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Republic of the Phillipines
Ministry of Natural Resources
OFFICE OF THE MINISTER
Quezon City

MINISTRY ADMINISTRATIVE)
ORDER NO. 4 :
SERIES OF 1980)

SUBJECT: COMPREHENSIVE GUIDELINES IN THE IMPLEMENTATION OF LETTER OF INSTRUCTION NO. 145, AND SECTIONS 33,34, 35 AND 36 OF PRESIDENTIAL DECREE NO. 705 AS AMENDED BY P.D. NO. 1559, GOVERNING THE ISSUANCE OF INDUSTRIAL TREE PLANTATION LEASE AGREEMENTS, TREE FARM LEASE AGREEMENTS AND AGRO-FOREST FARM LEASE AGREEMENTS, in RELATION TO P.D. NOS. 953 and 1153, AND LETTER OF INSTRUCTION NO. 818, LOI 917, AND LOI 917-A, AND BFD ADMINISTRATIVE ORDER NO. 2, DATED OCTOBER 2, 1979, PRESIDENTIAL MEMORANDUM DATED DECEMBER 7, 1978, AND MNR ADMINISTRATIVE ORDER NO. 11, DATED DECEMBER 24, 1979.

In order to encourage more qualified person to engage in industrial tree plantations, tree farms, and agro-forest farms-- only a few applications for the establishment of which have heretofore, been filed - - and help accelerate the government's program to manage, develop, rehabilitate and revegetate all open, denuded, brushland, and inadequately - stocked timbered areas in forest lands, the following guidelines shall be observed in the issuance of Industrial Tree Plantation Lease Agreements, Tree Farm Lease Agreements, to wit:

SECTION 1. Open, denuded, brushland and inadequately-timbered areas outside forest concession. All open, denuded, and brushland areas, located outside concessions, may be available for industrial tree plantation, tree farm, and agro-forest farm lease agreements: Provided, That inadequately-stocked timbered areas in forest lands may only be the subject of industrial tree plantation lease agreements, or tree farm lease agreements for the planting of commercial trees, at a spacing of not more than 3 x 3 meters; Provided, Further, That priority shall be given to the establishment of communal tree farms over any person, denuded and brushland area in forest lands by barangays, municipalities or cities, and provinces, in pursuance of Ministry Administrative Order No. 11, of 1979, and, also, to the selection of sites for the planting of trees by citizens in accordance with Presidential Decree NO. 1153.

Sec. 2. Areas for reforestation and/or afforestation.-The following areas may not be the subject of industrial tree plantation, tree farm, or agro-forest farm, lease agreements, as said areas to be reforested by the government, or set aside for the planting of trees by its citizens in accordance with Presidential Decree No. 1153, or if forming part of concessions, by the concessioners, to be included in their reforestation plans, in pursuance of thier Obligation to reforest under P.D. 705, as amended, and Letter of Instruction No. 818.

a) Denuded or inadequately timbered areas proclaimed by the President as forested reserves and reservations as critical watersheds, national parks, game refuges, bird sanctuaries, national shrines, national historic sites;

b) Inadequately-stocked forest lands within forest concessions; and

c) River banks, easements, road right-of-ways, deltas, swamps, former river beds, and beaches.

However, reforestation projects of the government over open, denuded, brushland, or inadequately-timbered areas in public forests, and in forest lands proclaimed by the President as forest reserves, or portions of said project, which upon field evaluation, are found to be more suitable for, or can better be developed as industrial tree plantatations, tree farms or agro-forest farms, in terms of benefits to the Government and the general surrounding area, may be leased for said purposes.

Wilderness areas and greenbelts as defined in LOI 917 and 917-A, and BFD Administrative Order No. 2, dated October 2, 1979, may not be allowed for the establishment of industrial tree plantations, tree farms, and agro-forest farms.

In no case may a virgin forest or adequately timbered logged-over area be the subject of industrial tree plantation, tree farm or agro-forest farm.

SEC. 3. Open, denuded and brushland areas inside concessions. All open, denuded and brushland areas within forest concessions shall not likewise be available for industrial tree plantation, tree farm, or agro-forest farm, lease agreements and shall be reforested or afforested by the concessioner in accordance with the schedule prescribed in Letter of Instruction No. 818, which, in substance, provides "that all holders of existing timber licenses, leases or permits having to do with the cutting of trees for any purpose shall reforest, planting the same species as the trees cut, on a spacing of three (3) meters by three (3) meters, one (1) hectare of open, denuded and/or brushland forest areas, for every hectare logged-over, "Provided, That, in order to accelerate the development and rehabilitation of these areas, the Bureau, may after evaluation and study of his production and reforestation plans, segregate from the concession- in order to be available for the establishment of industrial tree plantation, tree farm, and agro-forest, lease agreements -- the open, denuded and brushland areas which would not be reforested or afforested, at the rate prescribed in LOI 818, within 7 years from the approval of his reforestation plan, and also such areas which he cannot, for economic, practical and financial reasons, reforest or afforest within the same period: Provided: Further, That over the segregated areas, the priority to establish industrial tree plantation, tree farms, and agro-forest farms, shall be given to the concessioners: Provided, However, that the priority must be availed of within a reasonable period, otherwise, the segregated areas shall be declared open to other qualified persons, subject however, to the second priority of barangays, municipalities or cities, and provinces, to establish communal tree farms over said areas in accordance with Ministry Administrative Order No. 11, of 1979, and the Bureau in setting aside tree planting areas for citizen in accordance with P.D. No. 1153:Provided, Finally, That lands designated as wilderness areas greenbelts within concession in accordance with LOI 917 and 917-A, and BFD

Administrative Order No. 2, dated October 2, 1979, shall not be segregated from the concession for the establishment of industrial tree plantations, tree farms, or agro-forest farms.

SEC. 4. Survey and inventory. - The Bureau shall require all concessioners to submit a seven-year reforestation plan within six (6) months from the promulgation of this Order without prejudice to the annual reforestation plan required in BFD Administrative Order No.1, dated January 6,1976, and shall complete, within three (3) months from the submission of each seven-year plan, its evaluation thereof.

Immediately after the evaluation of each seven-year reforestation plan, the Bureau shall, in accordance with the guidelines prescribed in the preceeding section, identify the seven-year reforestation area within the concession, and - - after the identification and survey of the portions to be designated as wilderness areas and greenbelts, in accordance with LOI 917 and 917-A, and BFD Administrative Order No. 2, dated October 2, 1979 - - survey and segregate all the open, denuded and brushland area which cannot be reforested by the concessioner within seven (7 years, and which have not been designated as wilderness area or greenbelt, and make them available for the establishment of industrial tree plantations, tree farms and agro-forest farms.

The seven-year reforestation plan shall be similar to the industrial tree plantation management plan provided for in Section 6 hereof, embodying, among others, and Plantation Work Program, supported by the activity charts, operation maps, and budget, except that there shall be no timber harvests in reforestation areas within concessions: PROVIDED, That enrichment planting in log landings and cable ways of adequately stocked logged over areas, and the replanting of trees in clear cut areas under the cut and plant method of logging, shall not be considered as complying with the reforestation obligation of the concessioner under P.D. 705, as amended by P.D. 1559, and LOI 818.

The Bureau of Forest Development shall continue to implement, in coordination with the Bureau of Lands, Letter of Instruction No. 145, particularly, its directives to:

"1) Survey and inventory all available public forest lands to determine such areas as might be suitable for industrial plantations and tree farms;

"2) Re-evaluate all pasture leases and permits and untitled alienable or disposable lands with the view of determining which should be converted partly or wholly into industrial plantations and tree farms." PROVIDED, That, in the survey, inventory and re-evaluation of pasture leases and permits, the Bureau shall observe the provisions of Section 14 of P.D. 705, as amended by P.D. 1559, which provides that "forest lands which are not reservation and which are the subject of pasture leases shall be classified as grazing lands, and areas covered by pasture permits shall remain as forest lands until otherwise classified, "and the provisions of Section 15 of the same law that no forest land " fifty per cent (50%) in slope or over" shall be classified as grazing land, and likewise Section 54 thereof, which provides:

"No forest land 50% in slope or over maybe utilized for pasture purposes.

"Forest lands which are being utilized for pasture shall be maintained with sufficient grass cover to protect soil, water and other forest resources.

"If grass cover is insufficient, the same shall be supplemented with trees or such vegetative cover as may be deemed necessary."

The Bureau shall recommend the cancellation of the pasture lease, if it finds, during the survey, that the lease holder has violated the cattle production, forage development, and tree planting, requirements in the lease agreement, or, of any governing rules and regulations, circulars, memoranda, or orders, consequently, the leased area shall retain its category of forest land, subject to future survey and classification for other purposes, or for use as industrial tree plantations, tree farm, or agro-forest farm, or communal tree farm, or citizens tree planting area. If the leased holder is found to be in good standing, the Bureau shall, subject to the provisions of LOI 917 and 917-A, and BFD Administrative Order No.2, dated October 2, 1979, allow him, either to avail of the provisions of Section 14 of P.D. 705, as amended, and have his area classified as grazing land, or use the area, under the classification of forest land, for the establishment of an industrial tree plantation, tree farm or agro-forest farm.

The Bureau shall include, as priority activities, in its plans and program, and budget, the aforementioned surveys, inventories and evaluations.

SEC. 5. Development requirements in industrial tree plantations and tree farms - Industrial tree plantations may be established for the planting of trees as raw materials of specific wood-processing plants, existing, or approved for installation and operation, or for the use of a specific industry requiring the use of wood in its operations, such as mining, railroad, and electric power.

If the site is suitable and the vegetative cover requirement thereof is satisfied, fast-growing tree species, such as the giant ipil-ipil, Albizzia falcataria, bagras, kaatoan, pine, Gmelina arborea, etc. may be allowed: Provided, That they are programmed to supply the requirements of specific wood-based or wood-using industry/ies.

An industrial tree plantation lease agreement may be issued only for a minimum area of one hundred (100) hectares, to be fully developed and planted to the climax tree species, regardless of the maturity period and cutting cycle thereof, within seven (7) years; or if more than three hundred (300) hectares, ten (10) years, at a spacing of not more than 4 x 4 meters: Provided, That the climax tree species to be planted in inadequately-timbered areas shall be on a spacing of not more than 3 x 3 meters.

Tree farms may be established for the planting of tree crops for future harvest and use of the wood thereof. Trees planted in tree farms may be utilized as raw materials for unspecified wood-processing plants, or wood-using industries, or for any uses by other industries supportive of the energy and food production programs of the government, such as ipil-ipil, for firewood and banana crops: Provided: That tree farms for the

planting of commercial trees over an area of fifty (50) hectares, or more, may be supported is specifically identified.

If the vegetative cover requirement of an open, denuded and/or brushland area in forest land are trees which may be planted and maintained with a spacing of more than 4 x 4 meters, the area may be allowed for the establishment of a tree farm, which calls for the planting and maintenance of tree crops. which are to be cut or harvested, as their main economic value are the fruits, flowers, latex, leaves, and other extractives thereof, and not their wood, such as ilang-ilang, lumbang, mulberry, kasoy, rubber and durian: Provided, That the spacing of these non-commercial trees, shall not exceed 10 x 10 meters: Provided, Further, That at least 60% in slope shall be planted and maintained with commercial trees on a spacing of not more than 3 x 3 meters, or 4 x 4 meters, depending upon the phenological characteristics of the species.

A tree farm lease agreement may be granted only for a minimum area of ten (10) hectares, to be fully developed, regardless of the species, cutting cycle and maturity, within (2) years, or if more than thirty (30) hectares, three (3) years; or if more than fifty (50) hectares, four (4) years; or if more than seventy (70) hectares, five (5) years; or if more than one hundred (100) hectares, seven (7) years; Provided, That, in pursuance of the constitutional and national policies against the concentration of wealth to a few individuals, and in line with the land reform program of the government, and in order to implement Section 58, of P.D. 705, as amended which provides:

> "Diffusion of Benefits. - The privilege to utilize, exploit, occupy, or posses forest lands, or to conduct any activity therein, or to establish and operate wood processing plants shall be diffused to as many qualified and deserving applicants as possible."

no tree farm lease agreement may be issued to any private individual for the planting of non-commercial trees over an area of more than twenty-four (24) hectares, nor to any corporation or association, if the grant would effectively amount to more than twenty-four (24) hectares for each individual or family equity holder: Provided, Further, That the Minister may allow a larger area for a corporation or association engaged in the processing and manufacture of products, using as raw materials, the fruits, flowers, latex, leaves, and other extractives, of the trees to be planted in the tree farm, such as rubber processing plants, and fruits canning factories, or to an individual, corporation or association engaged in the supply of such raw materials to specific plants or factories.

Industrial tree plantation and tree farms for commercial trees shall be so managed in such a manner as to provide a systematic method of planting, harvesting, and replanting of commercial trees, by blocks or compartments, in order to ensure that the whole area, after full development, shall not be left open or bare at any given time, except during the period between harvest and replanting in the schedule block or compartment.

No clearing, planting and harvesting within an industrial tree plantation, or tree farm for commercial trees, covering 50 hectares or more, shall be conducted, unless made in pursuance of an approved industrial tree plantation management plan, covering a period of at least ten (10) years, or an approved commercial tree farm management plan, covering a period of at least four (4) years.

No natural trees of the dipterocarp and/or commercial species may be cut in individual tree plantations, and tree farms for commercial trees, unless they are found in the block or compartment, scheduled for harvest and replanting in accordance with the approved management plan: Provided, That these trees, especially if found in adequately stocked logged-over areas, shall as far as practicable, not be scheduled for harvest until supplemented with trees in accordance with the trees planting, schedule as these natural trees serve as nurse trees for the young planted trees. The trees so cut shall be assessed and the corresponding forest charges thereon shall be paid. In nocase may a natural tree be harvested in tree farms for non-commercial species, or agro-forest farms, unless covered by a special permit therefore, which may be issued by the Director if the development of the area requires such tree cutting.

SEC. 6. Industrial Tree Plantation Management Plan. The industrial tree plantation management plan shall have a definite program and schedule for the complete development, management and utilization of the leased area. The plan, shall, among others, embody a Plantation Work Program, providing for the complete and rehabilitation of the area under the following work schedule for areas which do not exceed 300 hectares: at least 40% of the area, within 3 years; at least 70% within 5 years; and 100% within 7 years; and for areas 300 hectares and above: at least 30% within 3 years; at least 50% within 5 years; at least 70% within 7 years; and 100%, within 10 years, and a Nursery Work Program for the establishment of a Nursery to support the seed and seedling requirements of the Plantation Work Program. The work programs shall further be supported by activity charts, operation maps, and budget estimates.

The Plantation Work Program may allow the temporary development of unscheduled areas below 18% in the topography for cash flow: Provided, That the planting shall not be detrimental to the soil and water of the land, and shall instead enrich the soil with nitrogen-fixing bacteria, or any soil-conditioning element, in preparation for tree planting. Secondary and fast growing tree species, not intended for the use of the specific wood-based or wood-using industry/ies, may be planted over any un scheduled area in order to condition and enrich the soil and/or protect the climax tree species during the juvenile years thereof.

The Plantation Work Program shall be summarized in a schedule or table form, specifying the development targets and strategies for each compartment or block; such as :

1. The number of compartment of blocks;

2. The area of each compartment or block;

3. The number and spacing of trees to be planted in each compartment or block;

4. The climax species of the trees to be planted in each compartment or block;

5. The target date of start of operation and completion in each compartment or block;

6. The period of maturity of the climax species;

7. Land preparation activities in each compartment or block, including, if to be undertaken, the planting of secondary species and other soil conditioners and primary crop protecters;

8. The source and number of seedlings to be introduced in each compartment or block, with allowance for mortality;

9. The source of water, specifying water development activities, such as catchment basins, dams, irrigation, etc.;

10. The source and application schedule of other inputs, such as, fertilizers, chemicals, etc.; required in each compartment or block; and

11. The source and schedule of use in each compartment or block or machineries, equipment, tools, etc.

The Nursery Work Program shall be summarized in a schedule or table from, containing information on the following:

1. Seed species;
2. Souces of seeds;
3. Seedling production schedule;
4. Size and capacity of nursery/ies;
5. Source of water, specifying water development activities, such as dams, catchment basins, irrigation, etc.;
6. Source and schedule of application of other inputs, such as fertilizers, chemicals, lime etc.; and
7. Schedule of application of machineries, equipment, tools, etc. and construction of supporting buildings, sheds and other infrastructure.

The plan shall conform as much as possible to the following outline:

Outline of Industrial Tree Plantation Management Plan

Part I. Preparation, Review and Approval Sheet.

Part II. Location Map

Part III. Summary of Plan

Part IV. Description of the Plantation Area.

Part V. Development Plan -

1. Survey and demarcation of boundary.

2. Infrastructures to be introduced.

3. The Nursery Work Program.

4. The Plantation Work Program, with further information on the following:

   a. Maintenance of plantation, such as replanting, weeding, mulching, etc.,

   b. Protection of plantation, such as, patrolling, establishment of checkpoints, firebreaks, greenbelts, firetowers, and protection measures against pest and diseases; and

   c. Such other information relevant to the development, rehabilitation, planting and replanting activities.

Part VI. Utilization and Product Disposition.

1. Harvest methods.
2. Transportation.
3. Processing plant/s and/or wood-using industry/ies supported.
4. Marketing.

Part VII. Implementing Organization

1. Corporate structure.
2. Structure of implementing division or department, such as its forestry department.
3. Total personnel and payroll.
4. Duties of key personnel.

Part VIII. Financial Feasibility, particularly budget, sources of funds and schedule of application.

Part IX. Required Appendexes of Annexes

The industrial tree plantation management plan shall form part of the industrial tree plantation lease agreement, and shall therefore be submitted for approval within sixty (60) days after the approval of the Industrial Tree Plantation Lease Application, and no lease agreement may be issued unless the plan has been approved by the Minister, upon recommendation of the Director.

SEC. 7. Industrial Tree Plantation Lease Agreement.-

Industrial tree plantation lease agreement may be issued by the Minister, upon recommendation of the Director, for a period not exceeding twenty-five (25) years, renewable for another period not exceeding twenty-five (25) years, Provided, That, as allowed by Article XIV, Section 8, the Constitution, plantations for specific wood-processing plants, existing, or proposed and approved for establishment, and other wood-using industries, may be granted a longer period of lease not to exceed fifty (50) years, "in which cases beneficial use may be the measures and limit of the grant."

No lease agreement shall be issued or renewed, unless an application therefor has been filed and approved in accordance with the provisions of this Order: Provided, That an application for renewal shall be filed at least sixty (60) days prior to its expiration: Provided, Further, That if the lease expires while the renewal application is being processed, a temporary permit to continue operation may be issued by the Director for a perios not longer than three (3) months: Provided, Finally, That if no renewal application is filed at all, upon expiration of the lease agreement thereof, the subject forest area shall be considered vacant and its disposition shall be governed by this Order.

SEC. 8. Industrial Tree Plantation Lease Application.
Only the following persons may file an application for industrial tree plantation lease agreement: (1) citizens of the Philippines who are at least 21 years of age at the time of the filling of the application; and (2) corporations, partnership, associations, and such other juridical persons as may be recognized and registered in accordance with the laws of the Philippines, at least sixty percentum (60%) of the capital of which is owned, controlled and managed by citizens of the Philippines:

Provided, That the Minister of Natural Resources may, consistent with the national policy of attracting foreign investments, in capital intensive and dollar consuming enterprises, allow applicants with service contracts with any foreign person or entity for financial, technical, management, or any other form of assistance, to file an industrial tree plantation lease application.

SEC. 9. Form, contents and supporting documents. - Application shall be filed in a form to be prescribed by the Director of Forest Development, providing for substantial information on the wood-processing plant/s, existing, or proposed and approved for establishment, or wood-using industry/ies, to be supported, particularly on the actual requirements thereof for wood; the location and size of the area applied for; and sketch of the area, showing its boundaries, and brief description thereof; the target production and harvest; the development schedule; budgetary requirements; financial and technical capability; and such other information as the Director may require.

