Data Collection and Analysis for Sustainable Forest Management in ACP Countries - Linking National and International Efforts

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Review and improvement of data related to wood-products in Nigeria

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This paper has been minimally edited for clarity and style
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Introduction
The study area is Nigeria with a total Land area of about 924,000 sq. km. It lies between Latitude 4°15'N (Southern tip of the Niger Delta on the Atlantic) and 13°55'N (NorthWestern frontier with Niger) and between longitudes 2°45'E Southern frontier with Benin) and 14°40'E (NorthEastern frontier with Cameroon). It comprises of 36 States and a Federal Capital Territory.

The Forest Industry consists of both the informal and formal sectors while the forest products include, Fuelwood, Charcoal, Round wood, Sawn wood, wood based Panels, Pulp and Paper.

The data series of the Forest Products include production, prices, trade and value.

The present study focuses on aspects of wood products especially production and consumption.

1. The Importance of Forestry Statistics

Statistical Data is a numerical expression or a collection of numerical expressions that can be used to provide information about one or more entities. Forestry Statistics therefore is a collection of forestry related statistical data especially with reference to the production, consumption, spatial distribution, trade, imports, exports and development of wood and non-wood forest resources in particular locations.

The least recognised but the most important constraint to socio-economic development in most countries is the lack of an adequate, accurate and timely data series. This is equally applicable to forestry development where the importance of forestry data cannot be overemphasised. A wide range of forestry data can be collected in principle but this must be dictated by real needs, time and money. Such a data bank of forestry statistics where available is the bedrock of effective development planning. They could be analysed deliberately and used to facilitate decision-making processes. Forestry data are crucial for sector outlooks and sector analysis; they are useful for capital budgeting, demand and supply forecasts, production scheduling, resource allocation, optimal control, input-output analysis, dynamic analysis and a host of others. When formulated into econometric and eco-statometric models they find ready expression in policy analysis and conflict management. They can also aid policy formulation. Above all, as far as forestry is concerned, a reliable forestry database is the folcrum on which sustainable forest development and management are anchored.

Though the role of statistics in forestry policy and planning are well appreciated in Nigeria, the problem seems to be that available forestry statistic in Nigeria are not only generally deficient in quality and quantity but are disjointed and their collection suffer from long lags.

This review is timely and could form the basis for drawing the attention of policy makers to the deficiencies that exist under the present scheme of things. It could also
establish the desired focus for future plans and actions with regard to forestry data generation, collection, processing, storage, retrieval and dissemination in Nigeria.

1.1. Overview of wood products in Nigeria

Wood products in Nigeria include sawnwood, wood based panels, i.e. plywood and particleboards, and paper and paperboard i.e. Newsprints, Printing and writing paper and other paper and paper boards i.e. Kraft paper. Nigeria does not presently produce fibreboard.

The nature of statistics on these products is disjointed because there are no systematised methodologies for their regular collection either at the Federal, State or at Local Government Levels. What exist are ad-hoc studies, which are rather periodic in Nature. The review in this section is based on the last series of studies specifically the wood-based Industrial sector Review of 1994 and the Forest Resources Study of 1998 undertaken by the Federal Department of Forestry and a quick field survey by the author.

From available evidence, the number of wood based industries in Nigeria has been increasing except for sawmills, which declined from 1700 in 1993 to 1349 in 1997. As at 1993, the General Wood and Veneer Consultant Ltd, Canada who was employed by the Federal Department of Forestry to carry studies on the wood based industries revealed that there were altogether 1715 wood industries in Nigeria consisting of 1700 sawmills, 8 plymills, 4 particle board mills and 3 paper mills. However, by 1997, the Beak Constants Ltd in collaboration with Geomatics international Canada who was employed by the Federal Department of Forestry to carry out a Forest Resource Study, revealed that the number of wood based industry had declined from the level of 1715 in 1993 to 1373. These are comprised of 1349 sawmills, 10 Plymills, 4 ParticleBoard mills, 3 Paper mills and 7 Match and splints factories. The major wood processing industries in Nigeria are typically large capacity facilities such as large sawmills, plywood mill, pulp and paper plants etc. In particular, the sawmills are designed to handle large diameter logs. The sawmills are essentially distributed between small, medium and large scale in the proportion of 81%: 13%: 6%. Though the number of sawmills decreased, production has not decreased commensurately. This is because even though wood industries are finding it increasingly difficult to obtain desirable sizes of popular tree species, like Mansonia ultissima, Milicia excelsa and Khaya species from Nigerian forests, they have been forced to expand the range of exploited species to species which hitherto were regarded as uneconomic.

By 1990, the Nigerian sawmill capacity was estimated at 11,684,000m$^3$/year in log equivalent and capacity utilisation was 46% i.e. 5,422,000 m$^3$/year. It was estimated that by 1993 capacity had dropped to 5,842,000 m$^3$ while production was 2,711,000 m$^3$. However based on the findings of Beak International and the field survey carried out by the author, it was estimated that by 1997, the capacity would have dropped to 4,635,800 with a corresponding output of about 2,000,000 m$^3$. Production also might have gradually declined.
The 10 plymills are integrated complexes with sawmills and four particleboard plants. The capacity of the 10 mills was estimated at 158,000 m³ by 1997 and capacity utilisation then was 35% generally bringing the total production to 55,125 m³. Import of wood based panels have continued to declined from 70,000m³ where it peaked in 1980 to 20,000m³ in 1990 and 12,000m³ in 1997.

