Swaziland use in their pulp paper production that enable them produce 180,000 tonnes of newsprint for export annually.

**(3) Infrastructure**

The production process in the paper industry requires the transportation of large volumes of raw materials and finished goods, but the poor state of infrastructure, e.g. the railway system and roads, which add to the myriad of operational problems should be improved upon. Government should assist in the restructuring of the railway system meant for heavy haulage to meet the rising demand for its service.

**(4) Design and Packaging**

Greater attention should be paid to making the paper packaging products promote and protect our export of manufactures and also provide exportable products. Specialized institutions for design and packaging should be set up in Nigeria to render more assistance to this sub-group with greater export prospects.

**Table 1**
**AGGREGATE SUPPLY OF PAPER**
(Tonnes)

| | 1988 (1) | 1989 (2) | 1990 (3) | 1991 (4) | 1992 (5) | Percentage Change Between 1 & 2 | 2 & 3 | 3 & 4 | 4 & 5 | Average Growth Rate % |
|---|---|---|---|---|---|---|---|---|---|---|
| Domestic Supply | 59,959.0 | 44,650.7 | 42,809.0 | 28,712.0 | 15,365.3 | (25.5) | 7.1 | (39.9) | (46.5) | (26.2) |
| Import Supply | 218,030.4 | 272,379.5 | 245,360.9 | 245,360.9 | 222,038.0 | 24.9 | 25.7 | (28.3) | (9.5) | 3.2 |
| Total Supply of Paper | 277,989.4 | 317,030.2 | 274,072.9 | 274,072.9 | 237,403.3 | 14.0 | 21.5 | (28.8) | (13.4) | (1.7) |

*Source:* Data derived from CBN survey of the pulp paper mills, paper products, paper packaging and publishing sub-groups and the trade summary

**Table 2**
**DOMESTIC PAPER PRODUCTION**
(Tonnes)

| | Type | 1988 (1) | 1989 (2) | 1990 (3) | 1991 (4) | 1992 (5) | Percentage Change Between 1 & 2 | 2 & 3 | 3 & 4 | 4 & 5 | Average Growth Rate % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (i) NNMC Oku-Iboku | News-print | 24,670.0 | 28,927.0 | 37,582.0 | 21,792.0 | 13,300.0 | 17.2 | 29.9 | (42.0) | (39.0) | (8.5) |
| (ii) NPM, Jebba | Kraft paper | 29,365.0 | 16,477.0 | 12,498.0 | 7,707.0 | 7,747.0 | (43.9) | (24.1) | 38.3 | 0.5 | (26.5) |
| Total Domestic Output | | 54,035.0 | 45,404.0 | 50,080.0 | 29,499.0 | 21,047.0 | (16.0) | 10.3 | (41.1) | (28.7) | (18.9) |

*Source:* CBN survey of the pulp paper mills, paper products and paper products packaging sub-groups.