No application shall be accepted unless subscribed and sworn to by the applicant, or in the case of a juridical person, by its president, general manager or authorized agent, and accompanied by proof of applicant's technical and financial capability to establish the industrial tree plantation, and the following documents:

(a) If the applicant is a government official or employee, whether in the career of non-career service, a written permission from the department head of agency concerned;

(b) If the applicant is a married woman, the written consent of her husband;

(c) If the applicant is a naturalized Filipino citizen, a copy of his certificate of naturalization certified by the Clerk of Court of the Court of First Instance that issued the name, and a certification by the office of the Solicitor General that it has not filed or taken any action for his denaturalization, or any action that may affect his citizenship;

(d) If the applicant is a corporation: (1) three copies of its articles of incorporation; (2) three copies of the by-laws; (3) three copies of the minutes of the latest organizational meeting of its stockholders, electing the present members of the Board of Directors, (4) three copies of the minutes of the organizational meeting of the Board of Directors, electing the present officers of the corporation; (5) three copies of the resolution adopted at said board meeting, electing the present officers of the corporation, certified by the corporate secretary; (6) three copies of the minutes of the meeting of the Board of Directors indicating the authority of the officers to file the application in behalf of the corporation; and (7) three copies of its financial statement for the previous two years; if the applicant was already in existance at the time: Provided, That the articles of incorporation must show an undertaking that there will be no transfer of capital structure of the corporation, and should there be any such transfer of stock, it shall not be affected without the approval of the Minister, upon recommendation of the Director: PROVIDED, Further, That all the above corporate documents must be certified to be on file with the Securities and Exchange Commission, and the certification must be signed by the authorized officer of said commission: and

(e) If the applicant uses a name, style or trade name, other than its or his true name, three copies of the certificate of registration of such name, style or trade name with the Bureau of Domestic Trade, certified by an authorized officer of said Bureau.

The application must further be accompanied by three certified copies of the income tax return filed for the preceding year, if the applicant was already in existence at the time and required to file said return.

SEC. 10. Application fees.- No application shall be accepted, unless accompanied by an application fee in an amount computed at ₱0.50 per hectare.

SEC. 11. Where to file the application. - The application shall be filed with the Central Office of the Bureau, in Diliman, Quezon City.

SEC. 12. When to file; Recording of application. - All applications shall be filed during regular office hours and shall be serially numbered, stamped and recorded in the book provided for the purpose, in chronological order, showing the number, the date and the time of receipt thereof.

SEC. 13. Preliminary evaluation. - The application shall, thereafter, be the subject of a preliminary evaluation to determine thefollowing information from existing records in the Bureau, to wit:

(a) Whether the area applied for, or any portion thereof, mis covered by an existing license agreement, license, lease or permit, in which event, the application shall be rejected outright: Provided, That the application may be refiled upon the cancellation or expiration of the existing license agreement, license, lease or permit, without any pending appeal from the order of cancellation, or application for renewal;

(b) Whether the area applied for, or any portion thereof, is among those not allowed for the establishment of industrial tree plantations, in accordance with Sections 1,2, 3 and 4 hereof, in which event, the application shall be rejected outright; and

(c) Whether the area applied for, or any portion thereof, is covered by any previous application/s for industrial tree plantation, in which event, the earlier/st application shall have to be evaluated and acted upon by the Bureau ahead of the latter application/s for industrial tree plantation, actions on which shall be held in abeyance, under the first-in- application, first in-right principle: Provided, That, if the earlier/st application filed is finally approved and the corresponding industrial tree plantation lease agreement, finally issued, the later application/s shall be denied in an Order of Rejection, to be signed by the Director: Provided, Further, That if the earlier/st application is denied, the Director shall issue an Order of Rejection, upon the finality of which, the second earliest application shall be given due course and evaluated: Provided, Further, That an Order of Rejection is appealable to the Ministry in accordance with Department Order No.1, series of 1975, and shall be exscutory if no appeal is taken therefrom within 30 days from notice of the Order of Rejection, or when any judgement on appeal, affirming the same, has become final.

However, the earlier/st applicant for industrial tree plantation shall not have the right of preferential attention and evaluation, if he has not paid the application fee nor submitted the documents and information required in this Order, and the Director may consider such application and all subsequent and

similar applications as nothing but mere scraps of paper, to be exhumed from the records, or, if he finds some meritorious proposals in any of such application/s, he may evaluate it/them together with the earliest application filed in accordance with the privisions of this Order, with the corresponding fees paid, and required documents, submitted: Provided, That those filed applications not in accordance with this Order, before its promulgation, shall be given a period of thirty (30) days from notice within which to comply therewith, in order to avail of preferential attention and evaluation: Provided, That in case the previous application/s filed or completed in accordance with this Order, or any other existing rule or regulation, is/are for a use other than the establishment of an industrial tree plantation, the Bureau shall evaluate it/them together with the earliest application for industrial tree plantation filed or completed in accordance with this Order, and decide in favor of the use that will produce the optimum benefits to the public welfare, without, or with the least, injury to forest land and resources: Provided, Further, That, inasmuch as the spacing allowed for trees of commercial species are closer, not more than 3 x 3 meters, or 4 x 4 meters, depending upon the phenological characteristics thereof, than trees of non-commercial species, which cause of their foliage and survival requirements, have to be planted on a wider spacing, and inasmuch as tree planted in industrial tree plantations are intended to be used by specific wood-processing plants or wood-using industries, which, otherwise, would use trees harvested from natural forests, the establishment of industrial tree plantations shall be preferred over the establishment of tree farms, whether for commercial or non-commercial trees, agro-forest farms, and other special uses, and over the classification of forest lands as grazing land for the issuance of new pasture lease agreements: Provided, Further, That the establishment of an industrial tree plantation shall not be allowed, if the area, not segregated from an existing concession, is needed for reforestation or afforestation by the government, of the planting of tree by its citizens in accordance with P.D. No.1153, of for the establishment of commercial tree farms in accordance with Ministry Administrative Order No. 2 of 1979.

SEC. 14. Approval of application. - If the area applied for is neither covered by any existing license agreement, license, lease, nor permit, not by any other application, and is not among those disallowed for the establishment of an industrial tree plantation, the application shall be approved and given due course: Provided, That its field conditions, such as topography and vegetative cover, as borne out by reliable aerial photos and previous field reports, warrent such establishment.

If a portion of the area applied for is not suitable or available, for, or may not be the subject of, industrial tree plantation, the applicant shall be so notified and given a period of 15 days from notice to amend his application so as to cover only the available area.

The Bureau shall weigh the proposed establishment of industrial tree plantation with alternative uses, whether or not covered by applications, and approve the application only if it finds that the proposed establishment will produce the optimum benefits to the development and progress of the country and the public welfare, without impairment, or with the least injury, to forest land and resources.

The Bureau shall not approve and give due course to the application, if it finds that the applicant does not have the financial and technical capability, to establish an industrial tree plantation within the period prescribed herein.

The applicant, within sixty (60) days from notice of the approval of his application, submit his proposed industrial tree plantation management plan, which shall be evaluated by the Director who shall be assisted by, among others, a special staff of PROFEM, in order to relate the proposal to the total reforestation efforts of the government. Upon recommendation of the Director, the Minister shall approve the plan, with or without amendments. Upon notice of approval of the plan, and acceptance of amendments, if there be any, the applicant shall execute the lease agreement and, upon recommendation of the Director, the Minister shall sign and issue the same.

An approved application shall not give the applicant any right to utilize and develop the area applied for, except the right to enter into the area for the preparation of the management plan.

Before approving the Industrial Tree Plantation Lease Application, the Director may, if existing field data are not sufficient, or unreliable, or if he finds it necessary and proper for an intelligent study and evaluation, order an inspection and survey of the area applied for.

SEC. 15. Survey requirements.- The inspection and survey shall seek to gather information about the area on the following matters: (a) vegetative cover; (b) timber stand; (c) species composition; (d) its boundaries; (e) accessibility; (f) topography and hydrography; (g) the premises; (h) occupations; and (i) such other information as may be necessary for evaluation of the proposed industrial tree plantation management plan.

SEC. 16. Report of inspection and survey.- The inspection and survey report and the compilation may shall be sworn to by the inspecting forest officer, and shall be exhaustive.

SEC. 17. Evaluation of field reports.- Field report shall immediately be evaluated in order to determine whether the facts and data gathered are already sufficient for the study and evaluation being conducted.

SEC. 18. Inspection and survey fees.- No inspection and survey shall be conducted in connection with the study and evaluation of application/s unless an inspection fee is deposited with the Bureau in the amount of ₱1.00 for every hectare: Provided,That, the fee shall not be less than ₱100.00 per application.

SEC. 19. Perimeter survey.- The inspection and survey may also include a perimeter survey of the area to establish and mark on the ground the boundary lines of the area covered or affected by the approved application.

SEC. 20. Tree Farm Lease Agreements.- Tree farm lease agreements may be issued by the Ministry upon recommendation of the Director, for the planting of commercial trees, or non-commercial trees, or both.

No tree farm lease agreement shall be issued or renewed, unless an application therefor has been filed and approved in accordance with this Order. The Provisions of sections 7,8,9 10, 11 and 12 of this Order shall govern the filing of Tree Farm Lease Applications.

SEC. 21. Preliminary Evaluation and Approval of Tree Farm Lease Applications.- The provisions of sections 13, 14, 15, 17, 18 and 19 of this Order shall,.as far as practicable and applicable, govern the preliminary evaluation and approval of tree farm lease applications: Provided, That, in applying section 13 hereof, priority of use shall be given to applications for tree farms for commercial trees over tree farms and non-commercial trees, agro-forest farm, and other grazing land for the issuance of new pasture lease agreements: Provided, Further, That in applying section 14 hereof, the applicant shall, within sixty (60) days from notice of the approval of his application, submit for areas covering fifty (50) hectares or more, a tree farm management plan for the planting and harvest of commercial, and planting for non-commercial trees, to cover a period of at least four (4) years: Provided, Further, That, for an area of less than fifty (50) hectares, to be planted to commercial trees, the applicant shall instead submit a Plantation Work Program, covering the period within which the area is required to be fully developed: Provided, Further, That, if the area is to be planted only to non-commercial trees, even if to be planted also to commercial trees but not to be cut and harvested, the applicant shall submit a Plàntation Work Program to cover the period within which the area required to be fully developed: Provided, Further, That, if the area to be granted for the planting of non-commercial trees is larger than that allowed in section 5 hereof, in order to support specific manufacturing or processing plants, using as raw materials the fruits, flowers, latex leaves, or other extractives of the said trees, the tree farm lease applicant shall embody the relationship of the farm to the specific plant or factory, submitting documents in support thereof, such as raw material supply contracts, if the applicant is not the owner of such plant or factory.

SEC. 22. Tree Farm Management Plan and Plantation Work Program.- The tree farm management plan, or plantation work program, or project study, shall form part of the tree farm lease agreement, and no lease shall be issued unless the corresponding plan, program, or project study, has been approved by the Minister, upon recommendation of the Director.

The provisions of section 6 hereof shall, as far as practicable and applicable, govern the preparation, evaluation and approval of tree farm management plan, plantation work program and project studies.

SEC. 23. Development Requirements for Agro-Forest Farms.- The minimum area that may be allowed for the establishment of agro-forest farm is one hundred (100) hectares, which shall be fully developed within seven (7) years, in accordance with an agro-forest farm management plan: Provided, That, the development requirements for areas subject of communal tree farms, where agricultural activities are allowed in accordance with Section 12 of MNR Administrative Order No. 11, dated December 24, 1979, and areas prescribed for agro-forest development under the kaingin management plan provided for in section 51 and 52 of P.D. 705, as amended, shall not be govern by this Order.

MNR Administrative Order No. 11.

"12. Development of Plantation . - The Bureau of Forest Development will provide the technical know-how in the establishment of communal tree farms. The participants will provide the necessary inputs for nursery establishment, seedling/planting stock production, planting site preparation, plantation maintenance, protection and silvicultural treatments with the guidance of the local forest district office.

Short, medium and long term tree species shall be used in the establishment of the plantations in order to provide immediate income for the tree farmers. This is besides allowing them to interplant cash crops such as sorghum, corn and/or other root crops with the guidance of BFD and BPI personnel; Provided, however, that no portion of the area shall be devoted solely for agricultural crops; and Provided, Further, agricultural crops shall not to be more than five (5) hectares, for areas involving twenty-five (25) hectares and above, or not more than 20% of the total area. "

P.D. 705. as amended:

"SEC. 51 - Management of Occupancy in Forest Lands. - Forest occupancy shall henceforth be managed. The Bureau shall study, determine and define which lands may be the subject of occupancy and prescribed therein, and agro-forestry development program.

Occupants shall undertake measures to protect forest resources.

Any occupancy in forest land which will result in sedimentation, erosion, reduction in water yield and impairment of other resources to the determent of community and public interest shall not be allowed.

In areas above 50% in slope, occupation shall be conditioned upon the planting of desirable trees thereon and/or adoption of other conservation measures."

"SEC. 52. Census of Kaingineros, Squatters, Cultural Minorities and Other Occupants and Residents in Forest Lands.
- Henceforth, no

portion may be cut or harvested.

SEC. 24. Agro-Forest Farm Management Plan- The agro-forest farm management plan shall form part of the agro-forest farm lease agreement, and no lease shall be issued unless the corresponding plan has been approved, by the Minister, upon recommendation of the Director. The plan shall embody a forest renewal work program, covering the portion of the leased area designated as permanent forest, and an agricultural development program, covering the rest of the area, and/or a forage development work program, to support livestock production. The work program shall be supported by activity charts, operation maps, and budget estimates. The provisions of section 6 hereof shall as far as practicable and applicable, govern the preparation evaluation and approval of agro-forest farm management plans.

SEC. 25. Agro-Forest Farm Lease Agreement.- Agro-forest farm lease agreements may be issued by the Minitry, upon recommendation of the Director. No Agro-forest farm lease agreement shall be issued or renewed unless an application therfore has been filed and approved in accordance with this Order. The provisions of sections 7,8,9, 10, 11, and 12 of this Order shall govern the filing of agro-forest farm lease applications.

SEC. 26. Preliminary Evaluation and Approval of Agro-Forest Farm Lease Applications - The provisions of sections 13, 14, 15, 16, 17, 18 and 19 of this Order shall, as far as practicable, and applicable, govern the preliminary evaluation and approval of Agro-forest lease applications.

SEC. 27. Common Provisions.- No industrial tree plantation, tree farm, or agro-forest farm lease agreement shall be issued unless the rental due the first year is paid.

No rental shall be collected during the first five (5) years of the lease. From the sixth year to the tenth year, the annual rental shall be fifty centavos (P0.50) per hectares; and thereafter the annual rental shall be one peso (P1.00) per hectare: Provided, That leaseees of areas long denuded, as certified by the Ministry Head, shall be exempted from the payment of rentals for the full term of the lease which shall not exceed twenty-five (25) years; following the renewal of the lease, the annual rental shall be one peso (1.00) per hectare: Provided, Further, That notwithstanding the foregoing, no rental shall be collected from a leaseee who upon verification by the Bureau, substantially meets the schedule of development under the industrial tree plantation, tree farm, or agro-forestry farm, management plan.

No lease shall be issued unless the applicant posts a performance bond in an amount equivalent to the cost of implementing the work program for one year, to be determined by the Director.

The bonds required of applicants for lease or permits may be posted in each or in surety bond acceptable to the Director: Provided, That the amount of surety bond shall be twenty-five per centum (25%) more than the amount herein provided.

The lessee shall submit, on or before the 30th day of January of each year, an annual progress report in his operations for the previous year, and an Operations Plan and Budget for the incoming year.

SEC. 28. Grounds for Cancellation or Suspension of Lease Agreement.- The Minister, upon recommendation of the Director, may cancel of suspend, depending on the gravity of the offence or the adverse effect on the management of forest land and resources, a lease agreement, on any of the following grounds;

(1) If the privilege was obtained through fraud, misrepresentation, or omission of material fact existing at the time of the filing of the applications;

(2) Failure of a privilege holder to pay and/or settle any forestry account, such as, license and permit fees, and rentals, within a reasonable period after demand, or violation of any of the provisions of the National Internal Revenue Code relating to forest products;

(3) Violation of any of the terms and conditions of, or failure to comply with or perform the obligations imposed in, lease, license, permit, or contract, or pertinentlaws, decrees, letters of instructions and policies affecting the exercise of the privilege granted therein, or any of the provisions of this Order;

(4) Failure of the privilege holder to inform the Bureau of any of such violations, or of any act detrimental to the protection and management of the affected forest land or to secure the approval of the Minister or Director of any transaction affecting or involving the privilege;

(5) Conducting an operation in violation of a prescribed management or operation plan, or beyond the area covered by the privilege;

(6) Failure to provide the necessary protection, management and development over the forest land or area covered by the privilege granted in his favor;

(7) Abandon ment of the area, or failure to exercise a privilege granted within the prescribed period, or, if not prescribed, within four (4) months from the issuance of the license agreement, license, lease or permit; or

(8) When public interest so requires.

SEC. 29. Effectivity.- These rules and regulations shall take effect immediately.

(SGD.) JOSE J. LEIDO, JR.
Minister of Natural Resources

RECOMMENDED BY:

(SGD.) JESUS B. ALVAREZ, JR.
Assistant Director
Officer-in-Charge, BFD

(SGD.) JOSE A. JANOLO
Acting Assistant Secretary
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Codification Committee

(SGD.) EDMUNDO V. CORTES
Director
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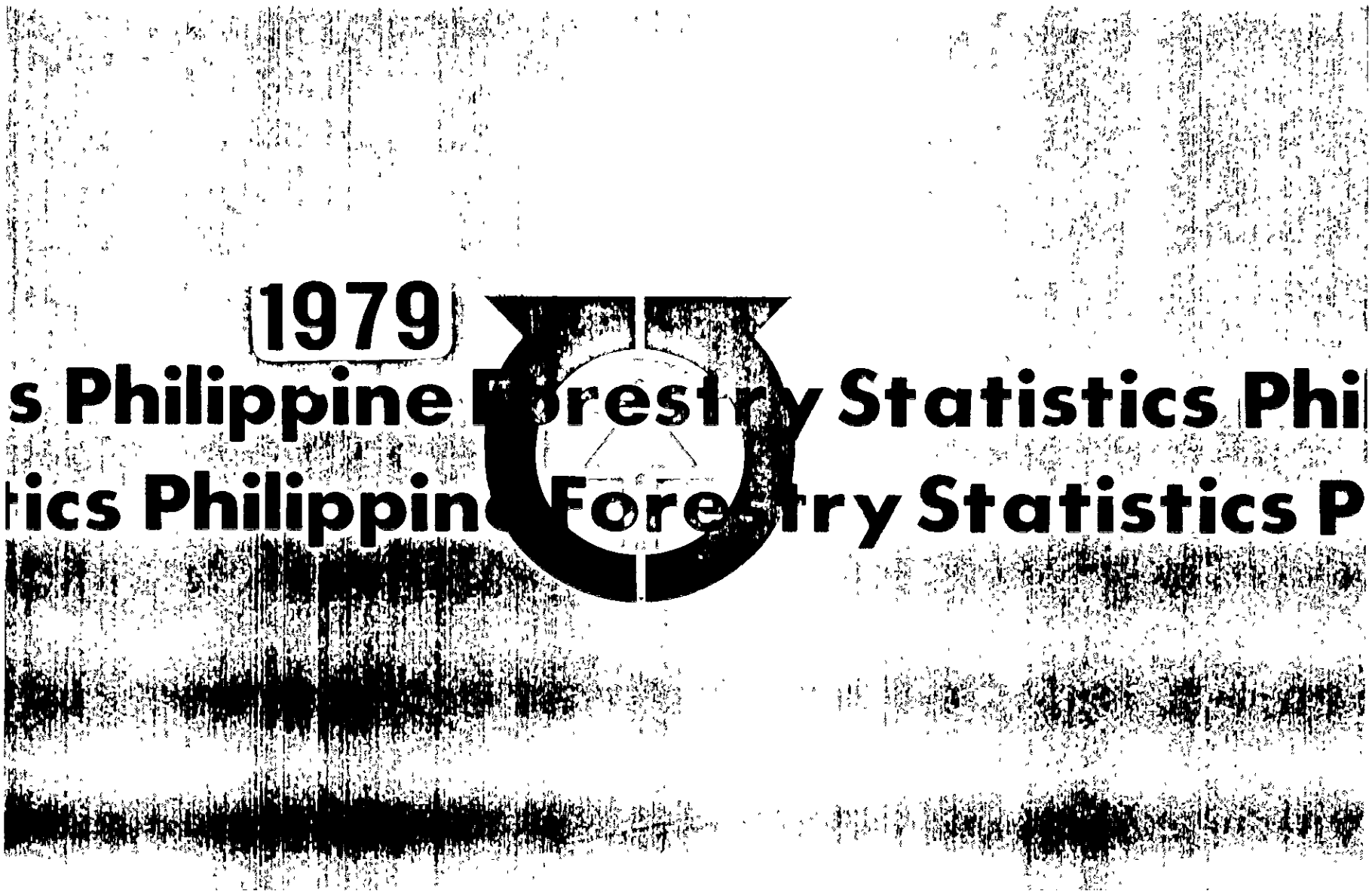
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PREFACE

The 1979 Forestry Statistics* yearbook is basically a compilation of vital information concerning Philippine forest resources, including proper utilization, processing and marketing of forest products

This compilation is intended to serve as handy reference material for policy makers and various forest users. As such, it consists of four (4) parts. Part I presents data on forest resources and other forestry activities; Part II focuses on forest resources utilization; Part III discusses data on trade, prices and other related statistics; Part IV deals with revenues derived by the government from forest resources.