There are at present four particle board mills in the country but some of them are having problems. In 1993, the existing capacity was estimated at 85,500 m³ with a capacity utilisation of 44% and an output of 39,500 m³. This situation has remained largely so.

There are three pulp and paper mills in Nigeria with a total installed pulp capacity of 102,000 mt per annum and a paper capacity of 207,000 mt per annum. Since 1990, the production of newsprint had been declining from 31,000 mt out of an installed capacity of 100,000 mt per annum, to only 3,000 mt, in 1993. The Nigerian Newsprint Manufacturing Company (NNMC) had remained shut since 1994, due to problems of spare parts and other logistic problems. The Nigerian Paper Mill (NPM) at Jebba produces industrial grade paper, specifically kraft and kraft linerboard. The old paper machine had a capacity of 12,000 mt but since 1994, a new machine with capacity of 65,000 mt has gone on stream. Production of paperboard in 1990 was 12,498 mt and declined progressively to 2313 mt in 1992 from where a gradual upturn began. Paperboard production by 1996 was 19,744 mt and production had remained at this level. The third mill is the Nigerian National Paper Manufacturing Company Ltd (NNPMC) Iwopin with a proposed installed capacity of 100,000 mt/yr of printing and writing paper. After a protracted history of delays only 30,000 mt/yr of printing and writing paper was installed by 1995. Test production with imported pulp resulted in 2,500 mt of printing and writing paper in 1995 and 966 mt in 1996. Production has not increased appreciably from this mill ever since.

The production in the pulp and paper industry has been constrained by inadequate working capital, spare parts and long fibre availability.

1.2. Exports and Imports

Nigeria does not export wood and wood products due to the high supply and demand gap being experienced at home. The Timber Export Promotion Decree No. 1 of 1998 prohibits the export of timber (whether processed or not) and wood in the rough form, excluding furniture, furniture components and Gmelina arborea in any form.

The decree also prohibits imports of processed wood products including sawn timber, veneer, plywood, particleboard, furniture products and wooden cabinets. The import of roundwood and squared logs are not under ban. As a result, trade data does not exist.
2. Current Status of forest statistics in Nigeria

2.1. Institutional Arrangement and Issues.

The institutional framework for forestry data production is somewhat decentralised as there are numerous statistical agencies compiling forestry statistics, albeit on ad-hoc basis. In order to fully appreciate the nature of the constraint faced by producers of forestry statistics may be it is convenient to first link the forest statistics to the National Statistical and information system.

The National Statistical and Information System (NSIS) is mainly concerned with compiling economic, social and demographic information in Nigeria. It is currently made up of the Federal Office of Statistics (FOS), National Population Commission (NPC), the Central Bank of Nigeria (CBN), the statistical Divisions of the Planning, Research and Statistics Department (PRSD) of Federal Ministries and parastatals, State Statistical Agencies (SSAs), Local Government statistical Units (LGSUs) and the Organised Private Sector (DPS). In this set up as can be seen the role of the operational departments such as Forestry has not been given prominence and tends to be subsumed under the Department of Planning Research and Statistics of the Ministry; yet in the final evaluation the operational departments are expected to furnish the required statistical data on their respective sectors or sub-sectors to be compiled by the PRSDs. This is an omission under the present scheme of things especially as funding for statistical data production is concerned.

Forestry is on the concurrent legislative list in the constitution of the Federal Republic of Nigeria and this implies that there is considerable scope for the various levels of government to approach the issue of statistical information in various ways which need to be harmonised.

As has been stated earlier, collection of forestry statistics especially on wood products is not well organised or systematised. Efforts at collecting information on wood products have been ad-hoc in Nigeria. Major surveys so far include:

- Alviar 1983, under the auspices of FAO and Federal Department of Forestry.
- Aruofor 1985, Federal Department of Forestry.
- Omoluabi 1991, Federal Department of Forestry.
- General Woods and Veneer consultants Ltd Canada as commissioned by the Federal Department of Forestry.
- Federal Department of Forestry 1994 – Sector Survey
- Aruofor 2000, field visit for this report.
The information collected on wood products include, number of mills, installed capacities, production, recovery rates, inputs and prices of wood and wood products i.e. sawnwood, wood based panels, paper and paper boards. FOS collects and compiles a wide range of data, including those on national accounts, prices, external trade, industrial production and social and demographic data. In addition trade statistics i.e. import and information from all the sectors of the Nigerian economy.

Over the years, the FOS has evolved several Data Production systems, which include National Integrated Survey of Households (NISH), National Integrated Survey of Establishment (NISE) and Survey of Administrative Statistics (SAS). The production of Forestry sector related data should usually fall under the purview of NISE which is a viable system for collecting economic statistics dealing with the real sector activities such as output, capacity utilisation, value added etc. Exports are collected at the ports by Customs and Excise and are published by the Federal Office of Statistics.

Apart from organised surveys, at present forest sector data are collected and processed in one form or another at the following levels.