**Table 3**
**DOMESTIC SUPPLY OF PAPER**
(Quantity sold in tonnes)

| | | | 1988 (1) | 1989 (2) | 1990 (3) | 1991 (4) | 1992 (5) | Percentage Change Between 1 & 2 | 2 & 3 | 3 & 4 | 4 & 5 | Average Growth Rate % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | NNMC, OKU-IBOKU | | | | | | | | | | | |
| 1. | (i) | Production | 24,670.0 | 28,927.0 | 37,582.0 | 21,792.0 | 13,300.0 | 17.2 | 29.9 | (42.0) | (39.0) | (.85) |
| | (ii) | Less exports | 9.9 | 501.0 | — | — | — | 4,960.6 | | | | |
| | (iii) | Less unsold news-print inventories | 1,301.1 | 822.5 | 336.3 | 917.0 | 4,337.0 | (36.8) | (59.1) | (91.1) | 373.0 | |
| | | Quantity Sold | 23,359.0 | 27,630.0 | 37,246.0 | 20,875.0 | 8,963.0 | 18.3 | 34.8 | (101.1) | (12.0) | |
| 2. | NPM, JEBBA | | | | | | | | | | | |
| | (i) | Production | 29,365.0 | 16,477.0 | 12,498.0 | 7,707.0 | 7,747.0 | (43.9) | (24.0) | (38.3) | (0.5) | (26.5) |
| | (ii) | Inventories | +7,235.0 | +54.0 | −1,935.0 | +130.0 | −1,344.7 | | | | | |
| | | Quantity Sold | 36,600.0 | 17,020.7 | 10,563.0 | 7,837.0 | 6,402.3 | (53.5) | (37.9) | (25.8) | (18.3) | (33.9) |
| | Total Domestic Supply | | 59,959.0 | 44,650.7 | 47,809.0 | 28,712.0 | 15,365.3 | (25.5) | 7.1 | (39.9) | (46.5) | (26.2) |

+ sold inventories  − unsold inventories

*Source:* Data derived from CBN survey of pulp paper mills, paper products and paper packaging sub-groups

**Table 4**
**IMPORT SUPPLY OF PAPER**
(Tonnes)

| | 1988 (1) | 1989 (2) | 1990 (3) | 1991 (4) | 1992 (5) | Percentage Change Between 1 & 2 | 2 & 3 | 3 & 4 | 4 & 5 | Average Growth Rate % |
|---|---|---|---|---|---|---|---|---|---|---|
| Newsprint | 48,092.0 | 79,489.3 | 82,310.0 | 68,902.5 | 64,501.0 | 65.3 | 3.5 | (16.3) | (6.4) | 19.7 |
| Kraft paper, liner and paper board | 97,232.5 | 81.531.3 | 86,973.0 | 74,553.0 | 60,446.0 | (16.1) | 68.0 | (14.3) | (18.9) | 4.7 |
| Printing paper | 46,227.5 | 80,584.0 | 140,581.3 | 74,095.0 | 72,692.0 | 74.3 | 74.5 | (47.3) | (1.9) | 24.9 |
| Writing paper | 86,924.0 | 15,431.7 | 15,721.3 | 12,089.7 | 10,250.0 | 77.5 | 1.9 | (23.1) | (15.2) | 10.3 |
| Others | 17,786.0 | 15,343.2 | 16,724.1 | 15,720.7 | 14,148.6 | (13.7) | 9.0 | (6.0) | (10.0) | 5.2 |
| Total import of paper[1] | 218,030.4 | 272,379.5 | 342,309.7 | 245,360.9 | 222,038.0 | 24.9 | 25.7 | (28.3) | (9.5) | 3.2 |

[1] Provisional
*Source:* Data derived from CBN surveys and trade summary.