Data on timber resources and land use statistics are projections from actual forest inventory data obtained during the first nationwide forestry inventory conducted from 1962 to 1968. Other data were obtained from field offices and divisions of the Bureau of Forest Development, National Census and Statistics Office, National Economic Development Authority, Central Bank and other affiliated government agencies

EDMUNDO V. CORTES
Director

Compiled and prepared by the Forest Economics Section, Planning and Evaluation Division, Bureau of Forest Development

SYNOPSIS

As of December 31, 1979, forest lands cover about 56% or 16.91 million hectares of the total land area of the country. Of this total, 9.32 million hectares, or 55% are classified into the following land use categories:

1. Classified forest land ..... 9,328,559 ha. — 55%
   a) forest reserves and timberland ..... 8,630,000 ha. — 93%
   b) national parks ..... 316,117 ha. — 3%
   c) military reservation ..... 129,911 ha. — 1%
   d) civil reservation ..... 252,524 ha. — 3%
2. Unclassified forest land

There are 60 national parks covering an aggregate area of 363,656 hectares. Game refuge and bird sanctuaries now total 7 with an area of 1.6 million hectares while watershed reservations totalled to 40 and there were 154 forest reserves which covered 351,031 hectares and 6.5 million hectares, respectively.

The existing timber resources of the country was estimated at 1,587 million cubic meters with dipterocarps composing 1,441 million cubic meters of the total volume. The mangrove type made up only 7.39 million cubic meters and pine consisted of 16.9 million cubic meters. The unproductive forest accounted for 122 million cubic meters.

The total area reforested during the year was 79,379 hectares and 4,619 kms. of road. Of this total, the government sector has planted 51,858 hectares and 3,914 kms. while the private sector planted a total of 27,539 hectares and 705 kms. Area planted by the BFD alone was 27,701.00 hectares. Seedlings produced aggregated 265 million of which 211 million were raised by the government sector. The private sector produced a total of 54 million seedlings.

As of December 31, 1979, a total of 154,481 families occupying 511,645 hectares of forest lands were covered by a census conducted by BFD

For selective logging, the three major activities registered impressive accomplishments for the year. Tree marking reached a total of 71,656 hectares, residual inventory 61,528 hectares, and timber stand improvement 43,595 hectares.

Two hundred eighty four timber licenses covering 8.19 million hectares with an aggregate allowable cut of 17.4 million cubic meters were in force in 1979. Logs produced aggregated to 6.6 million cubic meters. Log export amounted to 1.2 million cubic meters, worth $144 million.

There were 227 active sawmills operating in 1979 with a total daily rated capacity of 11.4 million cubic meters. The total annual log requirement was 4.7 million cubic meters. Lumber production for the year amounted to 1.6 million cubic meters of which 57% or 915 thousand was exported, earning $198 million.

There were 33 existing plywood mills and 23 veneer mills in the country. Plywood production was .503 million cubic meters and exports totalled .324 million valued at $85 million. Veneer production, on the other hand exhibited .634 million cubic meters, 29% or .186 million cubic meters or which were exported earning $35 million.

As of December 31, 1979, 3,633 pasture leases/permits were in force covering 967,026 hectares.

Ordinary minor forest products licenses/permits were issued for the gathering of almaciga, resins, rattan and other non-timber products. For the year in review, minor forest products exports contributed $7.2 million to the country's total earnings on exports.

Government revenues were derived from forest charges and fees collected for the gathering and utilization of forest resources. For the year 1979, a total revenue of ₱61.55 million was assessed from timber, and minor forest products contributed ₱1.1 million.

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ABBREVIATION OR SYMBOL USED

—	None
0	Less than the approximate unit or figure is very nil
r	Revised
P	Preliminary
Ha	Hectare
LM	Linear meter
DBH	Diameter Breast Height
Km	Kilometer
Cu.m. or M^3	Cubic meter
V_1	Veneer one
V_2	Veneer two
S_1	Sawlog one
S_2	Sawlog two
NCR	National Capital Region
R	Region
FY	Fiscal Year
CY	Calendar Year

PART I

FOREST RESOURCES AND OTHER FORESTRY ACTIVITIES

LAND CLASSIFICATION

The Bureau of Forest Development is mandated by law to effectively, efficiently and economically classify lands of the public domain in collaboration with other bureaus. As such, land classification is one of the major activities being undertaken by the Bureau. All lands determined as not needed for forest purposes are classified and certified as alienable or disposable of which administrative jurisdiction and management are then transferred to the Bureau of Lands for disposition in accordance with the provisions of the Public Lands Act. In the case of mangrove areas and other swamplands which are suitable for fishpond purposes, the administrative jurisdiction and management of such areas are placed under the Bureau of Fisheries and Aquatic Resources.

The object of the present system of land classification is to retain at least 42% of the total land area (30 million hectares) of the country for forest land making available the remaining 58% for agriculture, industrial, residential and other uses. In order to attain this objective, all lands over 18% (10' slope) are to be retained for forest purposes. Only areas below 18% in slope can be classified as alienable and disposable provided they meet other criteria set by law. Moreover, where the public interest so requires, areas previously classified as alienable or disposable maybe reverted to the category of forest land.

For the year 1979, some 27 thousand hectares have been classified as forest lands and 22 thousand hectares certified into alienable or disposable. These brought the total of classified forest lands to 9.33 million hectares and alienable and disposable to 13.1 million hectares. Still to be classified are some 7.6 million hectares of unclassified forest lands of which 4.3 million have been programmed and predetermined to be classified as alienable and disposable. These areas, however, include those that have been surveyed and enumerated by the MNR composite land classification teams but not yet proclaimed as forest reserves or certified as alienable and disposable areas.

Of the total classified forest lands, 8.6 million hectares are forest reserves and timberland, 32 thousand hectares are military reserves and 25 thousand hectares are civil reservations. (Table 1.1)

LAND USE

The land use status by geographical region is shown in Table 1.2. The figures are projections based on the "Average Annual Land Use Change in the Philippines" which were derived from the data gathered during the first national forest inventory conducted in 1962-1968 by the BFD with the assistance of the USAID and the Philippine Air Force. Of the total area of 16.9 million hectares of forest lands, 66% or 11.2 million are still covered with timber, while 5.7 million hectares are already devoid of timber. Luzon and Mindanao account for the bulk of forest lands in the country with 39.67% and 37.21%, respectively, while the remaining 16.31% and 6.81% are in Visayas and Palawan, respectively. Similarly, Luzon and Mindanao have the biggest share of the total alienable or disposable lands of 13.1 million hectares with 41.25% and 29.85%, respectively.

Area of Commercial Forest

The commercial forest of the country covers 7.2 million hectares (young growth plus old growth plus pine), of which 93% or 6.7 million hectares are within forest lands while 7% or 451 thousand hectares are in the alienable and disposable lands. Geographically, of the 6.7 million hectares of commercial forest, 53.37% or 3.6 million hectares are in Mindanao, 28.34% or 1.9 million hectares in Luzon, 9.89% or 66 thousand hectares in the Visayas and 8.40% or 56 thousand hectares in Palawan.

Non-Forest Area

Of the non-forest lands of 17.2 million hectares, 43.12% or 7.5 million hectares are found in Luzon, 25.78% or 4.5 million hectares are in

Visayas, 30.17% or 5.2 million hectares in Mindanao and 1.18% or 204 thousand hectares in Palawan.

PARKS, WILDLIFE AND WATERSHEDS

Table 1.3 shows the summary of national parks, game refuge and bird sanctuaries, watershed reservations and forest reserves by region. At present, there are 60 national parks covering an area of 363,656 hectares (parks with unsurveyed boundaries are excluded). These, however, do not include those national parks that are under the administrative jurisdiction and management of other government agencies. Of the total number, 34 are in Luzon (including Palawan, 11 in the Visayas and 15 in Mindanao).

There are seven (7) game refuge and bird sanctuaries which have been established with a total area of 1.6 million hectares. A game refuge and bird sanctuary may cover several land use types as in the case of Palawan. Once proclaimed, it is closed to hunting and/or fishing in order that the game and wildlife population in the surrounding areas may flow in and restock the same.

There are 40 forest watershed reservations covering an approximate area of 351 thousand hectares, 33 of which are in Luzon having an area of 313 thousand hectares, two (2) in the Visayas with an area of 27 thousand hectares and five (5) in Mindanao with 11 thousand hectares. Watershed reservations may be established and proclaimed within any part of the public forest with the aim in view of protecting or improving the conditions of water yield thereof and reduce sedimentation. As such, these forest reservations are not open to timber and other minor forest products exploitation.

A total of 154 forest reserves with an aggregate area of about 6.5 million hectares have been established. Seventy nine (79) forest reserves are located in Luzon with a total area of 3 million hectares, 15 in the Visayas with 300 thousand hectares, and 60 in Mindanao with 3.2 million hectares.

TIMBER RESOURCES

Forest Type

The Philippine forest is categorized into six (6) types, namely: the dipterocarp or lauan type, the molave or molawin type, the mangrove or bakawan type, the pine or saleng type, the beach or the agoho-talisay-dungon type and mid-mountain or mossy type. However, for purposes of this statistics, molave is included in the dipterocarp, and beach in the mangrove. It may be mentioned that dipterocarp forest is not in itself a pure stand of species belonging to the family Dipterocarpaceae, but a mixture of different tree species of various families with the dipterocarp the dominant species.

Dipterocarp species thrive best in wet valley bottoms and hilly or mountainous regions up to 1,000 meters above sea level; molave forest frequently occurs in regions of distinctly dry limestone ridges; pine forest in mountain regions of high altitude, mangrove forest in tidal flats at the mouths of streams and shores of sheltered bays; beach forest in dry sandy beaches and mid-mountain or mossy forest in areas with steep topography, rising to peaks with sides cutting into smaller ridges by deep canyons and shallow soils.

Volume of Standing Timber by Forest Type, Stand Size and Species

The volume of standing timber was projected based on the assumption that the growth increment in the old growth stands (virgin forest) is nil while an annual growth increment of 1% was used for reproduction brush, young growth stands and pine forest.

The dipterocarp forest which is noted for the quality of its wood composes the bulk of the country's timber resources accounting for 90.8% or 1.4 billion cubic meters of the total volume of standing timber in the public forest estimated at 1.6 million cubic meters. The pine forest contains an approximate volume of 16.9 million cubic meters or 1.07% of the

total volume of standing timber. Mangrove has the least volume making up only 7.4 million cubic meters or 0.47% of the total timber volume. The remaining 121.9 million cubic meters or 7.68% are found in unproductive forest lands serving as protection forests. Of the total volume of standing timber, 54.68% or 868 million cubic meters are found in Mindanao; 25.71% or 408 million cubic meters in Luzon; 11.34% or 180 million cubic meters in Visayas and 8.26% or 131 million cubic meters in Palawan. (See Table 1.4)

Volume of Timber in the Old Growth Stands in Dipterocarp Forest

The dipterocarp species are categorized into four groups, namely: the red lauan-tanguile and tiaong group known as Dark Red Mahogany in the world market; the almon-bagtikan-mayapis-white lauan group or Light Red Mahogany, the apitong group and the guisok-guisok-yakal-guijo-narig group. The first two groups account for more than 83% of the total volume of dipterocarp species. However, these group of species are rarely found in Palawan where apitong is the dominant tree species.

Table 1.4.1 shows the volume of dipterocarp forest in the old growth stands (virgin forest) by species group, diameter class and geographical region. Note that Mindanao has the biggest percentage of the total volume with 62% followed by Luzon with 28%, Palawan, 2% and Visayas, 8%.

Volume of Timber in Young Growth Stand in Dipterocarp Forest

Table 1.4.2 shows the volume of timber in the young growth stands of dipterocarp forest by geographical region. Notice that 55% of the total volume in the young growth stands is made up of other species which is in direct contrast with the conditions in the old growth stands. This may be explained by the fact that a sizeable portion of the total log production consists of dipterocarp thus leaving the non-dipterocarp species behind. By geographical distribution, Mindanao ranks first in the volume of timber in the young growth stands (dipterocarp forest) with 68% followed by Luzon, Visayas and Palawan with 21.05%, 7.94% and 3.01%, respectively. The 15-34 cm. diameter class trees accounted for 34.81% of the total volume, 75.10% of which belongs to the non-dipterocarp groups. The 35-54 cm. diameter group represents 30%, 55.81% of which composes non-dipterocarp group while 44.19% belongs to the dipterocarp species. The 55-74 cm. diameter class group makes up 20% while the remaining 15.22% is composed of the 75 and over cm. class. The lower volume content in the last two diameter classes is attributed to the fact that under our selective logging system, 25% of the 60 cm.; 55% of 70 cm. diameter group and 100% of the trees 80 cm. and over in diameter are allowed to be cut.

Volume of Timber in the Mangrove Forest

Of the total volume of standing timber, the mangrove forest makes up only 0.47% which consists mostly of young growth stands. By geographical distribution, Mindanao ranks first with 3.5 million cubic meters or 46.95% of the total volume followed closely by Palawan with 38.47% or 2.8 million cubic meters, Luzon ranks third with 7.30% or 540 thousand cubic meters closely followed by Visayas with 538 thousand cubic meters or 7.28%. In the oldgrowth stands Palawan has 71.61% the total volume while the remaining 29.39% is found in Mindanao. By diameter class, the 15 to 34 cm. class makes up the main bulk while the 55 cm. and over constitutes the least volume.

Volume of Pine Stand

There are only two indigenous or native pine species in the Philippines. These are the Mindoro Pine (Pinus merkuusi) which is found in Mindoro and Zambales and the Benguet Pine (Pinus kesiya) in Benguet and Mountain Provinces. Although Benguet Pine has been used as reforestation species in various parts of the country particularly in Bukidnon, the

aggregate timber volume in areas outside of Luzon is considered small. Table 1.4.5 shows the volume of Pine forest which is the main source of mine timbers and long-fiber wood pulp in the country.

REFORESTATION

Brief History of Reforestation in the Philippines

Reforestation efforts in the country was started in 1910 by students of the University of the Philippine Forestry School as part of their educational training. However, it was only in 1919 when the government recognized the need for reforestation in the country whereby the legislative body passed Legislative Act No. 2649 appropriating ₱10 thousand for the sole purpose of restoring the forest cover of the badly denuded Talisay Minglanilla Friar Lands estate in Cebu. Seven years hence in 1926, the Bureau of Forestry established the Cebu Reforestation (now Osmeña), covering 4 thousand hectares of barren and open lands. Another Act, L.A. No. 3283, was later enacted appropriating ₱50 thousand for the establishment of 3 additional projects, namely; the Arayat, the Zambales, (now Magsaysay) and the Ilocos (now Caniaw) Reforestation Projects with an aggregate area of 21 thousand hectares. In 1936 and 1937, Commonwealth Act Nos. 119 and 265 were enacted appropriating ₱300 thousand for the establishment of some mine reforestation projects. Before the outbreak of the second World War, there were 35 projects established with a total area of 545 thousand hectares.

One limiting factor in the establishment of reforestation projects was the lack of permanent source of funds for the purpose. To remedy this, R.A. 115 was promulgated in 1947 imposing a forest charge in the amount of ₱0.50 and ₱0.40 for every cubic meter of timber from the public forest for the 1st, 2nd, 3rd and 4th groups, respectively. The big boost for reforestation actually happened in 1960 when R.A. 2706 was passed by the Philippine Congress creating the Reforestation Administration, an agency charged with the primary functions of reforesting all denuded lands in the country. With the merger in 1974 of the different agencies of the government, namely: the Bureau of Forestry, the Reforestation Administration, the Parks and Wildlife Office and the Southern Cebu Reforestation Project, into what is now the Bureau of Forest Development, the responsibility of bringing back the forest of all denuded lands has been transfered to the new office. One significant development was the promulgation of LOI 423 and 424, organizing a program for Forest Ecosystem which is chaired by the President. This program has placed the responsibility of reforestation not only on the Bureau of Forest Development but also on the various agencies of the government as well as the private sector. Another development that has enhanced the reforestation program of the country was the issuance by the President in 1967 of Presidential Decree No. 1153 otherwise known as the "Tree Planting Decree" which requires all citizens of the Philippines 10 years and over in age to plant at least 12 trees a year for five (5) consecutive years. The most recent policy issued to intensify 1979 reforestation drive of the government is PD 818 dated 24 February 1979 requiring all timber licensees to reforest a hectare of open/denuded area for every hectare logged over with the same species.

Area Reforested

Reforestation is a very slow and costly undertaking. From the time it was started in 1910, up to the creation of the Reforestation Administration in 1960, the average annual area planted is only a little over one (1) thousand hectares. In 1976, the Program for Forest Ecosystem Management (PROFEM) was launched to accelerate the forest renewal efforts of the country. In addition, a communal tree farm in every municipality of the country was established to further speed up the reforestation drive. These recent policies brought about the significant increase in area planted which totalled to 79 thousand hectares this year or 46% increase over the last three year's average accomplishment.

Table 1.5.1 shows that during the year under review, the BFD and the private sector reforested 44% and 35%, respectively, of the total output of 79 thousand hectares, while the government agencies accounted for 52 thousand hectares or about 21%.

Seedling Production

Seedling production involves the raising of planting stocks in the nursery. The reforestation activities of PROFEM cannot possibly be implemented without an adequate supply or production of seedlings.

Table 1.5.2 depicts the seedling production of each region by sector. Note that Region 2 contributed the highest production of 16% while Region 3 comes second with 15% and Region 1 with 14% of the total seedling production of 265 million. Also, we see that the government sector contributed 80% and the private sector 20% of the total 265 million seedlings. While for all the regions, the government sector contributed more to seedling production than did the private sector. In Fig. 1.5.2 note that the projects of BDF/MNR such as Regular Project contributed 66.9%, Foreign-Assisted Projects contributed 1.6% for a total of 70.8%, while other government agencies contributed only 2.8%. The timber licensees contributed 17.2%, while the citizenry contributed 0.2%.

FOREST PROTECTION

Squatting in public lands is a perennial problem in the Philippines and the forest is not spared from this. Partial census returns indicate that a total of 154 thousand families are squatting on 512 thousand hectares of forest lands all over the country. Table 1.6 shows the distribution of the families by forest lands type and region.

In terms of geographical location, Mindanao listed a total of 72 thousand families covering 261 thousand hectares or 51% of the total area squatted; Luzon with 50 thousand families squatting on 157 thousand hectares which is 31% of the total; and 32 thousand families in the Visayas occupying a total of 93 thousand hectares.

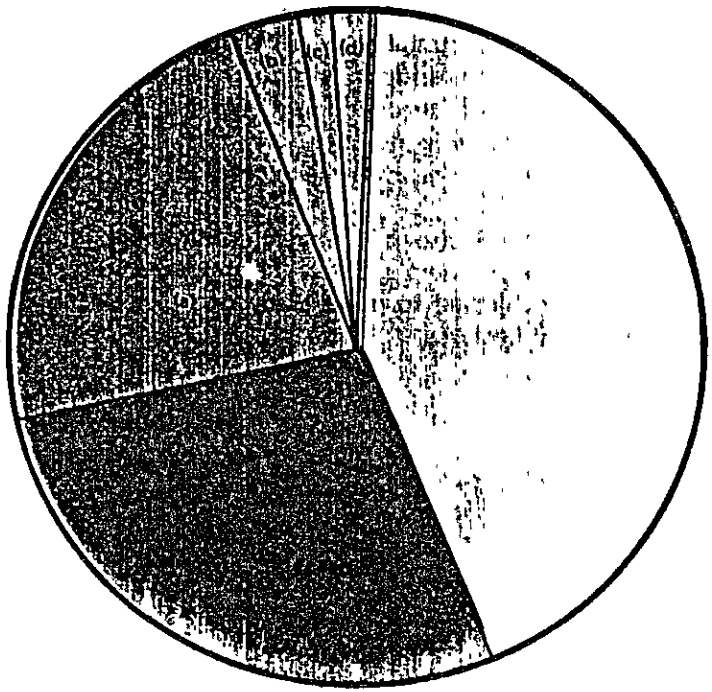
TIMBER MANAGEMENT

The dipterocarp forests of the Philippines are managed under a unique silvicultural system known as selective logging.

There are three (3) major activities in selective logging, namely: tree marking, residual inventory and timber stand improvement (TSI). Tree marking involves the identification and marking of trees to be cut and those to be left as residuals which will form the future crop of timber. Residual inventory is performed after logging to assess the adequacy of uninjured residual trees, and as a basis for imposing regulatory fines for damaged residuals to the licensee. On the other hand, timber stand improvement is a continuing activity designed to provide optimum favorable conditions for the residual trees to develop. The basic procedure involved is the removal of uneconomic trees and other undesirable vegetations competing to grow in the area, thus allowing the remaining crop trees to make full use of the available conditions for growth and development.

Table 1.7.1 shows the accomplishments in selective logging. The total area tree-marked reached 72 thousand hectares; 62 thousand hectares were subjected to residual inventory while TSI accomplishment was 44 thousand hectares.