- Federal Office of Statistics (FOS)
- Central Bank of Nigeria (CBN)
- National Agricultural Data Bank (NADB)
- Federal Department of Forestry (FDF)
- Forestry Management, Evaluation and Co-ordinating Unit (FORMECU)
- State Forestry Departments (SFDs)
- Forestry Research Institute of Nigeria (FRIN)
- Universities
- Non Governmental Organisations (NGOs).

2.1.1. Federal Office of Statistics

The Federal Office of Statistics (FOS) is the main Government agency with full mandate and responsibility for the collection of all statistical data. In the 1970’s, NISE provided detailed and concrete data on production of wood products but regrettably, these have been discontinued in later years as the utility of NISE is invariably driven by available funds.

FOS maintains offices in Abuja and Lagos and has offices in all the 36 States of the Federation including the Federal Capital Territory (FCT) with permanent field staff for data collection. Among the usual publications produced by FOS are:

- The annual abstract of statistics
- Digest of Statistics
- Nigerian Trade Summary
- Review of External Trade
- Social Statistics of Nigeria
- Facts and Figures about Nigeria.
In all these publication, the forest sector statistics that are given credence relates to Forestry GDP and to a large extent trade statistics on forest products which are published in part in the Nigerian Trade summary. Regrettably, data on domestic production on wood and wood products as well as on capacity and capacity utilisation in forest industries are conspicuously absent in FOS publications. Existing data series on forest products are not only disappointing but are not comprehensive enough for overall forest resource planning and management, in terms of scope and content.

Recently, FOS is beginning to pass the bulk of the responsibility of collecting Forest sector statistics on the Federal Department of Forestry that is not funded for this purpose. Many agencies, including FOS, approach the Federal Department of Forestry to furnish them with data on the forestry sector. This is a clear indication that the National Statistical Policy must recognise the crucial place occupied by the Operational Department in the scheme of things especially in connection with sectoral or sub-sectoral data collection and the need to put in place an appropriate funding mechanism and of providing an enabling environment.

2.1.1.1. The Central Bank of Nigeria (CBN)

The CBN is statutorily responsible for the compilation of money and banking and balance of payments statistics. However, although its primary data generation is in the area of money and Banking data, it also compiles some economic data to address the gaps existing in FOS data generation. In particular, the Central Bank of Nigeria (CBN) is involved in publishing information on the forestry sector. For example, the Central Bank Annual Report and Statement of Accounts contain statistics on the estimated production of roundwood, sawnwood, woodbased panels and paper and paper boards aggregated under the statistics on Agricultural commodities.

CBN maintains 5 zonal offices covering all States of the Federation, also with permanent staff for field data collection. At present, in order to reduce wastage, and curtail duplication of efforts, CBN is beginning to collaborate with FOS especially in the area of harmonisation of trade statistics, production of producer price index for Nigeria etc. In addition, CBN is also beginning to collaborate with the Federal Department of Forestry in respect of Forestry data collection. What has been missing in this latter collaboration is that it has not been backed by funds, which happens to be a major constraint to forestry data collection.

2.1.1.2. National Agricultural Data Bank (NADB)

The National Agricultural Data Bank (NADB) was established by the Federal Government of Nigeria through a collaborative effort between the Government of Nigeria and the United Nations Development Programme (UNDP). The project is housed under the umbrella of the Department of Planning Research and Statistics (DPRS) of the Federal Ministry of Agriculture and Rural Development (FMA/RD).

The immediate objectives include:
• To establish and develop in-house Professional Statistics expertise within DPRS/FMA&RD for an effective role in the organisation, co-ordination and guideline of agricultural statistics activities, build up data processing capabilities and facilities for the establishment of an agricultural data bank and organise training courses for data collection and processing.

• To develop and implement a periodic reporting system for the DPRS through the involvement of available field extension staff of State Ministries of agriculture and others in the specified priority areas, etc.

• The strategy was to set up three committees that were to act as the clearinghouse for all agricultural data produced in the country. These committees included:

  - State Agro-statistics Co-ordinating Committee (SASCCO).
  - The National Agro-statistics Co-ordinating Committee (NADSCCO),
  - The Technical Committee on Agricultural Data Management (TCADM), to assist NASCCO.

Even though the effect of these committees are at different stages of maturity, the paradigm where the Data Bank is not involved directly with funding the data collection outfits of operational departments e.g. Forestry planning Cell, does not augur well for forestry sector data collection. The existing arrangement has worked well for the agricultural crop, fisheries and livestock sub-sectors mainly because of the existence of agricultural extension workers in Agricultural Development Projects (ADP) that facilitate agricultural data collection. It has not worked at all for Forestry because the nature and configuration of data required for forestry planning and development are at variance with the other sub-sectors and so cannot be readily collected by extension workers as with agric. crop. In planning forestry, there is need to look at the primary resource base, the forest industries and their markets (trade) to plan them in concert. This means that forestry data collection cannot end at the primary level but must include forest industries and trade data. In this respect, it is easy to see that forestry data are generated at various levels viz.:

Institution – 36 States Forestry Departments, a Federal Capital Territory, Forestry Parastatals and the Federal Department of Forestry.

Forest Industries – Sawmills, plywood and Veneer mills, particleboard mills, Match Factories and Pulp and paper mills.