**Table 5**
**MAJOR SOURCES OF IMPORTS**

| | | 1986 | | 1988 | |
|---|---|---|---|---|---|
| | Type | Countries | Percentage | Countries | Percentage |
| (i) | Newsprint Paper | Norway | 29.3 | Finland | 38.2 |
| | | Sweden | 26.2 | France | 17.6 |
| | | Finland | 18.9 | W/Germany | 12.6 |
| | | Others | 25.6 | Others | 31.6 |
| (ii) | Paper & Paper Board | Sweden | 25.6 | U.K. | 28.9 |
| | | Brazil | 24.6 | Brazil | 16.5 |
| | | U.K. | 22.4 | Sweden | 12.3 |
| | | Others | 27.4 | Others | 42.3 |
| (iii) | Paper & Paper Borad Rolls/ Sheets | U.K. | 71.3 | U.K. | 32.3 |
| | | Sweden | 8.3 | Sweden | 14.0 |
| | | FRG | 7.9 | W/Germany | 10.1 |
| | | Others | 12.5 | Others | 43.6 |
| (iv) | Kraft Paper Board | U.S.A. | 64.0 | U.S.A. | 39.4 |
| | | Canada | 11.0 | Portugal | 11.4 |
| | | Sweden | 8.4 | Sweden | 2.9 |
| | | Others | 16.6 | Others | 46.3 |
| (v) | Paper Handmade | Canada | 50.2 | U.K. | 29.1 |
| | | FRG | 16.9 | Finland | 23.9 |
| | | Brazil | 11.7 | Brazil | 10.4 |
| | | Others | 21.2 | Others | 36.6 |
| (vi) | Packaging Container | Spain | 36.5 | Spain | 55.9 |
| | | Austria | 11.6 | Netherlands | 15.4 |
| | | U.K. | 11.5 | U.K. | 10.6 |
| | | Others | 40.4 | Others | 18.1 |
| (vii) | Fibre Board & Other Building Board | Brazil | 78.5 | Netherlands | 68.0 |
| | | Ivory Coast | 10.6 | Japan | 31.9 |
| | | Others | 10.9 | Others | 0.1 |
| (viii) | Envelopes, Writing Block Pads | FRG | 85.2 | U.K. | 83.1 |
| | | Finland | 5.9 | Switzerland | 4.5 |
| | | U.K. | 3.0 | U.S.A. | 3.9 |
| | | Others | 5.9 | Others | 8.5 |

*Source:* Derived from Nigeria Trade Summary, 1986 and 1988

Table 6
CAPACITY UTILISATION (%)

| Overall Capacity Utilisation Rate | 1988 | 1989 | 1990 | 1991 | 1992 | Annual Changes 1989 | 1990 | 1991 | 1992 | Average Capacity Utilisation Rate 1988–1992 |
|---|---|---|---|---|---|---|---|---|---|---|
| (a) Manufacturing Sector | 38.9 | 39.9 | 40.3 | 38.0 | 37.5 | 1.0 | 0.4 | –2.3 | –0.5 | 38.0 |
| (b) Pulp-Paper Mills | 35 | 27 | 27.3 | 16.9 | 12.7 | –8% | 0.3% | 10.4% | 4.2% | 23.8 |
| (i) Nigerian Newsprint Manufacturing Company (NNMC) Oku-Iboku | 25 | 28.9 | 37.6 | 21.8 | 13.3 | 8.7 | –15.8 | –8.5 | –2.9 | 25.3 |
| (ii) Nigerian Paper Mill (NPM) Jebba | 45 | 25 | 17 | 12 | 12 | –20 | –8 | –5 | – | 22.2 |
| (c) Paper Producs and Paper Packaging | | | | | | | | | | |
| (i) Paper Products Units | 50.8 | 48.5 | 45.0 | 38.8 | 39.0 | –2.3 | –3.5 | –6.2 | 0.2 | 44.4 |
| (ii) Paper Packaging Units | 32.5 | 29.0 | 39.6 | 41.5 | 36.5 | –3.5 | 36.6 | 4.8 | 12.0 | 35.8 |

*Source*: CBN surveys of pulp, paper products and paper packaging industry 1993.

**Table 7**
**TOTAL PRODUCTION COST**
**(₦' million)**

| | 1988 (1) | 1989 (2) | 1990 (3) | 1991 (4) | 1992 (5) | Percentage Change Between 1 & 2 | 2 & 3 | 3 & 4 | 4 & 5 | Average Growth Rate % |
|---|---|---|---|---|---|---|---|---|---|---|
| NNMC, Oku-Iboku | 90.3 | 92.5 | 238.2 | 184.7 | 206.0 | 2.4 | 157.5 | (22.5) | 11.5 | 37.2 |
| NPM, Jebba | 167.9 | 190.0 | 189.9 | 150.1 | 168.2 | 13.2 | (0.1) | (21.0) | 12.1 | 1.1 |

*Source:* Data derived from CBN surveys of pulp paper mills, paper products and packaging sub-groups.