Fig. 1.1 LAND CLASSIFICATION STATUS: 1979

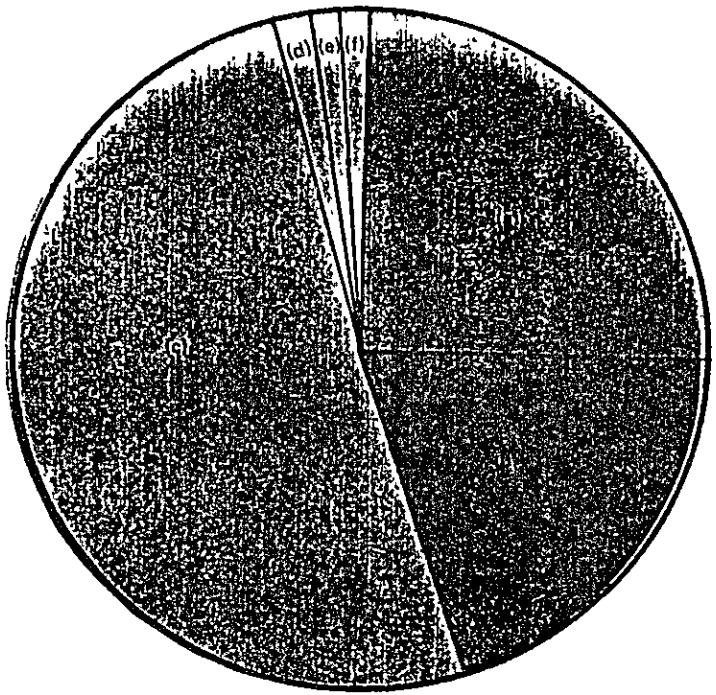


LEGEND:

Alienable or Disposable	—	43.64 %
Unclassified Forest Land	—	25.26 %
Classified Forest Land	—	31.10 %
a) Forest Reserves	—	28.77 %
b) National Park	—	1.05 %
c) Civil Reservation	—	0.84 %
d) Military Reserve	—	0.44 %

Total Area — 30 Million hectares

Figure 1.1-A STATUS OF FOREST LANDS: 1979



LEGEND:

Unclassified Forest Land	– 44.82 %
a) To be classified as Alienable or disposable	– 25.38 %
b) To be classified as Forest Land	– 19.44 %
Classified Forest Land	– 55.18 %
c) Forest Reserve and Timberland	– 51.04 %
d) National Park	– 1.87 %
e) Civil Reservation	– 1.50 %
f) Military Reservation	– 0.77 %

Total Area – 16.91 Million hectares

TABLE 1.1 STATUS OF LAND CLASSIFICATION BY REGION AND PROVINCE: 1979
(In Hectare)

Region/Province	TOTAL	Classified Alienable & Disposable	Unclassified Forest Land	Classified Forest Land				
				TOTAL	Forest Reserves and Timberland	National Park	Military Reserves	Civil Reservation
Philippines	30,000,000	13,093,263	7,578,178	9,328,559	8,630,007	316,117	129,911	252,524
NCR	2,101,638	1,133,882	556,599	411,157	385,317	12,625	3,688	9,527
Batangas	316,581	209,662	91,036	15,883	15,147	—	51	685
Cavite	128,755	71,970	53,986	2,799	—	—	2,799	—
Laguna	175,973	86,461	69,311	20,201	4,740	11,133	274	4,054
Manila	3,828	3,828	—	—	—	—	—	—
Marinduque	95,925	73,720	3,895	18,310	18,310	—	—	—
Quezon	1,194,615	569,649	317,819	307,147	305,211	983	—	953
Rizal	185,961	118,592	20,552	46,817	41,909	509	564	3,835
Region 1	2,156,845	910,047	509,462	737,336	663,633	7,281	842	65,580
Abra	397,555	93,926	33,651	269,978	269,921	57	—	—
Benguet	265,538	36,386	133,722	95,430	23,784	5,512	554	65,580
Bontoc	209,733	20,915	113,452	75,366	75,366	—	—	—
Ilocos Norte	339,934	144,870	4,652	190,412	190,412	—	—	—
Ilocos Sur	257,958	120,500	98,438	39,020	37,400	1,620	—	—
La Union	149,309	92,088	41,541	15,680	15,680	—	—	—
Pangasinan	536,818	401,362	84,006	51,450	51,070	92	288	—
Region 2	3,640,300	1,017,451	1,381,706	1,241,143	1,239,720	1,011	412	—
Batanes	20,928	5,576	1,398	13,954	13,954	—	—	—
Cagayan	900,267	328,979	317,374	253,914	253,722	192	—	—
Ifugao	251,778	25,203	136,135	90,440	90,440	—	—	—
Isabela	1,066,456	455,400	310,304	300,752	299,521	819	412	—
Kalinga-Apayao	704,764	72,810	359,823	272,131	272,131	—	—	—
Nueva Vizcaya	696,107	129,483	256,672	309,952	309,952	—	—	—
Quirino	—	—	—	—	—	—	—	—

Table 1.1 (cont'd.)

Region/Province	TOTAL	Classified Alienable & Disposable	Unclassified Forest Land	Classified Forest Land				
				TOTAL	Forest Reserves and Timberland	National Park	Military Reserves	Civil Reservation
Region 3	1,827,785	1,017,538	244,537	565,710	343,930	44,727	116,600	60,453
Bataan	137,296	69,325	–	67,971	44,713	22,641	60	557
Bulacan	267,203	163,551	15,486	88,166	26,636	2,117	–	59,413
Nueva Ecija	528,433	330,864	30,720	166,849	94,772	7,694	63,900	483
Pampanga	218,068	160,338	6,132	51,598	31,882	12,264	7,452	–
Tarlac	305,345	181,607	81,111	42,627	6,037	2	36,588	–
Zambales	371,440	111,853	111,088	148,499	139,890	9	8,600	–
Aurora	–	–	–	–	–	–	–	–
Region 4	2,649,676	815,588	866,810	967,278	809,732	101,001	147	56,398
Mindoro Occ.	587,985	154,085	64,379	369,521	258,050	95,134	147	16,190
Mindoro Oriental	436,472	222,280	–	214,192	212,226	1,966	–	–
Romblon	135,593	99,962	28,446	7,185	7,185	–	–	–
Palawan	1,489,626	339,261	773,985	376,380	332,271	3,901	–	40,208
Region 5	1,763,249	1,208,970	85,854	468,425	443,567	24,858	–	–
Albay	255,257	206,127	1,295	47,835	42,329	5,506	–	–
Camarines Norte	211,249	132,910	33,193	45,146	39,945	5,201	–	–
Camarines Sur	526,682	361,083	14,523	151,076	140,598	10,478	–	–
Catanduanes	151,148	72,855	8,969	69,324	69,324	–	–	–
Masbate	404,769	263,103	11,158	130,508	130,508	–	–	–
Sorsogon	214,144	172,892	16,716	24,536	20,863	3,673	–	–
Region 6	2,022,311	1,320,223	256,845	455,243	419,610	25,432	–	201
Aklan	181,789	68,289	89,337	24,163	24,163	–	–	–
Antique	252,201	142,222	74,730	35,249	35,249	–	–	–
Capiz	263,317	161,146	49,090	53,081	53,081	–	–	–
Iloilo	532,397	375,144	43,567	113,686	112,832	854	–	–
Negros Occ.	792,607	573,422	121	219.064	194,285	24,578	–	201

Table 1.1 (cont'd.)

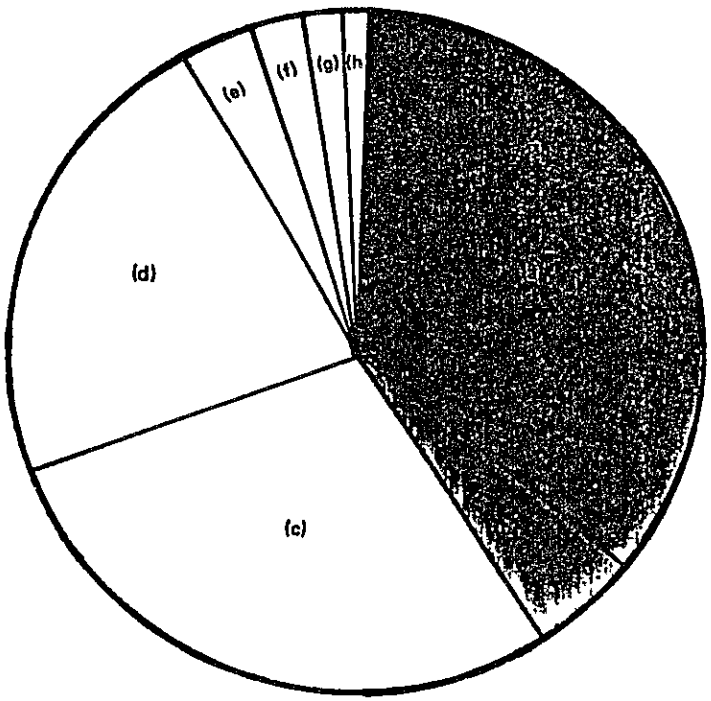
Region/Province	TOTAL	Classified Alienable & Disposable	Unclassified Forest Land	Classified Forest Land				
				TOTAL	Forest Reserves and Timberland	National Park	Military Reserves	Civil Reservation
Region 7	1,495,142	805,476	291,524	398,142	382,039	160	4	9
Bohol	411,726	309,721	20,979	81,026	81,017	—	—	9
Cebu	508,839	226,633	183,973	98,233	82,139	160	4	—
Negros	574,577	269,122	86,572	218,883	218,883	—	—	—
Region 8	2,143,169	955,425	817,969	369,775	367,463	2,136	176	—
Leyte del Norte	626,826	401,329	140,842	84,655	83,311	1,296	48	—
Leyte del Sur	173,480	116,254	2,370	54,856	54,856	—	—	—
Northern Samar	347,960	115,687	151,663	80,610	80,482	—	128	—
Eastern Samar	433,965	135,518	243,730	54,717	54,717	—	—	—
Western Samar	560,938	186,637	279,364	94,937	94,097	840	—	—
Region 9	1,868,514	860,673	299,588	708,253	701,533	6,674	46	—
Basilan	132,723	75,790	—	56,933	50,482	6,451	—	—
Sulu	268,784	129,885	100,382	38,517	38,304	213	—	—
Zam. del Norte	607,519	251,206	48,672	307,641	307,585	10	46	—
Zam. del Sur	859,488	403,792	150,534	305,162	305,162	—	—	—
Region 10	2,832,774	1,014,855	863,528	954,391	954,334	57	—	—
Agusan del Norte	259,029	61,868	82,031	115,130	115,130			
Agusan del Sur	896,550	215,195	292,570	388,785	388,785	—	—	—
Bukidnon	829,378	306,044	302,291	221,043	221,043	—	—	—
Misamis Occ.	193,932	123,298	33,406	37,228	37,228	—	—	—
Misamis Oriental	379,983	192,997	110,770	76,216	76,159	57	—	—
Surigao del Norte	273,902	115,453	42,460	115,989	115,989	—	—	—

Table 1.1 (cont'd.)

Region/Province	TOTAL	Classified Alienable & Disposable	Unclassified Forest Land	Classified Forest Land				
				TOTAL	Forest Reserves and Timberland	National Park	Military Reserves	Civil Reservation
Region 11	3,157,966	1,098,064	699,910	1,359,992	1,225,459	74,177	—	60,356
So. Cotabato	735,567	310,905	153,311	271,351	266,127	—		5,224
Davao del Norte	812,975	263,839	242,652	306,484	249,971	1,381	—	55,132
Davao del Sur	637,762	209,470	218,543	209,749	136,953	72,796	—	—
Davao Oriental	516,446	183,144	180	333,122	333,122	—	—	—
Surigao del Sur	455,216	130,706	85,224	239,286	239,286	—	—	—
Region 12	2,340,631	935,071	703,846	701,714	693,670	48	7,996	—
Lanao del Norte	309,204	152,175	75,442	81,587	73,591	—	7,996	—
Lanao del Sur	387,289	119,757	148,991	118,541	118,541	—	—	—
North Cotabato) Maguindanao) Sulta Kudarat)	1,644,138	663,139	479,413	501,586	501,538	48	—	—

Source: Bureau of Forest Development

Figure 1.2 LAND USE BY FOREST TYPE: 1979

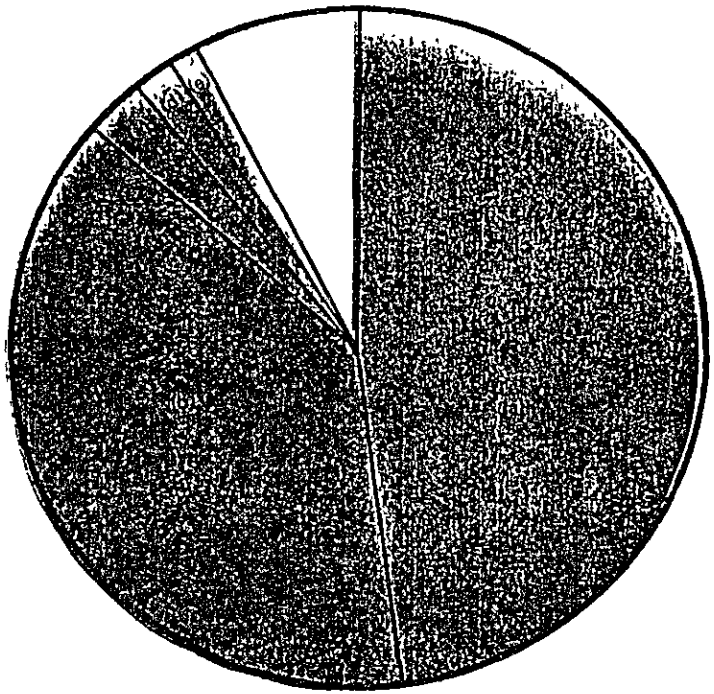


LEGEND:

Forest	—	42.20%
a) Productive	—	36.33%
b) Unproductive	—	5.87%
Non-Forest	—	57.80%
c) Cultivated Cropland	—	24.92%
d) Plantation	—	23.49%
e) Managed Pasture	—	3.32%
f) Openland	—	2.92%
g) Urban and Others	—	2.76%
h) Marsh and Small Water	—	0.39%

Total Area — 30 Million hectares

Figure 1.2-A STATUS OF COMMERCIAL FOREST: 1979



LEGEND:

Forest Lands	—	93.00%
a) Young Growth (Dipterocarp)	—	49.10%
b) Old Growth (Dipterocarp)	—	46.30%
c) Pine	—	2.90%
d) Young Growth (Mangrove)	—	1.50%
e) Old Growth (Mangrove)	—	0.20%
Alienable or Disposable	—	7.00%

Total Area — 7.17 Million hectares

TABLE 1.2 LAND USE STATUS OF THE PHILIPPINES BY GEOGRAPHICAL REGION: 1979

(In thousand hectares)

Category	Philippines			Luzon			Visayas		
	TOTAL	Forest Land	Alienable & Disposable	TOTAL	Forest Land	Alienable & Disposable	TOTAL	Forest Land	Alienable & Disposable
TOTAL	30,000	16,907	13,093	12,109	6,708	5,401	6,202	2,757	3,445
I. FOREST	12,661	11,175	1,486	4,650	4,347	303	1,744	1,465	279
A. Productive	10,901	9,445	1,456	3,736	3,437	299	1,596	1,325	271
1, Dipterocarp	10,461	9,034	1,427	3,517	3,224	293	1,530	1,269	261
a. Rep-Brush	3,608	2,671	937	1,791	1,544	247	845	610	235
b. Young Growth	3,662	3,274	388	852	809	43	294	271	23
c. Old Growth	3,191	3,089	102	874	871	3	391	388	3
2. Mangrove	245	218	27	24	20	4	66	56	10
a. Rep-Brush	123	104	19	10	7	3	65	55	10
b. Young Growth	110	103	7	14	13	1	1	1	0
c. Old Growth	12	11	1	—	—	—	—	—	—
3. Pines	195	193	2	195	193	2	—	—	—
B. Unproductive/Protection	1,760	1,730	30	914	910	4	148	140	8
1. Dipterocarp	1,422	1,398	24	753	749	4	128	125	3
2. Mossy	331	330	1	161	161	0	13	13	—
3. Bamboo	7	2	5	0	0	0	7	2	5
II. Non-Forest	17,339	5,732	11,607	7,459	2,361	5,098	4,458	1,292	3,166
A. Openland	876	426	450	100	85	15	380	235	145
B. Managed Pasture	994	967	27	535	527	8	86	84	2
C. Marsh & Small Water	118	77	41	36	23	13	14	3	11
D. Plantation Upland	7,046	1,921	5,125	3,321	850	2,471	2,084	513	1,571
E. Cultivated Cropland	7,477	2,116	5,361	3,086	778	2,308	1,585	379	1,206
F. Urban & Others	828	225	603	381	98	283	309	78	231

Table 1.2 (cont'd.)

Category	Mindanao			Palawan		
	TOTAL	Forest Land	Alienable & Disposable	TOTAL	Forest Land	Alienable & Disposable
TOTAL	10,200	6,292	3,908	1,489	1,150	339
I. Forest	4,982	4,272	710	1,285	1,091	194
A. Productive	4,629	3,926	703	940	757	183
1. Dipterocarp	4,514	3,818	696	900	723	177
a. Rep-Brush	654	344	310	318	173	145
b. Young Growth	2,381	2,069	312	135	125	10
c. Old Growth	1,479	1,405	74	447	425	22
2. Mangrove	115	108	7	40	34	6
a. Rep-Brush	26	23	3	22	19	3
b. Young Growth	84	80	4	11	9	2
c. Old Growth	5	5	0	7	6	1
3. Pines	—	—	—	—	—	—
B. Unproductive/Protection	353	346	7	345	334	11
1. Dipterocarp	229	223	6	312	301	11
2. Mossy	124	123	1	33	33	—
3. Bamboo	—	—	—	—	—	—
II. Non-Forest	5,218	2,020	3,198	204	59	145
A. Openland	333	76	257	63	30	33
B. Managed Pasture	356	339	17	17	17	0
C. Marsh & Small Water	66	49	17	2	2	—
D. Plantation Upland	1,600	556	1,044	41	2	39
E. Cultivated Cropland	2,726	951	1,775	80	8	72
F. Urban & Others	137	49	88	1	—	1

* Includes the provinces of Masbate and Romblon
— None
0 Less than the approximate unit

Source: Projected from data obtained in the nationwide forest inventory conducted in 1962-68 by the BFD with USAID and PAF assistance.