Indeed to collect some of these data require planning and design of surveys as well as the design and administration of various questionnaires. Even when data is collected they require processing before they can be available in the final or desired form. The NADB has been able to produce a detailed and comprehensive format for forestry data collection but what is not immediately obvious to the designer is that the required information cannot be captured simply or at one level of survey. The format needs to be de-segregated to suit specific data needs. Even though the NADB has been able to design a comprehensive forestry data collection format, regrettably, it has passed the
onus of ensuring that the data are collected to the Federal Department of Forestry (the planning cell) that is not commensurately funded. This division of labour appears lopsided as the funds are elsewhere whereas the responsibility is some where else. It is possible for the planning cell of the Federal Department of Forestry to organise and collect these data, at least the expertise exist partly, but the unit is stymied by shortage of funds, slow communication and lack of working tools like computers and general logistic support.

Now that the FDF has been transferred to the new Federal Ministry of Environment conscious attention must be devoted to the production aspects of forestry and considerable effort made to collect the associated data generated at all tiers of Government.

2.1.1.3. The Federal Department of Forestry (FDF).

Although Forestry is on the concurrent list the Federal Department of Forestry (FDF) is by far the most eligible organisation in Nigeria that should co-ordinate the collection, publication and dissemination of forest sector statistics. The department has three tiers of administration: Headquarters, Zonal and State based Field Offices. Indeed the institutional structure of the FDF can facilitate forestry data collection throughout the country.

The Federal Department or Forestry in principle has a Forestry Sector Statistics Unit in the Forest Management Division with the responsibility for developing a continuous system of data collection, compilation, analysis, storage and publication, on a national level. This is more on paper than the reality. The function of the Statistical Unit is being partly carried out now by the Planning Unit (Cell) of the Department. The existing forestry data bank and data bases have been compiled informally through infrequent surveys, ad-hoc studies, complemented by monthly, quarterly and annual returns from Field Offices of the Department located in each of the 36 State Capitals and the FCT. The Field offices are expected to liaise closely with State Forestry Services and Forest Industries in respect of data collection. There remains room for improvements.

With appropriate funding, right infrastructure including means of mobility (vehicles) and equipment (computers, copiers, telephones, fax machines, stationery and general logistic supports, the existing structure of the Department with the Planning Unit (cell), co-ordination could be exploited to the utmost advantage as far as forest statistics goes. Various efforts have been made at collecting and publishing forest sector statistics but such efforts have died a natural death due to lack of adequate support.

The Federal Department of Forestry needs to collect forestry data on a continuous basis and to this end; the Planning Unit based in Abuja needs to be strengthened to cope with this important role.
2.1.1.4. Forestry Management, Evaluation and Co-ordinating Unit (FORMECU)

FORMECU is a parastatal of the Federal Department of Forestry. With the establishment of the new Federal Ministry of Environment, the Unit is proposed to be reincorporated into the main stream of the Federal Department of Forestry as a full Division. FORMECU was originally established to co-ordinate World Bank assisted forestry projects, but with the passage of time, it took on wider responsibilities of co-ordinating foreign assisted forestry projects including ADB, FAO, FORD FOUNDATION and a host of others. Because of the nature of her mandates, FORMECU has never really been able to address the question of forest sector statistics on a continuing basis. Most interventions in this direction have been in response to needs with the result that they are ad-hoc in nature. Indeed most of the major studies that have generated useful data on the sector have emanated from FORMECU in collaboration with the parent Department FDF.

FORMECU generates forestry data through project monitoring and evaluation and undertakes in its programmes institutions capacity building and manpower development for the three tiers of forestry services in the country.

As conscious effort to generate forestry statistics, the Federal Department of Forestry undertook an indicative forest inventory of the natural high forest of the country in the 1970’s. It undertook another comprehensive forest resources study between 1994 and 1998, that was financed by the African Development Bank (ADB). The Study covered the natural forests, plantations, non-timber forest products, forest industries, markets, etc. Also other studies in the kitty of the FDF and FORMECU are the Environmental Forestry Project (EMP) with World Bank funding between 1992 – 1996, to revise our land use and vegetation maps through satellite imageries; National Forestry Action programme (NFAP) between 1991 – 1996. Arising from these projects, a Forest Information System (FIS) has been established as a national Forestry data bank in the FDF located in FORMECU.

However, it will appear that all the above efforts call for the need to collect wood based data on a continuing basis.

2.1.1.5. Other Institutions

The other institutions, which collect and publish forestry data, include State Forestry Departments, Forest Research Institute of Nigeria (FRIN), Universities and Non-Governmental Organisations. These are also ad-hoc in nature and are driven by needs, some of which are research oriented, as well as the need to respond to the execution of specific projects.

The State Forestry Departments in particular are the custodians of the Forestry Estate of Nigeria and this places the onus of managing the forest on them. Some of these States have uniform staff (Forest Guards) who collect data on timber logged in terms of number and volume as well as revenue accruing thereof. However, such information where available are disjointed. The result of these separate approaches has been that a lot of information exists in various scattered sources, which need to be collected and published.
3. Nigerian wood products data bases

3.1. Existing Methodologies for data collection.

The most tested and viable option for wood product data collection in Nigeria is through investigations and enumeration. These essentially entail the design and administration of questionnaires by field staff usually this is supported by personal visits and interviews of factory and management staff of the various factories essentially to clarify and validate reported data.