**Table 8**
**UNIT PRODUCTION COST PER TONNE**
**(₦)**

| | 1988 (1) | 1989 (2) | 1990 (3) | 1991 (4) | 1992 (5) | Percentage Change Between 1 & 2 | 2 & 3 | 3 & 4 | 4 & 5 | Average Growth Rate % |
|---|---|---|---|---|---|---|---|---|---|---|
| NNMC, Oku-Iboku | 3,822.5 | 3,197.7 | 6,463.2 | 8,475.6 | 15,488.7 | (16.3) | 102.1 | 31.1 | 82.7 | (49.9) |
| NPM, Jebba | n.a. | n.a. | n.a. | n.a. | n.a. | — | — | — | — | — |

n.a. = not available

**Table 9**
**PULP PAPER MILLS TURNOVER**
**(₦' million)**

| | Type | 1988 (1) | 1989 (2) | 1990 (3) | 1991 (4) | 1992 (5) | Percentage Change Between 1 & 2 | 2 & 3 | 3 & 4 | 4 & 5 | Average Growth Rate % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NNMC, Oku-Iboku | News-print | 91.1 | 179.6 | 242.1 | 150.3 | 121.0 | 97.1 | 34.8 | 37.9 | 19.5 | 47.3 |
| NPM, Jebba | Kraft paper | 137.6 | 129.8 | 111.7 | 89.9 | 98.8 | (5.7) | (13.9) | (19.5) | 9.9 | (7.3) |

*Source:* Data derived from CBN surveys of pulp paper mills, paper products and packaging sub-groups.

**Table 10**
**UNIT SELLING PRICE PER TONNE**
**(₦)**

| | Type | 1988 (1) | 1989 (2) | 1990 (3) | 1991 (4) | 1992 (5) | Percentage Change Between 1 & 2 | 2 & 3 | 3 & 4 | 4 & 5 | Average Growth Rate % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. DOMESTIC SUPPLY | | | | | | | | | | | |
| (i) NNMC Oku-Iboku | Newsprint | 3,900.0 | 6,500.0 | 6.,500.0 | 7,200.0 | 13,500.0 | 66.7 | | 10.8 | 87.5 | 41.3 |
| (ii) NPM Jebba | Kraft paper | 3,761.0 | 7,626.0 | 10,574.0 | 11,471.0 | 15,432.0 | 102.8 | 38.7 | 8.4 | 34.5 | 46.1 |
| 2. IMPORT SUPPLY | Newsprint | 9,637.9 | | | | 45,000.0 | | | | | |
| | Kraftpaper | 14,218.6 | | | | | | | | | |
| | Printing paper | 10,518.3 | | | | | | | | | |
| | Writing paper | 3,796.4 | | | 17,500.0 | 60,000.0 | | | | | |

*Source:* Data derived from CBN surveys of pulp paper mills, paper products and packaging sub-groups.

**Table 11**
**PROFIT/LOSS AFTER TAX**
(₦ million)

| PROFITABILITY | 1988 | 1989 | 1990 | 1991 | 1992 | Annual Change (%) 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|
| NNMC, Oku-Oboku | 29.4 | 7.5 | 205.2 | 60.1 | — | (74.5) | | 70.7 | |
| NPM, Jebba | 0.0 | 0.4 | 0.4 | 0.7 | 0.7 | 1.3 | 95.3 | (14.3) | 1.4 |

*Source:* Data derived from CBN surveys of pulp paper mills, paper products and packaging sub-groups.