TABLE 1.3 NATIONAL PARKS, GAME REFUGES AND BIRD SANCTUARIES, WATERSHED RESERVATIONS AND FOREST RESERVES BY REGION: 1979

Region	National Parks		Game Refuges and Bird Sanctuaries		Watershed Reservations		Forest Reserves	
	Number	Area (ha.)	Number	Area (ha.)	Number	Area (ha.)	Number	Area (ha.)
Philippines	60	363,656	7	1,648,407	40	351,013	154	6,545,571
Luzon	34	239,841	5	1,617,927	33	312,665	79	3,026,066
NCR	6*	59,067	1	4	10	24,915	7	205,420
R – 1	7*	9,025	–	–	12	87,876	12	1,351,686
2	3	1,011	1	3,344	1	425	28	1,004,944
3	8	44,878	–	–	6	198,089	13	181,977
4	3	101,001	3	1,614,579	1	94	13.	166,204
5	7	24,859	–	–	3	1,266	6	115,835
Visayas	11	42,793	1	480	2	27,242	15	296,043
R – 6	2	25,432	–	–	–	–	6	242,146
7	3	16,090	1	480	1	19,410	6	20,625
8	6*	1,271	–	–	1	7,832	3	33,272
Mindanao	15	81,022	1	30,000	5	11,106	60	3,223,462
R – 9	4*	6,692	–	–	1	108	10	363,021
10	2	57	–	–	2	208	25	2,387,793
11	2	74,225	–	–	1	890	11	122,613
12	7*	48	1	30,000	1	9,900	14	350,035

* Areas of some of the parks are still undetermined.
Source: BFD, Parks and Wildlife Division

Figure 1.3

MAP
SHOWING THE LOCATION
OF
FOREST NATIONAL PARKS
1979

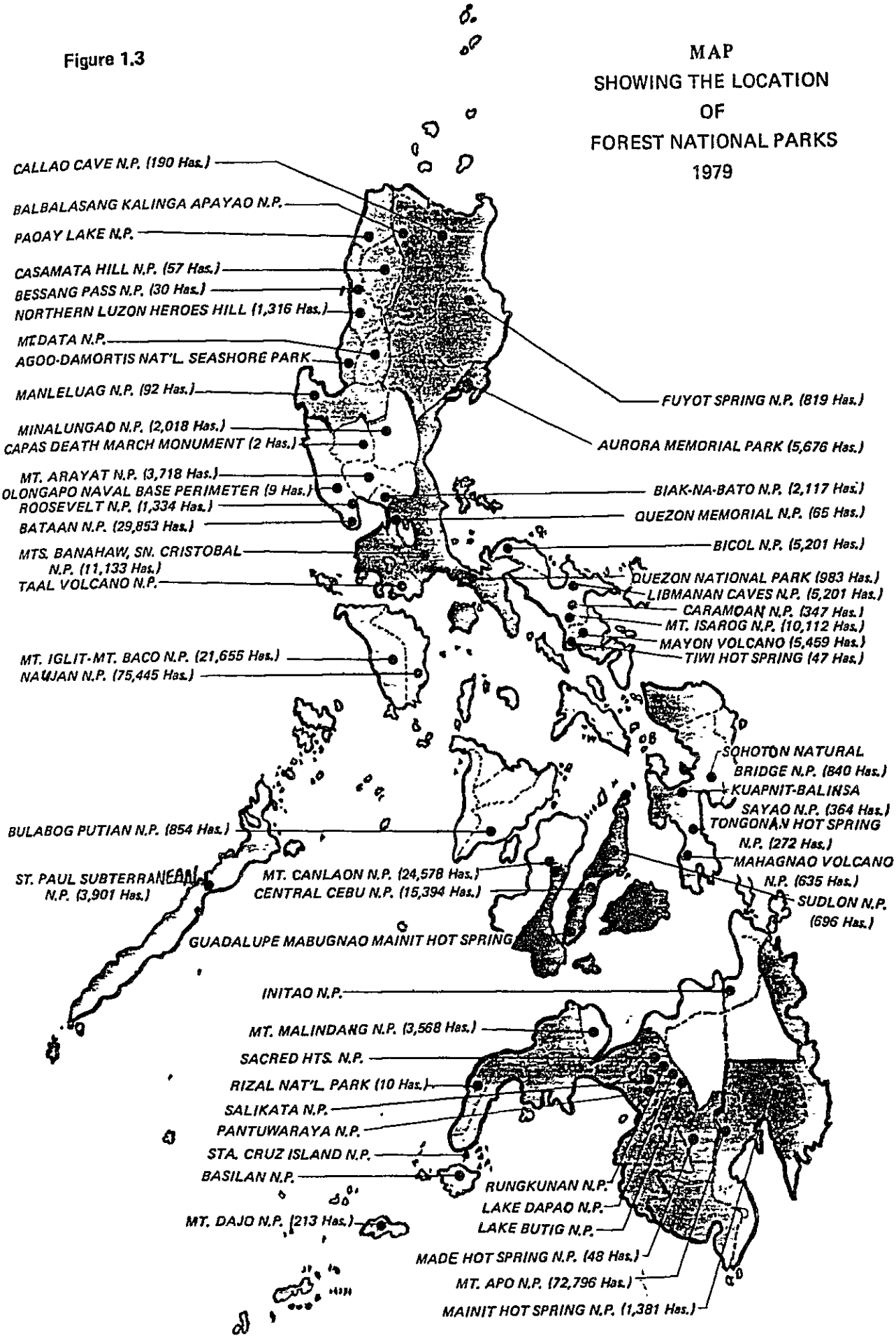


Figure 1.3A

MAP
SHOWING THE LOCATION
OF GAME REFUGE AND
BIRD SANCTUARIES
1979
AREA: 1,652,640 (Ha.)

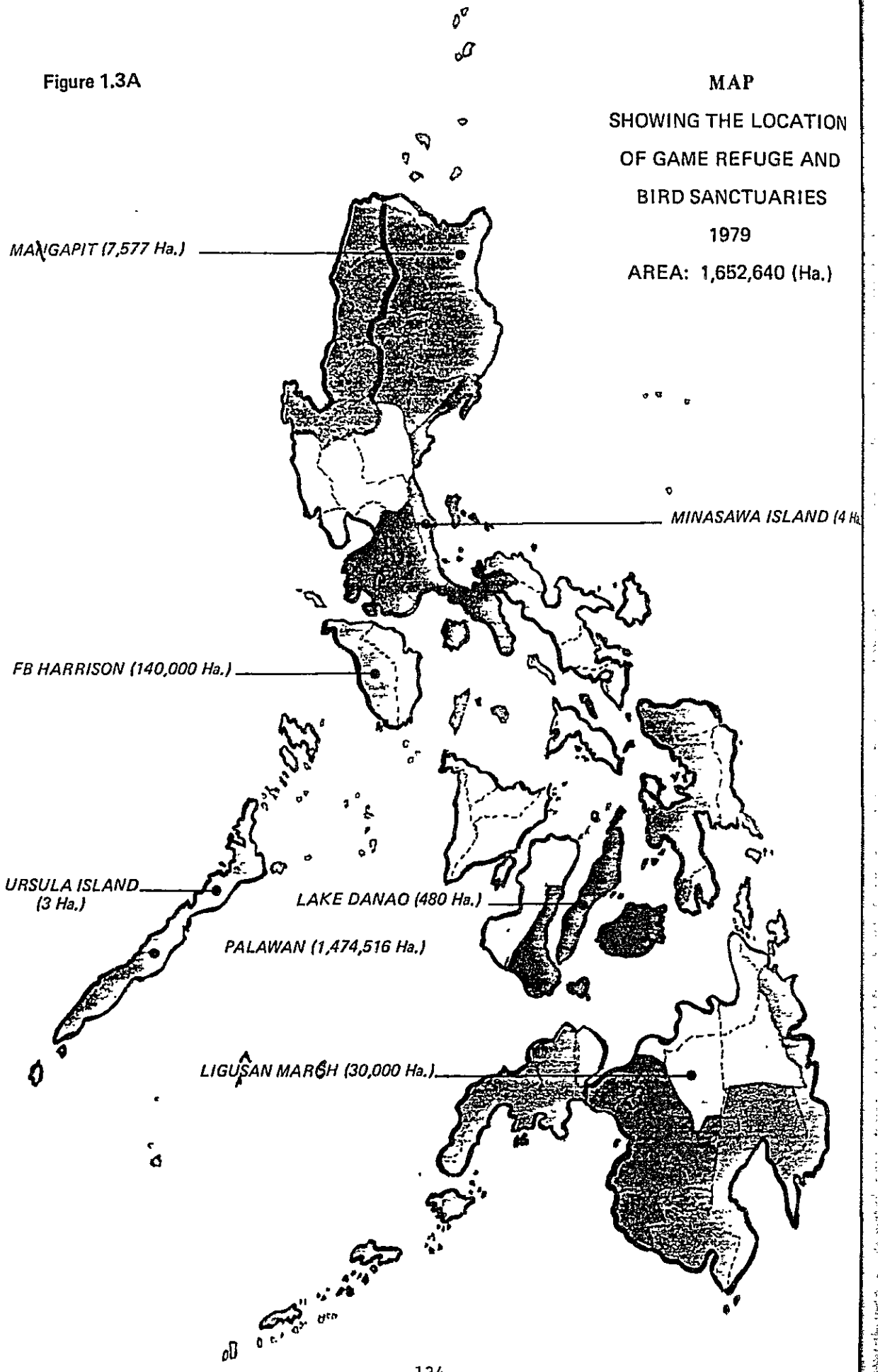


TABLE 1.4 VOLUME OF STANDING TIMBER IN FOREST LANDS BY TYPE, STAND SIZE AND GEOGRAPHICAL REGION: 1979
(In thousand cubic meters)

Forest Type & Stand Size	Philippines		Luzon		Visayas		Mindanao		Palawan	
	Volume	% Distribution	Volume	% Distribution	Volume	% Distribution	Volume	% Distribution	Volume	% Distribution
TOTAL	1,586,728	100	408,163	26	179,594	11	867,519	55	131,452	8
I. Productive Forest	1,464,863	100	378,871	26	130,989	9	846,477	58	108,526	7
1. Dipterocarp	1,440,565	100	361,426	25	130,451	9	843,006	59	105,682	7
a. Rep-Brush	75,727	100	36,815	49	16,500	22	18,465	24	3,947	5
b. Young Growth	534,494	100	112,539	21	42,424	8	363,446	68	16,085	3
c. Old Growth	830,344	100	212,072	26	71,527	9	461,095	55	85,650	10
2. Mangrove	7,393	100	540	7	538	7	3,471	47	2,844	39
a. Rep-Brush	1,178	100	50	4	510	43	210	18	408	35
b. Young Growth	4,745	100	490	10	28	1	2,829	60	1,398	29
c. Old Growth	1,470	100	—	—	—	—	432	29	1,038	71
3. Pine	16,905	100	16,905	100	—	—	—	—	—	—
II. Unproductive Forest	121,865	1000	29,292	24	48,605	40	21,042	17	22,926	19
1. Dipterocarp	106,771	100	27,263	25	46,883	44	15,946	15	16,729	16
2. Mossy	15,094	100	2,029	13	1,772	12	5,096	34	6,197	41

Source: Projected from data obtained in the nationwide forest inventory conducted in 1962—1968 by the BFD with USAID and the PAF assistance.

TABLE 1.4.1 VOLUME OF STANDING TIMBER IN THE OLD GROWTH STANDS OF DIPTEROCARP FOREST BY SPECIES GROUP, DIAMETER CLASS AND GEOGRAPHICAL REGION: 1979

(In thousand cubic meters)

Region	DBH (cm.)	Grand Total	Percent Distribution	Total Dipterocarp	DIPTEROCARP				Other Species
					Guisok-guisok Yakal-guijo Narig	Apitong	Mayapis Red Lauan Tanguile	Almon Bagtikan White Lauan	
Philippines		830,344	100	538,094	31,154	58,005	256,490	192,445	292,250
	15 – 34	146,685	–	39,873	7,755	6,323	13,354	12,441	106,812
	35 – 54	219,721	–	107,874	11,468	16,024	44,546	35,836	111,847
	55 – 64	117,254	–	82,250	4,446	12,434	37,494	27,876	35,004
	65 – 74	97,645	–	81,518	2,502	8,148	39,620	31,248	16,127
	75 +	249,039	–	226,579	4,983	15,076	121,476	85,044	22,460
Luzon		212,072	26	148,719	10,605	22,917	89,204	25,993	63,353
	15 – 34	42,500	–	13,975	3,021	2,255	5,903	2,796	28,525
	35 – 54	55,717	–	33,279	3,431	7,323	17,074	5,451	22,438
	55 – 64	31,067	–	24,537	2,003	5,129	13,870	3,535	6,530
	65 – 74	23,449	–	21,002	679	2,986	13,000	4,337	2,447
	75 +	59,339	–	55,926	1,471	5,224	39,357	9,874	3,413
Visayas		71,527	9	43,714	1,778	3,215	20,326	18,395	27,813
	15 – 34	15,659	–	3,592	830	264	946	1,552	12,067
	35 – 54	17,650	–	8,445	481	1,314	3,112	3,538	9,205
	55 – 64	9,243	–	6,438	139	493	3,029	2,777	2,805
	65 – 74	8,794	–	7,397	61	461	3,918	3,057	1,397
	75 +	20,181	–	17,842	267	783	9,321	7,471	2,339

Table 1.4.1 (cont'd.)

Region	DBH (cm.)	Grand Total	Percent Distribution	Total Dipterocarp	Dipterocarp				
					Guisok-guisok Yakal-guijo Narig	Apitong	Mayapis Red Lauan Tanguile	Almon Bagtikan White Lauan	Other Species
Mindanao		461,095	55	333,873	18,317	20,539	146,960	148,057	127,222
	15 – 34	66,589	–	21,438	3,806	3,034	6,505	8,093	45,151
	35 – 54	112,809	–	63,710	7,319	5,184	24,360	26,847	49,099
	55 – 64	62,037	–	48,284	2,304	3,821	20,595	21,564	13,753
	65 – 74	59,228	–	51,431	1,728	3,147	22,702	23,854	7,797
	75 +	160,432	–	149,010	3,160	5,353	72,798	67,699	11,422
Palawan		85,650	10	11,788	454	11,334	–	–	73,862
	15 – 34	21,937	–	868	998	770	–	–	21,069
	35 – 54	33,545	–	2,440	237	2,203	–	–	31,105
	55 – 64	14,907	–	2,991	–	2,991	–	–	11,916
	65 – 74	6,174	–	1,688	34	1,654	–	–	4,486
	75 +	9,087	–	3,801	85	3,716	–	–	5,286

Source: Projected from data obtained in the nationwide forest inventory conducted in 1962–1968 by the BFD with USAID and the PAF assistance.

TABLE 1.4.2 VOLUME OF TIMBER IN YOUNG GROWTH STANDS OF DIPTEROCARP FOREST BY DIAMETER CLASS AND GEOGRAPHICAL REGION: 1979

(In thousand cubic meters)

Stand Size /Species Type	DBH (cm.)	Philippines	Luzon	Visayas	Mindanao	Palawan
Young Growth		534,494	112,539	42,424	363,446	16,085
	15 – 34	186,068	41,478	17,106	120,814	6,670
	35 – 54	160,165	34,235	14,089	105,733	6,108
	55 – 74	106,882	16,068	6,708	82,013	2,093
	75 +	81,379	20,758	4,521	54,886	1,214
	% Distribution	100	21	8	68	3
Dipterocarp		214,552	52,186	17,468	171,489	409
	15 – 34	46,337	10,508	4,302	31,527	–
	35 – 54	70,773	15,093	6,175	49,096	409
	55 – 74	70,239	10,223	4,289	55,727	–
	75 +					
	% Distribution	100	22	7	71	0
Other Species		292,942	60,353	24,956	191,957	15,676
	15 – 34	139,731	30,970	12,804	89,287	6,670
	35 – 54	89,392	19,142	7,914	56,637	5,699
	55 – 74	36,643	5,845	2,419	26,286	2,093
	75 +					
	% Distribution	100	21	8	66	5

Source: Projected from data obtained in the nationwide forest inventory conducted in 1962–68 by the Bureau of Forest Development with USAID and Philippine Air Force assistance.

TABLE 1.4.3 VOLUME OF STANDING TIMBER IN THE REPRODUCTION AND BRUSH STAND OF DIPTEROCARP FORESTS BY GEOGRAPHICAL REGION: 1979

(In thousand cubic meters)

Stand Size/Species Type	DBH (cm.)	Philippines	Luzon	Visayas	Mindanao	Palawan
Reproduction Brush		75,727	36,815	16,500	18,465	3,947
	15 – 34	44,750	23,294	10,423	8,419	2,614
	35 – 54	19,749	8,569	3,839	6,288	1,053
	55 – up	11,228	4,952	2,238	3,758	280
	% Distribution	100	49	22	24	5
Dipterocarp		13,531	4,296	1,915	7,320	–
	15 – 34	3,468	1,578	700	1,190	–
	35 – 54	4,386	987	442	2,957	–
	55 – up	5,677	1,731	773	3,173	–
	% Distribution	100	32	14	54	–
Other Species		62,196	32,519	14,585	11,145	3,947
	15 – 34	14,282	21,716	9,723	7,229	2,614
	35 – 54	15,363	7,582	3,397	3,331	1,053
	55 – up	5,551	3,221	1,465	585	280
	% Distribution	100	52	24	18	6

Source: Projected from data obtained in the nationwide forest inventory conducted in 1962–1968 by the BFD with USAID and the PAF assistance.

TABLE 1.4.4 VOLUME OF STANDING TIMBER IN THE MANGROVE FOREST BY STAND SIZE DIAMETER CLASS AND GEOGRAPHICAL REGION: 1979

(In thousand cubic meters)

Stand Size/Species Type	DBH (cm.)	Philippines	Luzon	Visayas	Mindanao	Palawan
Mangrove		7,393	540	538	3,471	2,844
	15 – 34	3,763	299	427	1,793	1,244
	35 – 54	3,279	181	111	1,486	1,501
	55 – up	351	60	–	192	99
	% Distribution	100	7	7	47	39
Old Growth		1,470	–	–	432	1,038
	15 – 34	358	–	–	99	259
	35 – 54	1,015	–	–	278	737
	55 – up	97	–	–	55	42
	% Distribution	100	–	–	29	79
Young Growth		4,745	490	28	2,829	1,398
	15 – 34	2,754	262	28	1,642	822
	35 – 54	1,744	168	–	1,050	526
	55 – up	247	60	–	137	50
	% Distribution	100	10	1	60	29
Reproduction & Brush		1,178	50	510	210	408
	15 – 34	651	37	399	52	163
	35 – 54	520	13	111	158	238
	55 – up	7	–	–	–	7
	% Distribution	100	4	43	18	35

Source: Projected from data obtained in the nationwide forest inventory conducted in 1962–1968 by the BFD with USAID and the PAF assistance.

TABLE 1.4.5 VOLUME OF STANDING TIMBER IN THE PINE FOREST BY DIAMETER CLASS: 1979

(In thousand cubic meters)

Species Type	DBH (cm.)	Philippines	Luzon	Visayas	Mindanao	Palawan
Pines		16,905	16,905	—	—	—
	15 — 34	2,341	2,341	—	—	—
	35 — 54	6,730	6,730	—	—	—
	55 — 64	2,794	2,794	—	—	—
	65 — 74	1,616	1,616	—	—	—
	75 — up	3,424	3,424	—	—	—

Source: Projected from data obtained in the nationwide forest inventory conducted in 1962-68 by the Bureau of Forest Development with USAID and PHILIPPINE AIR FORCE assistance.

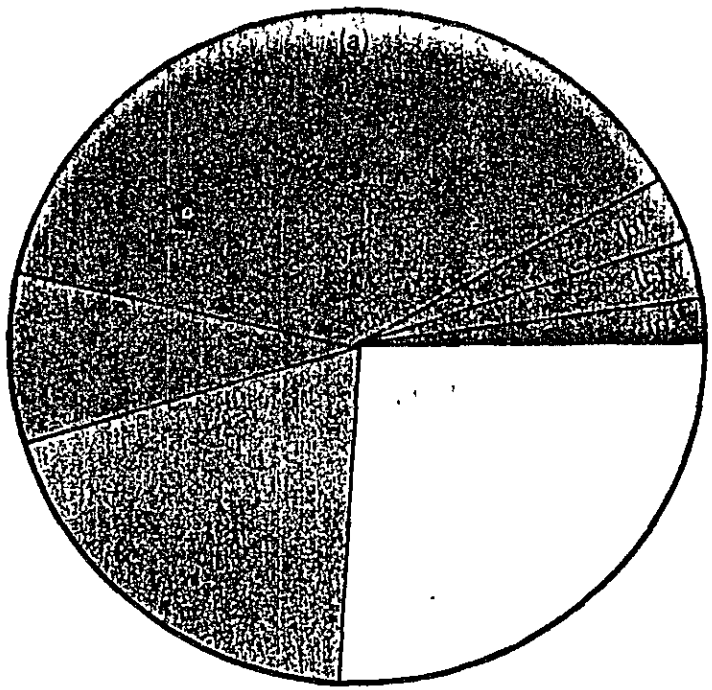
TABLE 1.5 AREA REFORESTATED ANNUALLY BY THE BUREAU OF FOREST DEVELOPMENT AND OTHER COOPERATING AGENCIES: FY 1960-1975 TO CY 1976-1979

(In Hectares)

Year		Area Established Start of the Year	BFD	Area Planted			Total Areas Planted	Area Maintained End of the Year
				Cooperative	Timber Licensees	Others		
FY	1960-61	54,531	11,543	–	–	–	11,543	66,074
	1961-62	66,074	7,474	–	–	–	7,474	73,548
	1962-63	13,548	24,471	–	–	–	24,471	98,018
	1963-64	98,019	16,822	–	–	–	16,822	114,841
	1964-65	114,841	11,709	–	–	–	11,709	126,550
	1965-66	126,550	7,396	–	–	–	7,396	133,946
	1966-67	133,273	5,327	–	–	–	5,327	139,273
	1967-68	139,273	6,869	–	–	–	6,869	146,142
	1968-69	146,142	7,511	–	–	–	7,511	153,653
	1969-70	153,613	11,801	–	–	–	11,801	165,454
	1970-71	165,454	6,458	–	–	–	6,458	171,912
	1971-72	171,912	4,831	–	–	–	4,831	176,743
	1972-73	176,743	5,787	–	–	–	5,787	182,530
	1973-74	182,530	4,994	–	–	–	4,994	187,524
	1974-75	187,524	9,280	–	6,000	–	15,280	196,804
CY	1976	196,804	20,977	2,251	8,275	230	31,733	217,781
	1977	217,781	23,677	9,681	17,276	2,622	53,256	241,458
	1978	241,458	34,343	10,343	22,006	11,733	78,425	275,801
	1979	275,801	35,305	16,553	19,580	7,959	79,397	311,106

Source: All other government agencies.
BDF,

Figure 1.5 — AREA REFORESTED BY SECTOR: 1979



LEGEND:

BFD/MNR — 43.9%
a) Regular and priority projects — 37.7%
b) Foreign-assisted projects — 2.7%
c) Family approach — 0.7%
d) Communal tree farm — 2.9%