Another method involves sending letters to State Forestry Departments through their Directors requesting them to furnish available information to the Federal Department of Forestry. Telephones and radio links are also adopted. Forestry statistics are also collected from progress reports from states and other institutions during National Forestry Development Committee (NFDC) meetings. Field Offices in addition do submit monthly, quarterly and annual reports and expenditure returns, which are essential sources of forestry statistics. Reliance is also placed on proceedings from seminars, workshop, symposium and conferences such as the Forestry Association of Nigeria. Other secondary data are collected from relevant publications.

3.1.1. Existing Methods of Data Processing and Validation

Data processing includes data compilation, validation and dissemination. Data processing usually starts with editing and coding of survey results into appropriate data bases and this is either followed by manual or computer processing. Sorting them into various databases, ranging from statistical bulletins to computer based databases or output. Sorting is done first by industry and then by products. The mean production levels are computed for the various products based on the sample size and the method of sampling adopted. Once this has been achieved, the means are projected to aggregate levels depending on the sampling frame for the respective industries.

Computer software’s have come in handy with processing of survey results. In particular D-BASE IV and SPSS have been useful. In terms of processing returns from State field offices, LOTUS 123 have been handy with creating quick tables and charts. However, because of the scarcity of computers, most data processing at Forestry Headquarters are done by pocket and table calculators.

Validation is built into the administered questionnaires. The same questions on production are asked in different ways as checks on the consistency of the respondents. A questionnaire may require of the respondent the estimated volume of sawn-wood produced in the previous year in one question. The answer can be crosschecked from the total working days in the year and the average size and number of logs processed each day etc. When the error is very significant then such results are either ignored or compared with others. In some cases, the respondents are approached for further clarifications. Moreover, given the recovery rates and the volume of saw log, it is expected that the volume of sawn-wood produced cannot be greater than the volume of round wood. This is validation at the level of sample surveys.
At another level, many of the wood based forestry statistics published by different agencies on the Nigerian Forestry Sector since the 1990’s were either estimates or from unofficial sources. This requires verification and validation. Too often, there are no official effective mechanisms for verifying and validating these data in Nigeria. However, there are a few genuine reports from organised survey results and these are often the basis for determining the reliability of such estimates. For example, it will be foolhardy to expect that newsprint production that reached low ebb of 3,000 Mt. in 1993 as indicated in the FDF survey of 1994, will suddenly jump to say 60,000 Mt. in 1994. Such a data will be suspect.

In this study, conscious effort is made to report all the available authentic data on wood products and in updating FAO statistics, the authentic data is used. FAO statistics will be left where better alternatives do not exist. The FAO statistics remain the most reliable available source of Forestry statistics. This is because where most are estimated from unofficial sources and forecasts, the fact remains that where authentic data existed, they have found their way into FAO databases.

The final stage of data processing is dissemination. At this stage, the product becomes input for the users. Of late, the Federal Department of Forestry has not published any statistical bulletin on wood products. What exist are the various terminal reports on the respective studies carried out. In addition, the Department publishes annually a progress report on its activities. Most of what is disseminated in terms of Forestry Statistics are done by means of leaflets, table, papers, memos and reports.


The position of the wood industry in Nigeria has been extensively covered in the overview to this paper. It is worthy to emphasise that the most important wood products, produced, consumed and traded in Nigeria are Non-coniferous hard woods, Sawn-wood, plywood, particle board, news-print, printing and writing paper and other paper boards (Kraft paper).

3.1.3. Round-wood

Round-wood production in Nigeria comes mostly from the natural high forest zone of the country, in particular from the Southern States of Cross River, Edo, Ogun, Ondo and Oyo States of Nigeria. Round wood is no longer exported from Nigeria since this has been placed on ban since 1976. The round-wood produced in Nigeria is mainly non-coniferous hardwood. There are no authentic series on it since the 1990s’. However, the Central Bank published estimates are reported with FAO’s forecasts for comparison. It must be noted that round-wood statistics includes industrial round wood, poles and fuelwood.
Table 1: Round wood Production ('000 m³)

<table>
<thead>
<tr>
<th>Year</th>
<th>CBN Estimates</th>
<th>FAO Forecasts (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td></td>
<td>96,728</td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td>99,430F</td>
</tr>
<tr>
<td>1992</td>
<td></td>
<td>102,229F</td>
</tr>
<tr>
<td>1993</td>
<td>110,731</td>
<td>105,112F</td>
</tr>
<tr>
<td>1994</td>
<td>113,555</td>
<td>108,058F</td>
</tr>
<tr>
<td>1995</td>
<td>113,602</td>
<td>111,053F</td>
</tr>
<tr>
<td>1996</td>
<td>116,653</td>
<td>114,307</td>
</tr>
<tr>
<td>1997</td>
<td>117,694</td>
<td>117,387F</td>
</tr>
</tbody>
</table>

The series are close and FAO’s estimated appear good enough. The figures that are not marked F are not forecast and represent data from unofficial source.

3.1.4. Sawn-wood

Sawn-wood is produced by sawmills in Nigeria whose capacity is estimated at 11,684.00 m³ per year in log, equivalent.

The estimated capacity and production of sawmills in the 1993 field survey by FDF is presented in Table 2.