**Table 12**
**INVESTMENT EXPENDITURE**
(₦ million)

| | 1988 | 1989 | 1990 | 1991 | 1992 | Annual Change (%) 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|
| (a) NNMC, Oku-Iboku | 96.1 | 56.9 | 70.9 | 76.1 | 104.6 | (114.0) | 24.6 | 7.3 | 37.5 |
| (i) Machinery equipment | 10..1 | 2.3 | 3.1 | 1.3 | 9.7 | (77 .0) | 34.8 | (23.2) | 92.3 |
| (ii) Spare parts & repairs | 86.1 | 54.6 | 67.8 | 63.1 | 94.9 | (36.0) | 24.2 | 6.9 | 50.4 |
| (b) NPM, Jebba | | | | | | | | | |
| (i) Machinery equipment | | | | | | | | | |
| (ii) Spare parts & repairs | 1.4 | 0.9 | 1.6 | 2.0 | 0.0 | (35.7) | 77.7 | 25.0 | (99.0) |

*Source:* Data derived from CBN surveys of pulp paper mills, paper products and packaging sub-groups.

**Table 13**
**STRUCTURE OF COST OF OPERATIONS**

| | PAPER PRODUCTS | | | | | | PAPER PACKAGING | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1988 | 1989 | 1990 | 1991 | 1992 | Avg. | 1988 | 1989 | 1990 | 1991 | 1992 | Avg. |
| Raw Materials as % of Total Costs | 83.2 | 79.4 | 76.0 | 74.1 | 71.9 | 76.9 | 69.3 | 62.2 | 64.0 | 62.4 | 65.5 | 64.7 |
| Wages % Salaries as % of Total Costs | 7.3 | 7.6 | 7.4 | 7.7 | 7.6 | 7.6 | 8.5 | 8.8 | 7.5 | 6.6 | 5.5 | 7.4 |
| Depreciation as % of Total Costs | 4.4 | 5.4 | 4.6 | 4.2 | 4.1 | 4.5 | 5.4 | 4.5 | 3.9 | 6.5 | 4.8 | 5.0 |
| Utilities as % of Total Cost | 1.6 | 2.2 | 1.9 | 5.1 | 3.7 | 2.9 | 6.6 | 9.0 | 9.9 | 8.7 | 8.7 | 8.6 |
| Other Costs as % of Total Cost | 3.0 | 3.8 | 8.3 | 7.2 | 10.4 | 6.5 | 7.8 | 7.6 | 10.4 | 10.4 | 10.2 | 9.3 |
| Totals | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

*Source:* CBN survey of pulp, paper products and paper packaging industry, 1993.

**Table 14**
**COST OF OPERATIONS**

| | PAPER PRODUCTS | | | | Average Percentage Growth | PAPER PACKAGING | | | | Average Percentage Growth |
|---|---|---|---|---|---|---|---|---|---|---|
| | Percentage Change Between | | | | | Percentage Change Between | | | | |
| | 1988/89 | 1989/90 | 1990/91 | 1991/92 | | 1988/89 | 1989/90 | 1990/91 | 1991/92 | |
| Total cost of operations | 14.4 | 36.3 | 23.6 | 1.4 | 18.6 | 34.5 | 12.1 | 23.0 | 55.7 | 31.3 |
| Raw materials | 9.1 | 29.5 | 20.5 | (1.6) | 14.4 | 20.6 | 15.6 | 19.8 | 63.6 | 29.9 |
| Wages and salaries | 18.8 | 31.6 | 28.0 | | 26.1 | 39.0 | (5.3) | 10.0 | 26.8 | 17.6 |
| Depreciation | 42.1 | 14.8 | 12.9 | | 23.3 | 14.0 | (5.7) | 109.1 | 14.7 | 33.0 |
| Utilities | 300.0 | 60.0 | 16.7 | 42.9 | 102.4 | 360.6 | (39.4) | 55.7 | 62.4 | 113.2 |
| Interest on loans | 57.1 | 18.2 | 230.8 | (27.9) | 69.6 | 85.6 | 23.8 | 6.6 | 57.8 | 43.4 |
| Other costs | 46.2 | 194.7 | 7.1 | 46.7 | 73.7 | 28.6 | 55.8 | 22.4 | 53.2 | 40.0 |

*Source:* CBN survey of pulp, paper products and paper packaging industry, 1993.

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