TIMBER LICENSEES — 25.9%

OTHER GOVERNMENT AGENCIES — 20.6%

CITIZENRY — 9.6%

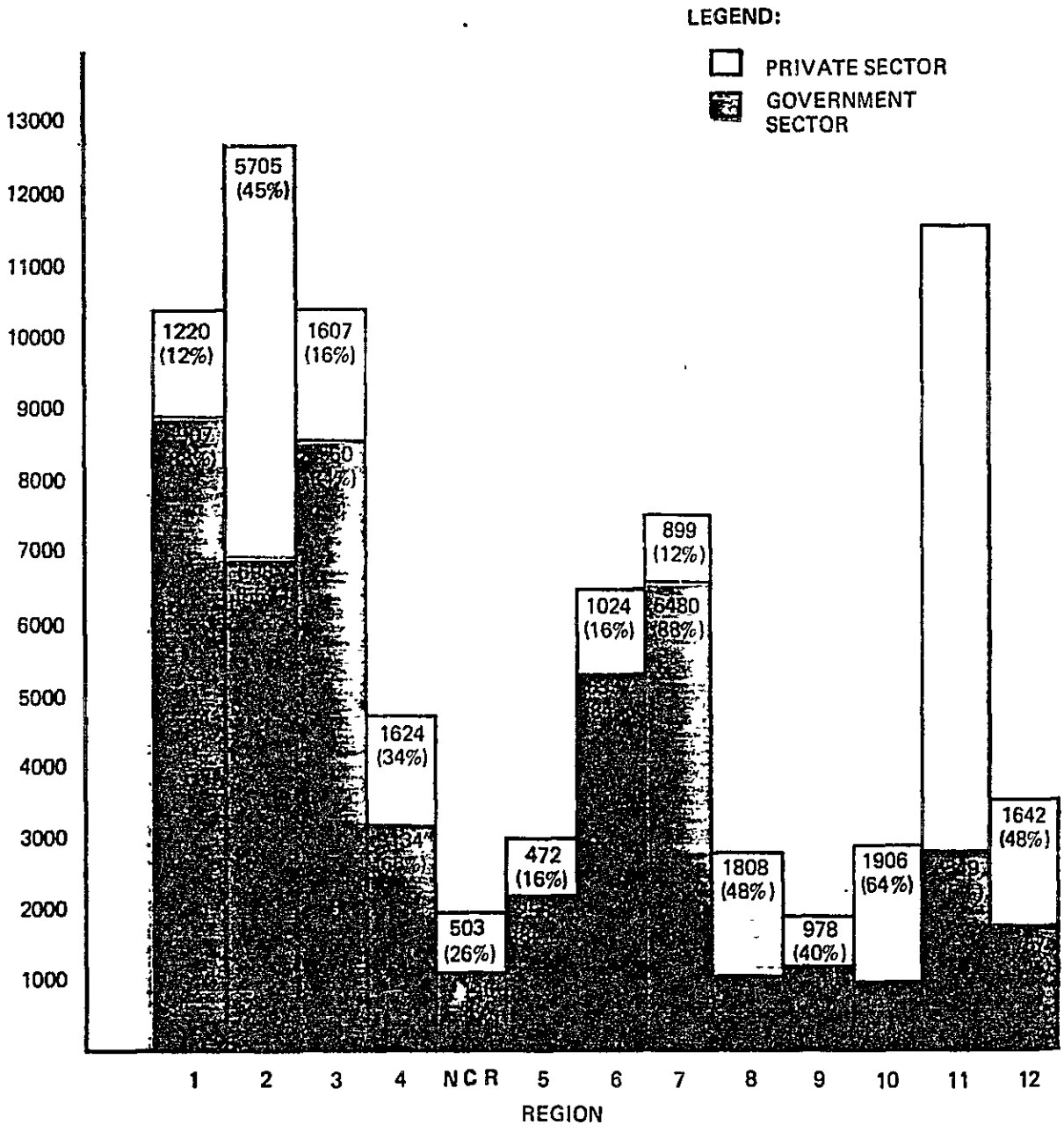


Figure 1.5-A AREA REFORESTED BY SECTOR: 1979

TABLE 1.5.1 AREA REFORESTED BY THE GOVERNMENT AND THE PRIVATE SECTOR BY REGION: 1979

(In ha. and in km.)

PARTICULARS	Philippines		NCR		R – 1		R – 2		R – 3	
	ha.	km.	ha.	km.	ha.	km.	ha.	km.	ha.	km.
TOTAL	79,397	4,619	1,949	190	10,127	81	12,686	362	10,167	512
I. Government Sector	51,858	3,914	1,446	190	8,907	81	6,981	356	8,560	512
1. BFD/MNR	35,305	452	1,419	–	7,688	25	3,830	5	7,959	–
a. Regular & Priority Projects	29,991	452	1,304	–	7,138	25	3,161	5	6,173	–
b. Foreign-assisted Projects	2,113	–	–	–	116	–	–	–	1,050	–
c. Family Approach	634	–	–	–	–	–	137	–	460	–
d. Communal Tree Farm	2,567	–	115	–	434	–	532	–	276	–
2. MLGCD (Barangay Brigade Energy Farm & Municipal Dendrothermal Plantations)	10,591	424	–	–	988	–	3,063	22	199	99
3. MEC (Agro-forest, Tree Farms & Orchids)	1,931	956	14	–	15	47	70	21	–	–
4. Other Government Agencies	2,510	1,210	13	–	47	9	18	302	396	413
5. Cooperative Tree Planting Projects (Between BFD/MNR & Gov't. Agencies)	1,521	872		190	169	–	–	6	6	–
II. Private Sector	27,539	705	503	–	1,220	–	5,705	6	1,607	–
1. Timber Licensees	19,580	73	301	–	146	–	4,486	–	672	–
2. Industrial Tree Plantations & Tree Farms	545	–	–	–	–	–	–	–	–	–
3. Cooperative Reforestation Project of Timber Licensees	552	5	–	–	335	–	57	4	–	–
4. Cooperative Tree Planting Projects (Between BFD/MNR & Private Organization, Firms, Corps., etc.)	332	156	–	–	–	–	–	–	–	–
5. Civic & Other Organizations	513	278	–	–	–	–	1	–	–	–
6. Citizenry (Pursuant to PD 1153)	6,017	193	202	–	739	–	1,161	2	935	–

Table 1.5.1 (cont'd.)

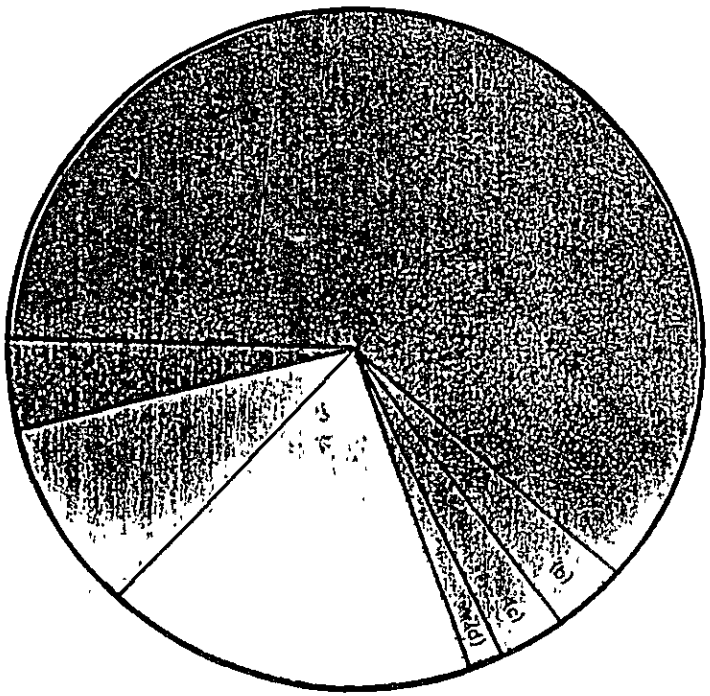
PARTICULARS	R – 4		R – 5		R – 6		R – 7		R – 8	
	ha.	km.	ha.	km.	ha.	km.	ha.	km.	ha.	km.
TOTAL	4,758	83	3,026	420	6,361	145	7,299	595	2,724	6
I. Government Sector	3,134	83	2,554	420	5,337	145	6,400	510	1,416	6
1. BFD/MNR	2,004	–	1,732	–	3,258	–	4,539	–	555	–
a. Regular & Priority Projects	937	–	1,594	–	3,067	–	4,455	–	466	–
b. Foreign-assisted Projects	947	–	–	–	–	–	–	–	–	–
c. Family Approach	–	–	–	–	–	–	–	–	17	–
d. Communal Tree Farm	120	–	138	–	191	–	84	–	72	–
2. MLGCD (Barangay Brigade Energy Farm & Municipal Dendrothermal Plantations)	468	3	509	–	1,547	–	405	203	675	–
3. MEC (Agro-forest, Tree Farms & Orchids)	340	7	179	–	459	145	288	265	186	6
4. Other Government Agencies	20	–	134	420	67	–	168	18	–	–
5. Cooperative Tree Planting Projects (Between BFD/MNR & Govt. Agencies)	302	73	–	–	6	–	1,000	24	–	–
II. Private Sector	1,624	–	472	–	1,024	–	899	85	1,308	–
1. Timber Licensees	536	–	84	–	313	–	192	–	672	–
2. Industrial Tree Plantations & Tree Farms	545	–	–	–	–	–	–	–	–	–
3. Cooperative Reforestation Project of Timber Licensees	21	–	–	–	15	–	–	–	–	–
4. Cooperative Tree Planting Projects (Between BFD/MNR & Private Organizations, Firms, Corps., etc.)	–	–	–	–	7	–	–	–	–	–
5. Civic & Other Organizations	10	–	78	–	47	–	53	–	–	–
6. Citizenry (Pursuant to P.D. 1153)	512	–	310	–	642	–	654	85	636	–

Table 1.5.1 (cont'd.)

PARTICULARS	R – 9		R – 10		R – 11		R – 12	
	ha.	km.	ha.	km.	ha.	km.	ha.	km.
TOTAL	2,421	187	2,980	485	11,500	673	3,399	880
I. Government Sector	1,443	105	1,074	482	2,849	657	1,757	367
1. BFD/MNR	418	2	614	–	897	73	392	347
a. Regular & Priority Projects	328	2	513	–	581	73	274	347
b. Foreign-Assisted Projects	–	–	–	–	–	–	–	–
c. Family Approach	20	–	–	–	–	–	–	–
d. Communal Tree Farm	70	–	101	–	316	–	118	–
2. MLGCD (Barangay Brigade Energy Farm & Municipal Dendrothermal Plantations)	599	–	318	9	716	86	1,104	2
3. MEC (Agro-forest, Tree Farms & Orchids)	27	86	74	–	261	363	18	16
4. Other Government Agencies	399	17	30	–	975	135	243	2
5. Cooperative Tree Planting Projects (Between BFD/MNR & Govt. Agencies)	–	–	38	473	–	–	–	–
II. Private Sector	978	82	1,906	3	8,651	16	1,642	513
1. Timber Licensees	741	12	1,897	3	8,319	–	1,221	58
2. Industrial Tree Plantations & Tree Farms	–	–	–	–	–	–	–	–
3. Cooperative Reforestation Project of Timber Licensees	114	1	–	–	10	–	–	–
4. Cooperative Tree Planting Projects (Between BFD/MNR & Private Organizations, Firms, Corps., etc.)	–	–	9	–	30	–	286	156
5. Civic & Other Organizations	10	–	–	–	250	1	64	277
6. Citizenry (Pursuant to PD 1153)	113	69	–	–	42	15	71	22

Source: Reforestation and Afforestation Division and Accomplishment Reports of Regions (PED).

Figure 1.5.2 — SEEDLING PRODUCTION BY SECTOR: 1979



LEGEND:

BFD/MNR — 70.7%
a) Regular and priority projects — 66.8%
b) Foreign-Assisted Projects — 2.1%
c) Communal tree farm — 1.6%
d) Family approach — 0.2%

TIMBER LICENSEES — 17.7%

OTHER GOVERNMENT AGENCIES — 8.7%

CITIZENRY — 2.9%

TABLE 1.5.2 NUMBER OF SEEDLINGS PRODUCED BY REGION: 1979

PARTICULARS	Philippines	NCR	R – 1	R – 2	R – 3	R – 4	R – 5
TOTAL	264,997,900	9,940,900	36,365,200	42,439,200	40,113,100	15,607,600	12,108,500
I. Government Sector	211,179,000	9,586,000	35,297,600	29,848,200	39,239,500	13,813,300	11,888,200
1. BFD/MNR	187,935,500	9,114,000	35,01[illegible],600	29,101,200	35,019,900	9,873,100	9,450,300
a. Regular & Priority Projects	177,384,600	8,714,200	33,682,600	28,299,700	31,080,100	7,550,800	9,099,900
b. Foreign-Assisted Projects	5,638,400	–	320,000	–	3,293,000	2,025,400	–
c. Family Approach	600,100	–	–	57,000	333,300	–	–
d. Communal Tree Farm	4,312,400	399,800	1,010,000	744,500	313,500	296,900	350,400
2. MLGCD (Barangay Brigade) Energy Farm & Municipal Dendrothermal Plantations	7,495,600	–	212,000	646,500	135,000	980,000	1,366,400
3. MEC (Agro-forest, tree farms & orchids)	5,912,300	22,000	63,000	72,500	–	685,000	892,000
4. Other Government Agencies	7,411,600	450,000	10,000	28,000	4,048,600	32,200	179,500
5. Cooperative Tree Planting Projects (Between BFD/MNR & Gov't. Agencies	2,424,000	–	–	–	36,000	2,243,000	–
II. Private Sector	53,818,900	354,900	1,067,600	12,591,000	873,600	1,794,300	220,300
1. Timber Licensees	45,763,400	354,900	616,000	12,580,000	861,600	796,300	197,100
2. Industrial Tree Plantations and Tree Farms	589,000	–	–	–	–	589,000	–
3. Cooperative Reforestation Project of Timber Licensees	808,700	–	451,600	–	–	28,400	–
4. Cooperative Tree Planting Project between BFD/MNR & Private Organizations, Firms, Corporations	5,461,500	–	–	–	–	–	–
5. Civic & Other Organizations	600,300	–	–	11,000	12,000	1,600	23,200
6. Citizenry (Pursuant to PD 1153)	596,000	–	–	–	–	379,000	–

Table 1.5.2 (cont'd.)

PARTICULARS	R – 6	R – 7	R – 8	R – 9	R – 10	R – 11	R – 12
TOTAL	22,289,100	28,479,000	10,061,100	5,573,500	9,406,100	20,284,800	12,329,800
I. Government Sector	20,623,600	27,620,500	6,307,100	3,807,500	5,442,400	6,053,300	1,651,800
1. BFD/MNR	15,865,000	26,271,100	5,783,100	2,863,400	4,210,300	4,773,100	598,400
a. Regular & Priority Projects	15,621,900	25,974,800	5,653,200	2,680,100	4,057,400	4,595,500	374,400
b. Foreign-Assisted Projects	–	–	–	–	–	–	–
c. Family Approach	–	–	32,500	177,300	–	–	–
d. Communal Tree Farm	243,100	296,300	97,400	6,000	152,900	177,600	224,000
2. MLGCD (Barangay Brigade) Energy Farm & Municipal Dendrothermal Plantations	2,169,600	–	145,000	105,400	934,500	747,400	53,800
3. MEC (Agro-forest, Tree Farms & Orchids)	2,197,400	1,023,700	379,000	104,000	201,000	224,700	48,000
4. Other Government Agencies	366,600	205,700	–	734,700	96,600	308,100	951,600
5. Cooperative Tree Planting Projects (Between BFD/MNR & Gov't. Agencies	25,000	120,000	–	–	–	–	–
II. Private Sector	1,665,500	858,500	3,754,000	1,766,000	3,963,700	14,231,500	10,678,000
1. Timber Licensees	1,526,000	729,000	3,754,000	1,346,100	3,963,700	14,073,200	4,965,500
2. Industrial Tree Plantations and Tree Farms	–	–	–	–	–	–	–
3. Cooperative Reforestation Project of Timber Licensees	20,000	–	–	308,700	–	–	–
4. Cooperative Tree Planting Project between BFD/MNR & Private Organizations, Firms, Corporation, etc.	7,500	–	–	15,000	–	–	5,439,000
5. Civic & Other Organizations	112,000	129,500	–	13,400	–	77,900	219,700
6. Citizenry (Pursuant to PD 1153)	–	–	–	82,800	–	80,400	53,800

Source: Bureau of Forest Development

TABLE 1.5.3 SEEDLING PRODUCTION OF THE BFD, REFORESTATION AND PRIORITY PROJECT BY SPECIES AND REGION: 1979

SPECIES	PHILIPPINES	NCR	R – 1	R – 2	R – 3	R – 4	R – 5
TOTAL	177,384,600	8,714,200	33,682,600	28,299,700	31,080,100	7,550,800	9,099,900
Benguet Pine	10,948,922	41,960	8,435,308	1,572,037	122,099	—	—
Agoho	12,797,704	94,150	5,943,921	108	2,594,296	726,665	467,403
Yemane	17,027,155	468,540	643,062	2,601,496	5,106,955	840,220	655,950
Narra	19,014,989	754,710	5,609,235	3,338,380	3,292,972	467,985	1,746,850
Giant Ipil-Ipil	56,037,830	3,552,336	4,015,544	14,142,170	14,511,195	1,907,774	3,416,851
Mahogany	14,233,216	1,626,537	3,077,593	1,314,066	2,032,702	407,590	923,169
Alnus	2,045,509	–	1,716,214	4,123	–	325,172	–
Kalantas	80,360	–	9,360	–	–	–	71,000
Molave	1,473,287	14,336	153,345	483,055	109,394	–	–
Antsoan dilaw	1,592,167	30	811,408	–	78,943	–	–
African Tulip	386,408	–	7,920	–	–	–	–
Teak	6,486,122	1,042	304,409	1,226,886	826,418	399,775	189,743
Rain Tree	7,256,428	339,611	571,406	2,106,228	370,181	358,183	307,006
Ornamental/Medicinal	1,460,516	289,619	850,643	28,096	–	67,267	145,471
Bagras	2,053,140	–	331,860	–	–	–	–
Palosapis	4,408	–	4,408	–	–	–	–
Moluccan San	4,680,764	237,494	217,278	12,174	102,177	342,490	157,970
Palo santo	897,558	43,408	30,784	–	34,542	–	168,300
Juliebrissin	2,382,744	–	–	3	–	–	–
Ayangile	1,677,697	–	–	–	–	–	–
Akleng Parang	1,102,650	–	83,732	–	–	345,976	–
Fire Tree	148,917	94,890	–	–	54,027	–	–
Ear Pod	235,323	157,853	–	–	77,470	–	–
Bitaog	190,786	30,094	156,640	2,807	1,245	–	–
Lumbang	455,864	113,118	–	1,240	–	341,506	–
Kamagong	862,723	107,920	–	2,600	–	647,031	105,172
Bangkalauan	921,673	–	–	–	–	–	–
Baguilumbang	639,188	–	–	–	–	–	–

Table 1.5.3 (cont'd.)

SPECIES	PHILIPPINES	NCR	R – 1	R – 2	R – 3	R – 4	R – 5
Apitong	186,359	500	–	–	–	–	–
Lauan	192,719	–	–	–	–	–	–
Balobo	236,638	50,299	–	–	–	–	–
Acacia	1,334,917	474,057	–	–	860,860	–	–
Talisay	150,003	26,117	–	–	123,886	–	–
Panglongboien	16,675	–	–	–	16,675	–	–
Yakal	91,600	–	–	–	91,600	–	–
Fruit Trees	2,155,578	65,250	298,474	11,155	637,103	37,981	13,560
Miscellaneous	5,926,063	130,329	410,056	1,453,116	35,360	335,185	731,455

Table 1.5.3 (cont'd.)