Table 2: Sawmills-Estimated Capacity and Production in 1993

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Capacity (m³)</th>
<th>Production (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDs &amp; Carriages</td>
<td>1600</td>
<td>5,500,000</td>
<td>2,531,000</td>
</tr>
<tr>
<td>Portables</td>
<td>100</td>
<td>57,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Pit Sawing</td>
<td>1000</td>
<td>285,000</td>
<td>150,000</td>
</tr>
<tr>
<td>Total</td>
<td>2,700</td>
<td>5,842,000</td>
<td>2,711,000</td>
</tr>
</tbody>
</table>

The industry has a few large integrated mills among which are the African Timber and Plywood, Sapele, Piedmont at Ologbo, Premier Timber Industry Akure, Seromwood Industry, Calabar, Iyayi Brothers, Benin City and others. Most of the sawmills have depreciated and are suffering from obsolescence. The major problem is lack of spare parts. By 1997, the number of sawmills have declined from 1700 in 1993 to 1349.

Production statistics on sawn-wood are not recorded by any deliberate effort. The last survey of forest industries was recorded in 1993. Central Bank Estimates are compared with FAO’s in Table 3.
### Table 3: Sawn-wood Production (m³)

<table>
<thead>
<tr>
<th>Year</th>
<th>CBN Estimate</th>
<th>FAO Estimate</th>
<th>FDF (REVISED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td></td>
<td>2,723,000</td>
<td>2,723,000</td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td>2,723,000F</td>
<td>2,719,000</td>
</tr>
<tr>
<td>1992</td>
<td>1,217,000</td>
<td>2,723,000F</td>
<td>2,715,000</td>
</tr>
<tr>
<td>1993</td>
<td>1,281,000</td>
<td>2,723,000F</td>
<td>2,711,000*</td>
</tr>
<tr>
<td>1994</td>
<td>1,300,000</td>
<td>2,723,000F</td>
<td>2,533,250</td>
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<tr>
<td>1995</td>
<td>1,339,000</td>
<td>2,723,000F</td>
<td>2,355,500</td>
</tr>
<tr>
<td>1996</td>
<td>1,427,000</td>
<td>2,723,000F</td>
<td>2,177,750</td>
</tr>
<tr>
<td>1997</td>
<td></td>
<td>2,723,000F</td>
<td>2,000,000</td>
</tr>
</tbody>
</table>

*Field Survey (1993)

CBN’s estimate is first an understatement of the actual production in 1993. The direction of subsequent estimate does not reflect the true trend. FAO also does not portray the real trend in sawn-wood production. The revised estimates portray a better picture of the industry whose production had been declining due to old equipment and shortage of spare parts, frequent electrical power supply interruptions and a declining timber supply both in volume of logs and quality.

#### 3.1.5. Plywood

Plywood consumption in Nigeria had been increasing through time. It increased from 179,000m³ in 1990 to 285,000m³ by 2000 (FDF 1994). There were eight plywood and veneer mills in the country in 1992 with a total capacity of 126,000 m³ while their aggregate production was 72,240 m³ as revealed by Field Survey Commissioned by FDF in 1993. By 1997, the numbers of Ply mills have increased to ten with an estimated capacity of 158,000 m³ and production of 55,125 m³.

Most of these mills are integrated complexes both to sawmills and particleboard mills. Among the mills now operating in Nigeria are African Timber and Plywood, Piedmont, Nigeria Romania Wood Industrial, Seromwood Industry and others.

Like the other wood products, there are no authentic time series since 1990. However, we shall present the FAO statistics and revised estimates.

### Table 4 Plywood Production (m³)

<table>
<thead>
<tr>
<th>Year</th>
<th>FAO</th>
<th>FDF REVISED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>67,000</td>
<td>67,000</td>
</tr>
<tr>
<td>1991</td>
<td>67,000F</td>
<td>69,620</td>
</tr>
<tr>
<td>1992</td>
<td>72,000</td>
<td>72,240*</td>
</tr>
<tr>
<td>1993</td>
<td>72,000F</td>
<td>65,395*</td>
</tr>
<tr>
<td>1994</td>
<td>72,000F</td>
<td>62,830</td>
</tr>
<tr>
<td>1995</td>
<td>72,000F</td>
<td>60,260</td>
</tr>
<tr>
<td>1996</td>
<td>72,000F</td>
<td>57,690</td>
</tr>
<tr>
<td>1997</td>
<td>72,000F</td>
<td>55,125*</td>
</tr>
</tbody>
</table>

*From Field Surveys.*
The import of plywood which peaked at about 70,000 m$^3$ in 1980 had gradually reduced to about 20,000 m$^3$ in 1990 the figure is estimated to have increased slightly due to the present exigencies of the plywood.

3.1.6. Particle Board (m3)

The four particle board mills operating in Nigeria are the African Timber and Plywood Co. Ltd, Predmont Co. Ltd, Seromowood Industry Ltd and Nigerian Romanian Wood Industry Ltd. They have a total capacity of 85,500 m$^3$. In 1992, their joint output was 39,5000 m$^3$.

Particleboard requirements in Nigeria are estimated at 108,000 m$^3$ in 1990 and are expected to reach 199,000m$^3$ in 2000. The particle board industry has remained stagnant over the past decade, due to uncertain investment climate. The estimated production trend is given in Table 5, while Table 6 show the estimates for wood based panels.