SPECIES	R – 6	R – 7	R – 8	R – 9	R – 10	R – 11	R – 12
TOTAL	15,621,900	25,974,800	5,653,200	2,680,100	4,057,400	4,595,500	374,400
Benguet Pine	–	–	–	44,698	446,865	285,955	–
Agoho	666,110	1,499,788	483,804	42,098	–	279,361	–
Yemane	2,546,379	2,485,170	495,175	722,973	190,089	192,894	78,252
Narra	1,122,762	1,647,298	510,323	55,856	260,616	199,561	8,441
Giant Ipil-ipil	3,151,842	6,376,081	1,473,175	898,783	1,063,175	1,303,805	225,099
Mahogany	–	3,113,142	488,798	407,849	632,256	201,681	7,833
Alnus	–	–	–	–	–	–	–
Kalantas	–	–	–	–	–	–	–
Molave	713,157	–	–	–	–	–	–
Antsoan dilaw	701,786	–	–	–	–	–	–
African Tulip	–	–	–	–	187,241	191,247	–
Teak	873,097	1,639,559	463,746	85,541	221,671	214,930	40,305
Rain Tree	708,542	1,521,833	519,918	69,905	190,276	193,339	–
Ornamental/Medicinal	22,897	9,688	817	7,666	5,270	30,822	2,300
Bagras	–	1,488,933	–	45,148	–	187,199	–
Palosapis	–	–	–	–	–	–	–
Moluccan San	696,728	1,489,995	747,635	–	308,302	368,521	–
Palo santo	620,524	–	–	–	–	–	–
Juliebrissin	–	1,486,313	468,368	–	235,171	192,889	–
Ayangile	–	1,677,697	–	–	–	–	–
Akleng Parang	672,942	–	–	–	–	–	–
Fire Tree	–	–	–	–	–	–	–
Earpod	–	–	–	–	–	–	–
Bitaog	–	–	–	–	–	–	–
Lumbang	–	–	–	–	–	–	–
Kamagong	–	–	–	–	–	–	–
Bangkaluan	921,673	–	–	–	–	–	–
Baguilumbang	639,188	–	–	–	–	–	–

Table 1.5.3 (cont'd.)

SPECIES	R – 6	R – 7	R – 8	R – 9	R – 10	R – 11	R – 12
Apitong	–	–	–	–	–	185,859	–
Lauan	–	–	–	–	–	192,719	–
Balobo	–	–	–	–	–	186,339	–
Acacia	–	–	–	–	–	–	–
Talisay	–	–	–	–	–	–	–
Panglongboien	–	–	–	–	–	–	–
Yakal	–	–	–	–	–	–	–
Fruit Trees	941,227	15,524	1,441	–	128,659	1,541	3,663
Miscellaneous	623,046	1,523,779	–	300,583	187,809	186,838	8,507

Source: BFD

TABLE 1.6 NUMBER OF FAMILIES, PERSONS AND AREA SQUATTED ON BY REGION: 1979

REGION	AREA OCCUPIED		FAMILIES		DEPENDENTS	
	Hectare	% to Total	Number	% to Total	Number	% to Total
TOTAL	511,645	100.00	154,481	100.00	675,714	100.00
R – 1	28,728	6.00	13,769	9.00	64,571	9.00
2	33,337	6.00	13,578	9.00	59,850	9.00
3	19,453	4.00	4,280	3.00	20,399	3.00
NCR	24,366	5.00	5,385	3.00	23,405	3.00
4	17,820	3.00	6,754	4.00	27,862	4.00
5	33,548	7.00	6,034	4.00	32,831	5.00
6	21,004	4.00	4,553	3.00	19,510	3.00
7	47,045	9.00	19,944	13.00	96,613	14.00
8	25,404	5.00	7,700	5.00	41,306	6.00
9	11,461	2.00	2,134	1.00	3,725	1.00
10	134,851	26.00	37,897	25.00	148,437	22.00
11	91,196	18.00	24,047	16.00	112,606	17.00
12	23,432	5.00	8,406	5.00	24,599	4.00

Source: BFD, Forest Occupancy & Management Section,
Forest Protection & Infrastructure Division

TABLE 1.7 ANNUAL ACCOMPLISHMENTS ON TREE MARKING, RESIDUAL INVENTORY AND TIMBER STAND IMPROVEMENT: FY 1955 – CY 1979

(In hectares)

YEAR	TREE MARKING	RESIDUAL INVENTORY	TIMBER STAND IMPROVEMENT
1955 – '59	27,570	14,300	4,140
1959 – '60	30,520	17,000	6,900
1960 – '61	36,650	22,560	10,900
1961 – '62	43,360	31,900	4,250
1962 – '63	52,026	28,922	14,487
1963 – '64	77,960	53,350	15,687
1964 – '65	61,929	38,377	7,892
1965 – '66	67,882	35,959	7,785
1966 – '67	53,917	33,649	7,468
1967 – '68	69,242	39,641	8,218
1968 – '69	84,990	46,413	14,969
1969 – '70	76,855	46,314	22,966
1970 – '71	62,073	54,449	22,500
1971 – '72	83,631	57,315	22,401
1972 – '73	68,624	47,703	15,993
1973 – '74	68,150	47,020	13,630
1974 – '75	71,536	53,561	6,418
July – Dec. '75	35,471	28,134	8,452
CY 1976	62,942	60,265	16,004
1977	68,987	54,294	32,778
1978	69,484	47,963	43,521
1979	71,656	61,528	43,595

Source: Field reports.

TABLE 1.7.1 ACCOMPLISHMENT ON TREE MARKING, RESIDUAL INVENTORY AND TIMBER STAND IMPROVEMENT BY REGION: 1979

(In hectares)

REGION	TREE MARKING	RESIDUAL INVENTORY	TIMBER STAND IMPROVEMENT
TOTAL	71,656	61,528	43,595
NCR	—	828	3,202
1	1,164	1,252	1,002
2	14,200	11,883	6,636
3	79	688	1,194
4	6,132	5,562	7,535
5	1,638	1,824	329
6	1,567	931	930
7	652	906	1,070
8	4,859	3,244	857
9	4,826	3,876	1,195
10	12,342	10,104	7,711
11	16,782	13,422	7,214
12	7,415	7,008	4,720

Source: BFD

PART II

FOREST RESOURCES UTILIZATION

Licenses, Leases and Permits

Timber Licenses, Area and Allowable Cut

There are several types of existing timber licenses and those being issued depend on the tenure, the kind of timber to be cut and ownership of the land. These are the Timber License Agreement, Provisional Timber License, Pulpwood License Agreement, Alienable or Disposable Timber License, Private Wood Land Timber License, Hardwood Timber License, Civil Reservation Timber License, Softwood Timber License, Land Grant Timber License, Special Timber License and Mangrove Timber License.

Table 2.1.1 shows the number of timber licenses in force. As of December 31, 1979, there are 284 covering an area of 8.19 million hectares and an annual allowable cut of 17.2 million cubic meters Note that Mindanao has the most number of licenses with 164 or 59%. This can be attributed to the fact that a large portion of timber resources of the country is concentrated in this area. Luzon has 89 or 32% and the rest are in Visayas. In terms of allowable cut and area, Mindanao accounts for 73% and 61% of the total, respectively; Luzon, 20% and 30%; and Visayas, 7% and 9%, respectively,

Of the types of timber licenses issued, 193 or 69% are Timber License Agreements with an aggregate annual allowable cut of 13.52 million cubic meters or roughly 78% of the total annual allowable cut with a total area of 7.6 million hectares. There are 46 or 16% ordinary Timber License with a total allowable cut and area of 1.2 million cubic meters and .828 million hectares, respectively. There are 15 Provisional Timber Licenses or 5% of the total number of licenses with a total annual allowable cut of 0.261 million cubic meters. The rest are other timber licenses.

Sawmills

Table 2.2.1 shows the number of sawmills established by region. Of the total 371 sawmills, 61% or 227 are operating during the year in review and 39% or 144 are non-operating. These non-operating sawmills are those which still exist, but whose licenses/permits for operation were cancelled or suspended. Of the total operating sawmills, 43% or 97 are with back-up timber concessions and 57% or 130 are without timber concessions. Referring to Table 2.2.2, the total daily rated capacity of the active sawmills aggregated to 11, 3 thousand cubic meters with an annual log requirements of 4.7 million cubic meters. Looking closely at the table, Regions 2, NCR, 11, 3 and 10 accounted for 77% of the total daily rated capacity with an aggregate total of 3.5 million cubic meters for its annual log requirements. Region 2 took most of the number of sawmills with 26% or 59 followed by Regions 11, NCR, 3 and 10 with 16%, 14%, 11% and 9%, respectively.

Plywood and Veneer Mills

There are 33 plywood mills and 23 veneer mills in the Philippines. (Please see Table 2.3) 23 plywood mills are concentrated in Mindanao which are mostly located in Regions 10 and 11, accounting for 81% of the total daily rated capacity of 5,283 cubic meters with an annual log requirement of 2.99 million cubic meters which is 84% of the 3.57 million cubic meters total for the country. The remaining 9 plywood mills are found in Luzon having a total daily rated capacity of 936 cubic meters requiring some 0.54 million cubic meters of log annually. Visayas has only one plywood plant having a daily rated capacity of 54.64 cubic meters and log requirement of .033 million cubic meters.

Of the total number of veneer mills, 19 are in Mindanao and 4 are in Luzon. The total daily rated capacity of these veneer mills is 1,656 cubic meters and an estimated annual log requirements of 0.94 million cubic meters. Regions 10 and 11 have 7 and 6 veneer mills, respectively, accounting for more than 67%of the daily rated capacity in Mindanao which is 1,502 cubic meters.

Other Wood-Based Panal Plants

There are 15 wood-based panel plants in the Philippines, 11 of

which are in Mindanao and 4 are in Luzon. Out of these, 12 are block-board plants, 2 particle board and 1 fiberboard mill. These woodbased panel plants are mostly concentrated in Mindanao with a daily rated capacity of 106,923 square feet or 74% of the total. Four out of 11 plants in Mindanao are in Region 10 registering 46% of the daily rated capacity of the island's 48.996 square feet. Luzon contributed 26% or 37,586 square feet to the total daily rated capacity. (Refer to Table 2.4)

Wood Treating Plants

Table 2.5 shows the number, monthly capacity, and production of treating plants accredited by the National Electrification Administration. As of 1979, there are 18 treating plants all over the country with a monthly capacity of 55,220 cubic meters. Region 11 has 4 treating plants with a monthly capacity of 8,440 cubic meters and Regions 4 and 10 have three (3) each with a total capacity of 26,360 cubic meters. Production figures as shown in this table are those poles and piles supplied by timber licensees and treated by these treating plants solely for NEA consumption. A total of 28,260 cubic meters was treated for the year in review of which 39% or 11,000 cubic meters was exhibited by Region 4.

Pastures, Leases and Permits

Table 2.6.1 shows the number, area and distribution of pasture, leases and permits for the year 1979. There are 1,807 leases covering 812,517 hectares and 1,826 permits with an aggregate area of 154,509 hectares. Luzon has the most number of pasture leases and permits with 65.4% or 2,376 covering 56.3% or 544,428 hectares of the total pasture area, located mostly in Regions 4, 3 and 2. Mindanao ranks second with 19% or 690 leases and permits which covers 35% or 339,118 hectares. Region 10 represents 48% of the total number of pasture leases followed by Region 11 with 29%. Visayas follows next having 15.6% or 567 leases and permits with an area coverage of 8.6% or 83,480 hectares of the country's total pasture area. In terms of number, Region 6 has the biggest share of leases and permits in Visayas with 81% or 459 covering an aggregate area of 54,720 hectares.

Special Use Permits and Leases

Table 2.7 depicts the frequency, area and the kind of special use permits and leases existing in 1979. The number of special use permits increased by 42% over last year's total of 50, while the number of leases decreased by 3% over the total of 131 leases last year. Based on the total number of permits and leases granted, Region 1 ranks first with 51 followed by Region 6 with 42 permits. Of the total permits/leases issued for the year, 44% were tree farms covering 6,935 hectares.

OM Licenses and Permits

Among the ordinary minor forest products licenses and permits existing as of December 31, 1979, 107 was issued for unsplit rattan with a total allowable cut of 5,843 million linear meters. Region leads the most number of rattan licenses/permit holders with 31 followed by Regions 3 and 9 with 20 and 14 permits, respectively. There were 48 licenses/permits issued on split rattan having an aggregate allowable cut of 141,629 kilos, almaciga and nipa shingle have 13 permit holders each.

II. Production

Roundwood

Table 2.9 shows roundwood production from FY 1969-'70 to CY 1979. Roundwood is wood in the rough and includes such commodities as sawlogs and veneer logs, pitrops, pulpwood, and other industrial roundwood and fuelwood (Please see glossary for definition of Roundwood). Log production as shown in Table 2.9.1 comprises the sawlogs and veneer logs. Notice that a decline of 9% was felt in this year's log production of 6.6 million cubic meters. This could be attributed to the fact that more timber licenses were suspended or cancelled during the year due to violation of terms and conditions stipulated in their license and/or forestry laws, rules and regulations.

By geographical region, Mindanao took most of the total log production producing 70% or 4.6 million cubic meters. This is to be expected since the bulk of the timber resources in the country is located in Mindanao and that most of the big logging companies are operating in the area. Luzon produced 21% or 1.4 million cubic meters while 9% or .588 million cubic meters were contributed by the Visayas.

Production of pulpwood poles and piles, fuelwood and charcoal for the year under review can be gleaned at Table 2.9.4. Of the total pulpwood of 443,000 cubic meters produced for the year, 97% or 428,360 cubic meters was contributed by Mindanao and 3% or 14,476 cubic meters was produced by Luzon. For poles and piles, Mindanao ranked first in production with 82% or 14,397 cubic meters while 11% or 1,997 cubic meters and 7% or 1,150 cubic meters were produced in the Visayas and Luzon, respectively.

Fuelwood consists of the upland and mangrove types. The Upland type refers to those derived from upland species. Production of upland fuelwood in 1979 totalled to 181,615 cubic meters. Of this total, 73% or 132,315 cubic meters was produced in Mindanao, followed by Visayas with 21% or 38,013 cubic meters and the remaining 6% or 11,287 cubic meters was shared by Luzon. Mangrove fuelwood on the other hand, refers to fuelwood derived from mangrove species. Mangrove fuelwood registered a production of 16,443 cubic meters with Luzon taking the lead share of 86% or 14,160 and the remaining 9% and 5% were contributed by Visayas and Mindanao, respectively.

Charcoal exhibited a production of 42,368 cubic meters with Luzon taking the biggest share, followed by Visayas and Mindanao.

Log Production by Region per Species

Table 2.9.2 exhibits the percent distribution of log production by region per species. Notice that Region 1 produced Benguet pine; while other species like Akleng Parang, Bago, Kupang, Alupay, Dita, Batino, Palomaria and Alupag were only produced by Region 4. Table 2.9.2 further depicts other species that are produced only by a specific region. This is so since some tree species thrive only in a particular region.

Log Production By Species Per Region

Table 2.9.3 pictures the per cent distribution of log production by species per region. Note that Region 11 has the most number of types of species, 28 followed by R—4 with 21 kinds of species for its log production. Region 11 which exhibited the biggest production of logs for the year listed almon as its leading species. Almon was also largely produced in Region 6 and 2. A closer look at the table will show that tanguile, white lauan and apitong were produced in all regions, except Region 1 which as expected dominated the production of Benguet Pine.

Lumber

Lumber production for 1979 amounted to 1.6 million cubic meters exhibiting a marked decline of 11% over last year's production of 1.8 million cubic meters. Referring to Table 2.10, notice that Mindanao contributed the biggest share of 47% of lumber produced, closely followed by Luzon, producing 41% and the remaining 12% came from the Visayas. A close look at the table will show further that the monthly performance from January to November is impressive with the month of June as its peak. The month of December however, displayed sudden decline in production. From October to November, a decrease of 21% was felt and the most noticeable is that of November to December showing a marked 48% decline. This may again be attributed to the cancellation/suspension of the operation of some timber licensees.

Plywood

The volume of plywood produced totalled to 502,674 cubic

meters, exhibiting slight increase of 3% over that of the previous year. (Table 2.11) Of the total production, 91% came from Mindanao; and 9% was produced in Luzon. The months of March and May displayed the highest production while the months of November and December showed its lowest performance for the year.

Veneer

Production of veneer for the year under review reached 633,940 cubic meters, showing an increase of 28% over that of last year's 496,432 cubic meters. Mindanao took the lion's share in production, producing 92% while Luzon contributed only 8%. (Table 2.12)

Pulp, Paper and Other Wood-Based Panels

Aside from the major wood products, the country is also producing pulp, paper and wood-based panels mostly for its domestic use. Table 2.13 shows its production from 1974 to 1979. Note that paper production exhibited a marked increase of 74% over that of 1978, likewise fiberboard gained by 13% while paperboard, particle board and blockboard experienced negative growths.

Minor Forest Products

Table 2.14 shows production of minor forest products from 1973-1979.A closer look at the table will show that almaciga resin, buri midrib, diliman, tanbark and nipa shingle exhibited declines in their respective production as compared to that of the previous year. On the other hand, oleoresin, rattan and bamboo displayed their marked increases for the year 1979 over the previous year's record.

Estimated Volume of Logging Wastes and Residuals

From the results of the studies conducted by Forest Products Research and Industries Development Commission (FORPRIDECOM), Table 2.15 was constructed to vividly show Philippine wood waste situation. The values in the above table were arrived at using FORPRIDECOM estimate that in the logging operation, 0.8 cubic meter of wood waste is produced for every cubic meter of log harvested from the forest. This is also saying that 80% of log production are wastes. These wastes which are left in the forest to rot or burn are in the following forms:

	Percentage
1. Damaged residuals	50.00%
2. Tops and branches	33.75%
3. Stumps	10.00%
4. Abandoned logs	3.75%
5. Butt trimmings	2.50%
TOTAL	100.00%

This percentage breakdown together with the results in Table 2.9.1 showing log production by region were utilized to arrive at the volume estimates of logging wastes and residuals.

It is expected that the region with the biggest production also has the biggest share of wood wastes. It is interesting to note that the first three log producers are Regions 11, 10 and 2, respectively. Consequently, these regions occupy the first, second and third positions as to their logging wastes.

TABLE 2.1 NUMBER, AREA AND ALLOWABLE CUT OF TIMBER LICENSES: FY 1969 – 70 to 1974 – 75, CY 1976 – 1979

Year	Number	Area (1,000 hectares)	Allowable cut (1,000 cubic meters)
1969 – 70	412	9,357	15,491
1970 – 71	461	10,598	16,068
1971 – 72	343	9,368	16,440
1972 – 73	338	8,453	16,810
1973 – 74	422	10,291	20,913
1974 – 75	408	9,627	20,363
1976 – 76	471	10,137	21,885
1977 –	376	10,211	21,071
1978 –	315	8,769	18,672
1979 –	284	8,310	17,453

Source: BFD

TABLE 2.1.1 TIMBER LICENSES BY REGION: 1979

Region	TOTAL			Timber License Agreement			Ordinary Timber		
	No.	Allowable Cut (M^3)	Area (Ha.)	No.	Allowable Cut (M^3)	Area (Ha.)	No.	Allowable Cut (M^3)	Area (Ha.)
Philippines	284	17,452,820	8,309,751	198	13,741,033	6,776,004	46	1,253,976	828,367
Luzon	89	3,367,309	2,427,846	60	2,557,112	1,964,969	12	277,263	216,762
NCR	2	57,140	4,200	–	–	–	–	–	–
R – 1	5	456,153	265,682	1	12,980	12,880	2	94,560	53,247
2	44	1,980,879	1,387,010	37	1,894,219	1,314,140	2	71,228	62,210
3	–	–	–	–	–	–	–	–	–
4	24	634,552	575,262	14	499,013	502,919	5	37,775	51,990
5	14	238,585	195,692	8	150,900	135,030	3	73,700	49,315
Visayas	31	1,499,818	852,565	26	1,424,408	799,192	3	67,858	50,645
R – 6	10	386,431	192,872	7	318,573	142,227	3	67,858	50,645
7	6	197,021	93,998	4	189,469	91,270	–	–	–
8	15	916,366	565,695	15	916,366	565,695	–	–	–
Mindanao	164	12,585,693	5,029,340	112	9,759,513	4,011,843	31	908,855	560,960
R – 9	29	1,523,980	598,520	20	1,107,799	484,265	8	194,430	113,347
10	54	3,245,123	1,554,083	38	2,716,153	1,313,348	9	260,180	183,036
11	61	6,147,785	2,064,225	40	4,421,119	1,493,258	10	331,765	193,177
12	20	1,668,805	812,512	14	1,514,442	720,972	4	122,480	71,400

Table 2.1.1 (cont'd.)

Region	Special			Mangrove			Pulpwood		
	No.	Allowable Cut (M^3)	Area (Ha.)	No.	Allowable Cut (M^3)	Area (Ha.)	No.	Allowable Cut (M^3)	Area (Ha.)
Philippines	3	58,043	10,999	1	15,213	834	7	1,214,629	524,657
Luzon	1	2,985	800	1	15,213	834	3	358,613	209,195
NCR	–	–	–	–	–	–	–	–	–
R – 1	–	–	–	–	–	–	2	348,613	199,555
2	–	–	–	–	–	–	–	–	–
3	–	–	–	–	–	–	–	–	–
4	–	–	–	1	15,213	834	–	–	–
5	1	2,985	800	–	–	–	1	10,000	9,640
Visayas	–	–	–	–	–	–	–	–	–
R – 6	–	–	–	–	–	–	–	–	–
7	–	–	–	–	–	–	–	–	–
8	–	–	–	–	–	–	–	–	–
Mindanao	2	55,058	10,199	–	–	–	4	856,016	315,462
R – 9	–	–	–	–	–	–	–	–	–
10	–	–	–	–	–	–	1	77,080	25,000
11	1	46,226	909	–	–	–	3	778,936	290,462
12	1	8,832	9,290	–	–	–	–		

Table 2.1.1 (cont'd.)