<table>
<thead>
<tr>
<th>Year</th>
<th>FAO</th>
<th>FDF REVISED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>35,000</td>
<td>35,000</td>
</tr>
<tr>
<td>1991</td>
<td>35,000F</td>
<td>35,000</td>
</tr>
<tr>
<td>1992</td>
<td>40,000</td>
<td>39,500</td>
</tr>
<tr>
<td>1993</td>
<td>40,000F</td>
<td>39,500</td>
</tr>
<tr>
<td>1994</td>
<td>40,000T</td>
<td>39,500</td>
</tr>
<tr>
<td>1995</td>
<td>40,000T</td>
<td>39,500</td>
</tr>
<tr>
<td>1996</td>
<td>40,000T</td>
<td>39,500</td>
</tr>
<tr>
<td>1997</td>
<td>40,000T</td>
<td>39,500</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>CBN Estimate</th>
<th>FAO Estimate</th>
<th>FDF (REVISED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>110,000</td>
<td>105,000</td>
<td>102,000</td>
</tr>
<tr>
<td>1991</td>
<td>114,000</td>
<td>105,000F</td>
<td>104,620</td>
</tr>
<tr>
<td>1992</td>
<td>111,000</td>
<td>115,000F</td>
<td>111,740</td>
</tr>
<tr>
<td>1993</td>
<td>119,000</td>
<td>115,000F</td>
<td>104,395</td>
</tr>
<tr>
<td>1994</td>
<td>108,000</td>
<td>115,000F</td>
<td>102,330</td>
</tr>
<tr>
<td>1995</td>
<td>114,000</td>
<td>115,000F</td>
<td>99,760</td>
</tr>
<tr>
<td>1996</td>
<td>119,000</td>
<td>115,000F</td>
<td>97,190</td>
</tr>
<tr>
<td>1997</td>
<td>119,000</td>
<td>115,000F</td>
<td>94,625</td>
</tr>
</tbody>
</table>

3.1.7. Pulp and Paper

The three Pulp and Paper Mills now operating in Nigeria are the Nigerian Newsprint Manufacturing Company (NNMC) Oku-Iboku with a paper capacity of 100,000 Mt/year, the Nigerian Paper Mill (NPM), Jebba with a capacity of 77,000 mt/year and the Nigerian National Paper Manufacturing Company Ltd (NNPMC), Iwopin with an
existing capacity of 30,000 mt/year. The type of paper produced in Nigeria includes Newsprint, Printing and writing Paper and Paperboards. Their production trends are shown in Table 7.

Table 7: Paper Production (Mt)

<table>
<thead>
<tr>
<th>Year</th>
<th>Newsprint</th>
<th>Paper board</th>
<th>Printing and Writing</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>37,581</td>
<td>12,498</td>
<td>-</td>
<td>50,079</td>
</tr>
<tr>
<td>1991</td>
<td>21,781</td>
<td>7,707</td>
<td>-</td>
<td>29,488</td>
</tr>
<tr>
<td>1992</td>
<td>13,300</td>
<td>7,746</td>
<td>-</td>
<td>21,046</td>
</tr>
<tr>
<td>1993</td>
<td>4,000</td>
<td>2,314</td>
<td>-</td>
<td>6,314</td>
</tr>
<tr>
<td>1994</td>
<td>0</td>
<td>2,720</td>
<td>-</td>
<td>2,720</td>
</tr>
<tr>
<td>1995</td>
<td>0</td>
<td>2,884</td>
<td>2,500</td>
<td>5,384</td>
</tr>
<tr>
<td>1996</td>
<td>0</td>
<td>19,744</td>
<td>966</td>
<td>20,710</td>
</tr>
<tr>
<td>1997</td>
<td>0</td>
<td>na</td>
<td>na</td>
<td>na</td>
</tr>
</tbody>
</table>

Na = not available  
Source: FDF field surveys.

Paper and paperboard imports are quite high in Nigeria reaching over 120,000 mt in 1997. It is expected that the import of paper and paperboard will remain high in the near future.

4. Practical Measures

Since an idea of the sampling frame of forest industries exists in Nigeria, part of the problem has been solved. The details of the distribution and location of the respective mills can be obtained from the various States Forestry Departments and the Ministry of Industries.

The Planning Cell of the Federal Department of Forestry should be properly equipped to undertake major sector surveys every five year and back up surveys in the intervening years.

Since the sample frame is known, a random sample can be used to select mills in a stratified manner. Since the survey will be an integrated one, in order for the results to be reliable, within available resource constraint, a 1% sampling intensity will be adequate for the major surveys and thereafter a random selection of mills from those surveyed in the major survey can be visited in subsequent years in order to update the data for the intervening years between sample surveys.

It is suggested that since pulp and paper Mills are few, a 100% enumeration is feasible. The same consideration applies for particleboard and partly for plywood. The sawmills can be stratified into large, medium and small mills. The large mills are few and can be surveyed along with plywood and particleboard to which they are integrated, so that even 100% enumeration is feasible. The area of difficulties is in regard to small and medium sawmills and it is only for these that we require a 1-% sampling intensity.
The FDF field officers can be integrated into the survey with a little bit of training in enumeration and survey methods. They will also be required to brush up their basic statistics but the success will depend on the removal of existing constraints.

4.1. Constraints in Data Collection in Nigeria

Many constraints still exist in Nigeria as far as forest sector statistics goes and they include the following:

4.1.1. Funding and Appropriate Infrastructure:

Funding is the singular problem facing forestry data collection in Nigeria. A lot of lip service is still being paid to this very important issue in Nigeria. Allocation is piece meal and not adequate. Means of transport which are very crucial to the successful collection of information are conspicuously absent while equipment (computers) necessary for data processing are yet to be provided.

4.1.2. Public Attitude:

Public attitude is also a constraint. As in most cases, the public views Government statisticians with suspicion and hostility. They are usually not receptive to the idea of furnishing information about their concerns because more often than not, such requests are misconstrued for taxation purposes. This general poor attitude on the part of the public needs to be improved if forest sector statistics will be successfully collected and disseminated.

4.1.3. Dissipation of efforts

Funding has been listed as the main constraints but perhaps if there had been greater co-ordination among the various institutions collecting forestry statistics may be more should have been achieved. Presently, a lot of effort is being dissipated by various interested organisations with very little results to show for it.

5. Suggestions for Improvement

To set up the Planning Unit of FDF at ABUJA properly and strength it to cope with the responsibility of forest sector statistics through surveys.

To provide the necessary enabling infrastructure for forest sector statistics in member countries. This should include transport facilities, computers and other survey equipment. These facilities should be used to equip the statistical correspondent in Abuja to facilitative the function of statistical production. Perhaps assistance and support from international organisation should be sought by FDF to bring this to fruition.

The need to harmonise forest sector statistical requirement by the various international agencies is very essential. Such harmonisation will mean the
concentration of efforts and resources to develop the statistics correspondence units in Nigeria.

There is also the need for public enlightenment through lectures, seminars and workshops to improve the attitude of the public and forest industries towards government statistical agents.

There is a need for Federal Government of Nigeria to come up with a clear-cut policy with regards to forest sector statistics. Such a policy should make it mandatory for producers of forestry statistics such as forest industries to furnish information (data) on demand by government statisticians and evolve stiff penalties to defaulters.

There is also the need to harmonise data collection activities among the various institutions connected with forest sector statistics. This is with a view to achieving better co-ordination and division of labour to avoid dissipation of efforts and energy.

At present forest products trade statistics are being collected by customs and exercise and the FOS who in turn compile them. There is need for staff of the forestry department to liaise with the above department for proper identification of forest products as well as verification of quantities.

6. Conclusions and Recommendations

The state of forest sector statistics in Nigeria is uncoordinated and thus not effective. A general apathy still exists with respect to a conscious and systematic collection of forestry statistics. The need to formalise a statistical unit within the Federal Department of Forestry, that is well funded and staffed with the correctly trained manpower is very essential for a meaningful forest sector data collection programme. At present forest sector statistics especially forest products has a low quantitative sufficiency, poor reliability and thus not timely. The causes have been traced to inadequate resources in personnel and equipment for data collection. Data collection has been ad-hoc and lacked co-ordination and division of labour among institutions that generated and uses the statistics.

The Federal Government must come up with a clear-cut policy on forestry data collection and must determine whose responsibility it is to collect forestry data and how such organisation should be funded. It is believed that the Planning Cell of the Federal Department of Forestry which already exist and have some expertise could be strengthened and empowered to perform this role. The Planning Cell should be provided with adequate tools viz.: vehicles, computers (see Table 8) and the minimal funding to facilitate information gathering and analysis. Other staff categories of the Planning Cell and field offices need to be exposed to training courses, seminar and workshops to enable them to cope properly with the task of data collection and processing.
Table 8: Equipment required by the Planning cell to metamorphose into a Statistical Unit.

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Description</th>
<th>Available</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.</td>
<td>Desk Top Micro-Computer(PC – At 280 MB)</td>
<td>Nil</td>
<td>2 Units</td>
</tr>
<tr>
<td>ii.</td>
<td>Laser Jet printer</td>
<td>“</td>
<td>1“</td>
</tr>
<tr>
<td>iii.</td>
<td>Line printer of 600 l pm</td>
<td>“</td>
<td>2 “</td>
</tr>
<tr>
<td>iv.</td>
<td>Plotter</td>
<td>“</td>
<td>1 “</td>
</tr>
<tr>
<td>v.</td>
<td>Voltage stabiliser</td>
<td>“</td>
<td>2 “</td>
</tr>
<tr>
<td>vi.</td>
<td>UPS (122 VA or more)</td>
<td>“</td>
<td>2 “</td>
</tr>
<tr>
<td>vii.</td>
<td>Photocopier</td>
<td>“</td>
<td>1 “</td>
</tr>
<tr>
<td>viii.</td>
<td>Electric Typewriter</td>
<td>“</td>
<td>1 “</td>
</tr>
<tr>
<td>ix.</td>
<td>Vehicle (4 wheel drive for data collection)</td>
<td>“</td>
<td>2 “</td>
</tr>
</tbody>
</table>

The equipment listed above could be provided by International agency, like FAO, through its grant-in-aid programme to improve the capability of the Federal Department of Forestry in data collection and analysis in the pursuit of a sustainable tropical forestry development for Nigeria.
7. References and Sources of Wood Based Forest Statistics


FOS (*, *): Annual Abstract of Statistics Federal Office of Statistics, Abuja (various issues) (Primary Source)