Region	Provisional Timber			Hardwood			Softwood		
	No.	Allowable Cut (M^3)	Area (Ha.)	No.	Allowable Cut (M^3)	Area (Ha.)	No.	Allowable Cut (M^3)	Area (Ha.)
Philippines	15	261,455	93,966	5	9,806	6,968	2	4,015	16,398
Luzon	7	119,944	19,252	3	2,254	4,240	1	1,985	4,098
NCR	2	57,140	4,200	–	–	–	–	–	–
R – 1	–	–	–	–	–	–	–	–	–
2	2	13,178	6,420	3	2,254	4,240	–	–	–
3	–	–	–	–	–	–	–	–	–
4	2	48,626	7,725	–	–	–	1	1,985	4,098
5	1	1,000	907	–	–	–	–	–	–
Visayas	–	–	–	2	7,552	2,728	–	–	–
R – 6	–	–	–	–	–	–	–	–	–
7	–	–	–	2	7,552	2,728	–	–	–
8	–	–	–	–	–	–	–	–	–
Mindanao	8	141,511	74,714	–	–	–	1	2,030	12,300
R – 9	–	–	–	–	–	–	–	–	–
10	3	29,461	15,234	–	–	–	1	2,030	12,300
11	4	88,999	48,630	–	–	–	–	–	–
12	1	23,051	10,850	–	–	–	–	–	–

Table 2.1.1 (cont'd.)

Region	Civil Reservation			Land Grant		
	No.	Allowable Cut (M^3)	Area (Ha.)	No.	Allowable Cut (M^3)	Area (Ha.)
Philippines	6	672,899	50,650	1	221,751	908
Luzon	1	31,940	7,696	–	–	–
NCR	–	–	–	–	–	–
R – 1	–	–	–	–	–	–
2	–	–	–	–	–	–
3	–	–	–	–	–	–
4	1	31,940	7,696	–	–	–
5	–	–	–	–	–	–
Visayas	–	–	–	–	–	–
R – 6	–	–	–	–	–	–
7	–	–	–	–	–	–
8	–	–	–	–	–	–
Mindanao	5	640,959	42,954	1	221,751	908
R – 9	–	–	–	1	221,751	908
10	2	160,219	5,165	–	–	–
11	3	480,740	37,789	–	–	–
12	–	–	–	–	–	–

Source: BFD

TABLE 2.2 NUMBER, DAILY RATED CAPACITY, ANNUAL LOG REQUIREMENT AND CAPITAL INVESTMENT OF ACTIVE SAWMILLS: FY 1969–70 to 1974–75, CY 1976–1979

Year	Number	Daily Rated Capacity	Annual Log Requirement (1000 cu.m.)	Capital Investment (₱ Million)
1969 – 70	374	17,323	7,699	116
1970 – 71	352	17,288	7,683	117
1971 – 72	355	17,337	7,746	180
1972 – 73	370	16,667	7,994	150
1973 – 74	355	16,408	6,292	362
1974 – 75	408	16,658	6,323	402
1976	325	17,736	7,868	312
1977	341	18,175	8,164	312
1978	357	17,528	7,893	881
1979	227	11,387	4,674	–

Source: BFD

TABLE 2.2.1 NUMBER OF SAWMILLS ESTABLISHED BY REGION: 1979

Region	TOTAL	Operating Sawmills				Non-Operating Sawmills
		With Timber Concession		Without Timber Concession		
		Economic Size	Uneconomic Size	Economic Size	Uneconomic Size	
Philippines	371	96	1	118	12	144
NCR	74	–	–	28	3	43
R – 1	9	5	–	–	–	4
2	63	26	–	33	–	4
3	25	3	–	22	–	–
4	9	2	–	–	3	4
5	19	2	–	6	–	11
6	11	4	–	1	–	6
7	6	–	–	1	–	5
8	7	4	–	–	–	3
9	24	9	–	6	1	8
10	43	13	–	8	–	22
11	61	19	1	11	5	25
12	20	9	–	2	–	9

Source: Bureau of Forest Development

TABLE 2.2.2 NUMBER, DAILY RATED CAPACITY AND ANNUAL LOG REQUIREMENT OF ACTIVE SAWMILLS BY REGION: 1979

(In Thousand Cubic Meters)

Region	TOTAL			With Timber Concession			Without Timber Concession		
	Number of Sawmills	Daily Rated Capacity	Annual Log Requirement	Number of Sawmills	Daily Rated Capacity	Annual Log Requirement	Number of Sawmills	Daily Rated Capacity	Annual Log Requirement
Philippines	227	11.387	4,674	97	5.491	2,351	130	5.896	2,323
NCR	31	1.710	685	–	–	–	31	1.710	685
R – 1	5	.234	93	5	.234	93			
2	59	2.548	788	26	1.182	395	33	1.366	393
3	25	1.399	519	3	.220	55	22	1.179	464
4	5	.156	62	2	.130	52	3	.026	10
5	8	.307	122	2	.071	28	6	.236	94
6	5	.365	172	4	.330	158	1	.035	14
7	1	.035	14	–	–	–	1	.035	14
8	4	.283	113	4	.283	113	–	–	–
9	16	.665	342	9	.460	221	7	.205	121
10	21	1.274	611	13	.908	436	8	.366	175
11	36	1.845	882	20	1.189	568	16	.656	314
12	11	.566	271	9	.484	232	2	.082	39

– None

Source: BFD, Forest Utilization Division

TABLE 2.3 PLYWOOD AND VENEER MILLS: 1979

Region	Plywood Mills) (No.)	Daily Rated Capacity (cu.m.)	Annual Log Requirement (cu.m.)	Veneer Mills (No.)	Daily Rated Capacity (cu.m.)	Annual Log Requirement (cu.m.)
PHILIPPINES	33	5,283.33	3,570,582	23	1,655.54	941,238
Luzon	9	936.33	544,377	4	153.08	73,597
NCR	—	—	—	—	—	—
Region 1	—	—	—	—	—	—
2	3	451.35	262,413	3	125.56	60,366
3	—	—	—	—	—	—
4	6	484.98	281,964	1	27.52	13,231
5	—	—	—	—	—	—
Visayas	1	56.64	32,930	—	—	—
Region 6	—	—	—	—	—	—
7	1	56.64	32,930	—	—	—
8	—	—	—	—	—	—
Mindanao	23	4,290.36	2,993,275	19	1,502.46	867,641
Region 9	4	424.80	296,371	2	61.46	35,459
10	8	1,286.35	897,454	7	507.00	292,880
11	8	1,625.68	1,134,196	6	506.00	292,152
12	3	953.53	665,254	4	428.00	247,150

Source: Bureau of Forest Development

TABLE 2.4 OTHER WOOD-BASED PANEL PLANTS: 1979

Region	Number	Type	Daily Rated Capacity	
			Square Feet	Metric Tons
Philippines	15	—	144,509	334
Luzon	4	—	37,586	50
NCR	2	Blockboard	27,986	—
	1	Particleboard	—	50
Region 1	—	—	—	—
2	1	Blockboard	9,600	—
3	—	—	—	—
4	—	—	—	—
5	—	—	—	—
Visayas	—	—	—	—
Region 6	—	—	—	—
7	—	—	—	—
8	—	—	—	—
Mindanao	11	—	106,923	284
Region 9	1	Blockboard	6,400	—
	1	Particleboard	—	24
10	3	Blockboard	48,996	—
	1	Fiberboard	—	260
11	3	Blockboard	21,848	—
12	2	Blockboard	29,679	—

Source: Presidential Committee on Wood Industry Development. (PCWID).

TABLE 2.5 WOOD TREATING PLANTS: 1979

Region	No. of Plant [1/]	Monthly Capacity (cu.m.)	Production (cu.m.)
TOTAL	18	55,220	28,260
NCR	–	–	–
1	–	–	–
2	2	7,960	500
3	1	3,000	6,000
4	3	15,360	11,000
5	–	–	–
6	1	2,280	300
7	2	2,280	500
8	–	–	–
9	1	2,200	60
10	3	11,000	7,000
11	4	8,440	2,000
12	1	2,700	900

[1/] Includes only those accredited by the National Electrification Administration (NEA)
Source: National Electrification Administration

TABLE 2.6 PASTURE LEASES AND PERMITS: 1979

Region	TOTAL		Leases		Permits	
	Number	Area (Ha.)	Number	Area (Ha.)	Number	Area (Ha.)
Philippines	3,633	967,026	1,807	812,517	1,826	154,509
Luzon	2,376	544,428	1,187	453,533	1,189	90,895
N C R	52	12,920	23	9,727	29	3,193
R – 1	672	78,290	163	57,090	509	21,200
2	604	131,800	289	103,118	315	28,682
3	346	133,649	271	124,205	75	9,444
4	533	146,220	352	125,774	181	20,446
5	169	41,549	89	33,619	80	7,930
Visayas	567	83,480	146	57,187	421	26,293
R – 6	459	54,720	120	42,603	339	12,117
7	98	22,886	18	8,828	80	14,058
8	10	5,874	8	5,756	2	118
Mindanao	690	339,118	474	301,797	216	37,321
R – 9	91	50,165	79	45,562	12	3,603
10	332	96,388	178	81,482	154	14,906
11	197	137,187	158	121,622	39	15,565
12	70	55,378	59	52,131	11	3,247

Source: Bureau of Forest Development

TABLE 2.6.1 NUMBER, AREA AND STATUS OF PASTURE LEASES BY REGION: 1979

(In hectares)

Region	TOTAL		Existing		With Application For Renewal		Expired Leases		Cancelled	
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
Philippines	1,807	812,517	689	328,508	91	31,169	959	392,596	68	60,244
N C R	23	9,727	6	1,499	–	–	17	8,228	–	–
R – 1	163	57,090	55	19,035	5	1,722	101	36,013	2	320
2	289	104,118	100	43,459	12	2,169	177	58,490	–	–
3	271	124,205	73	34,427	2	1,783	165	72,757	31	15,238
4	352	125,774	185	81,107	48	18,322	117	25,360	2	985
5	89	33,619	31	11,443	11	2,677	44	18,197	3	1,302
6	120	42,603	38	14,696	13	4,496	57	16,270	12	7,141
7	18	8,828	17	8,258	–	–	–	–	1	570
8	8	5,756	5	4,833	–	–	3	923	–	–
9	79	45,562	29	16,358	–	–	45	28,668	5	536
10	178	81,482	98	51,146	–	–	77	27,462	3	2,874
11	158	121,622	45	28,939	–	–	104	61,405	9	31,278
12	59	52,131	7	13,308	–	–	52	38,823	–	–

– None

Source: Range Management Section, Parks, Range and Wildlife Division.

TABLE 2.7 SPECIAL USE PERMITS AND LEASES BY REGION: 1979

(Area in Hectares)

Special Use/Permit/Lease	Philippines		N C R		R – 1		R – 2		R – 3		R – 4	
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
TOTAL	198	94,903	12	1,711	51	17,681	12	5,246	18	11,831	9	3,186
Permit												
Bathing Establishment	1	20	–	–	–	20	–	–	–	–	–	–
Communication Station Site	4	4	–	–	–	–	2	1	–	–	–	–
Log Pond	3	22	–	–	–	–	–	–	–	–	–	–
Mining Waste Disposal	3	148	–	–	1	100	–	–	–	–	–	–
Nipa Bacauan	2	60	–	–	–	–	–	–	–	–	–	–
Other Lawful Purposes	1	2	–	–	–	–	–	–	1	2	–	–
Prospecting Permit	40	44,098	1	162	15	15,957	1	4,834	11	9,657	1	400
Right-of-way	16	407	–	–	5	82	3	229	1	1	–	–
Sawmill Site	1	24	–	–	–	–	1	24	–	–	–	–
Lease												
Bathing Establishment	3	60	2	56	–	–	–	–	–	–	–	–
Communication Station Site	2	30	–	–	1	6	–	–	–	–	–	–
Industrial Tree Plantation	11	39,358	2	407	–	–	–	–	–	1,950	1	1,307
Log Pond	1	10	–	–	–	–	–	–	–	–	–	–
Lumber Yard	1	24	–	–	–	–	–	–	–	–	–	–
Medicinal Plantation	7	3,206	2	407	1	500	–	–	–	–	1	928
Mining Waste Disposal	1	309	1	309	–	–	–	–	–	–	–	–
Radio Station Site	1	1	–	–	1	1	–	–	–	–	–	–
Right-of-way	6	89	–	–	1	2	3	81	1	3	–	–
Saltworks	1	15	–	–	–	–	–	–	–	–	–	–
Sanatorium	1	6	–	–	1	6	–	–	–	–	–	–
Sawmill Site	1	24	–	–	–	–	–	–	–	–	–	–
Tree Farm	87	6,935	3	352	24	1,007	2	77	3	218	5	527
Other Lawful Purposes	4	51	1	18	–	–	–	–	–	–	1	24

Table 2.7 (cont'd.)

Special Use/Permit/Lease	R – 5		R – 6		R – 7		R – 8		R – 9	
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
TOTAL	10	2,534	42	2,267	7	72	3	5,082	8	3,720
Permit										
Bathing Establishment	–	–	–	–	–	–	–	–	–	–
Communication Station Site	–	–	–	–	1	2	–	–	–	–
Log Pond	–	–	–	–	–	–	–	–	3	22
Mining Waste Disposal	–	–	–	–	1	38	–	–	–	–
Nipa Bacauan	1	6	–	–	–	–	1	54	–	–
Other Lawful Purposes	–	–	–	–	–	–	–	–	–	–
Prospecting Permits	–	–	–	–	–	–	1	5,000	3	3,360
Right-of-way	–	–	–	–	1	4	1	28	1	14
Sawmill Site	–	–	–	–	–	–	–	–	–	–
Lease										
Bathing Establishment	–	–	–	–	1	4	–	–	–	–
Communication Station Site	–	–	–	–	–	–	–	–	–	–
Industrial Tree Plantation	1	1,030	1	371	–	–	–	–	–	–
Log Pond	–	–	–	–	–	–	–	–	–	–
Lumber Yard	–	–	–	–	–	–	–	–	–	–
Medicinal Plantation	–	–	1	371	–	–	–	–	–	–
Mining Waste Disposal	–	–	–	–	–	–	–	–	–	–
Radio Station Site	–	–	–	–	–	–	–	–	–	–
Right-of-way	–	–	1	3	–	–	–	–	–	–
Saltworks	–	–	–	–	1	15	–	–	–	–
Sanatorium	–	–	–	–	–	–	–	–	–	–
Sawmill Site	–	–	–	–	–	–	–	–	–	–
Tree Farm	8	1,498	39	1,552	–	–	–	–	1	324
Other Lawful Purposes	–	–	–	–	2	9	–	–	–	–

Table 2.7 (cont'd.)

Special Use/Permit/Lease	R – 10		R – 11		R – 12	
	No.	Area	No.	Area	NO.	Area
TOTAL	9	8,581	13	30,917	4	2,075
Permit						
Bathing Establishment	–	–	–	–	–	–
Communication Station Site	–	–	1	1	–	–
Log Pond	–	–	–	–	–	–
Mining Waste Disposal	–	–	1	10	–	–
Nipa Bacauan	–	–	–	–	–	–
Other Lawful Purposes	–	–	–	–	–	–
Prospecting Permits	1	486	3	2,967	3	1,275
Right-of-way	3	35	1	14	–	–
Sawmill Site	–	–	–	–	–	–
Lease						
Bathing Establishment	–	–	–	–	–	–
Communication Station Site	–	–	1	24	–	–
Industrial Tree Plantation	3	7,190	2	27,103	–	–
Log Pond	–	–	1	10	–	–
Lumber Yard	–	–	1	24	–	–
Medicinal Plantation	1	200	–	–	1	800
Mining Waste Disposal	–	–	–	–	–	–
Radio Station Site	–	–	–	–	–	–
Right-of-way	–	–	–	–	–	–
Saltworks	–	–	–	–	–	–
Sanatorium	–	–	–	–	–	–
Sawmill Site	–	–	1	24	–	–
Tree Farm	1	670	1	740	–	–
Other Lawful Purposes	–	–	–	–	–	–

Source: Utilization Division

TABLE 2.8 ORDINARY MINOR FOREST PRODUCTS LICENSES AND PERMITS: 1979

Product	Unit of Measure	Philippines		NCR		R – 1		R – 2		R – 3	
		No. of Licenses/ Permits	Allowable Cut	No. of Licenses/ Permits	Allowable Cut	No. of Licenses/ Permits	Allowable Cut	No. of Licenses/ Permits	Allowable Cut	No. of Licenses/ Permits	Allowable Cut
Mangrove Timber	cu. m.	10	37,746	2	216	–	–	–	–	–	–
Rattan (unsplit)	L. M.	107	5,842,500	2	30,000	–	–	11	320,500	20	675,000
Rattan (split)	Kilo	48	141,629	3	3,500	–	–	2	3,000	7	40,000
Orchid	Piece	1	500*	–	–	–	–	–	–	–	–
Palma Brava	Cu. m.	1	250	–	–	–	–	–	–	–	–
Tiger Grass (Tambo)	Bundle (30 cms./ bundle)	1	2,500	–	–	–	–	–	–	–	–
Tanbark	Kilo	1	100,000	–	–	–	–	–	–	–	–
Pine Oleoresin	Kilo	2	15,000	–	–	2	15,000	–	–	–	–
Almaciga	Kilo	13	93,000	–	–	–	–	7	53,000	–	–
Nipa Shingle	Piece	13	1,433,000	–	–	–	–	4	290,000	–	–
Boho	Piece	9	175,000	–	–	1	25,000	3	35,000	5	115,000
Nipa Sap	Liter	2	25,000	–	–	–	–	2	25,000	–	–
Diliman Vine	Kilo	2	900	–	–	–	–	–	–	–	–
Bamban	Kilo	3	1,160	–	–	–	–	–	–	–	–
Hingiw	Kilo	1	1,140	–	–	–	–	–	–	–	–

Table 2.8 (cont'd.)

Product	Unit of Measure	R – 4		R – 5		R – 6		R – 7		R – 8	
		No. of Licenses/ Permits	Allowable Cut	No. of Licenses/ Permits	Allowable Cut	No. of Licenses/ Permits	Allowable Cut	No. of Licenses/ Permits	Allowable Cut	No. of Licenses/ Permits	Allowable Cut
Mangrove Timber	cu. m.	2	27,690	–	–	–	–	–	–	–	-
Rattan (unsplit)	l. m.	2	145,000	4	150,000	–	–	–	–	5	207,000
Rattan (split)	kilo	2	2,000	6	14,550	7	4,879	–	–	2	7,000
Orchid	piece	–	–	–	–	–	–	–	–	–	-
Palma Brava	cu. m.	–	–	1	250	–	–	–	–	–	-
Tiger Grass (Tambo)	Bundle (30 cms./ bundle)	1	2,500	–	–	–	–	–	–	–	-
Tanbark	kilo	–	–	–	–	–	–	–	–	–	-
Pine Oleoresin	kilo	–	–	–	–	–	–	–	–	–	-
Almaciga	kilo	5	35,000	–	–	–	–	–	–	–	-
Nipa Shingle	piece	–	–	5	593,000	–	–	–	–	–	-
Boho	piece	–	–	–	–	–	–	–	–	–	-
Nipa Sap	liter	–	–	–	–	–	–	–	–	–	-
Diliman Vine	kilo	–	–	–	–	1	300	–	–	–	-
Bamban	kilo	–	–	–	–	3	1,160	–	–	–	-
Hingiw	kilo	–	–	–	–	1	1,140	–	–	–	-

Table 2.8 (cont'd).

PRODUCT	Unit of Measure	R – 9		R – 10		R – 11		R – 12	
		No. of Licenses / Permits	Allowable Cut	No. of Licenses/ Permits	Allowable Cuts	No. of Licenses / Permits	Allowable Cut	No. of Licenses/ Permits	Allowable Cut
Mangrove Timber	cu.m.	5	9,690	–	–	1	150	–	–
Rattan (unsplit)	l.m.	14	426,000	31	2,368,000	9	1,049,000	9	472,000
Rattan (split)	kilo	8	8,400	8	40,500	2	12,800	1	5,000
Orchid	piece	–	–	–	–	–	–	–	–
Palma Brava	cu. m.	–	–	–	–	–	–	–	–
Tiger Grass (Tambo)	bundle (30 cms./ bundle	–	–	–	–	–	–	–	–
Tanbark	kilo	1	100,000	–	–	–	–	–	–
Pine Oleoresin	kilo	–	–	–	–	–	–	–	–
Almaciga	kilo	–	–	1	5,000	–	–	–	–
Nipa Shingle	piece	1	120,000	1	30,000	–	–	2	400,000
Boho	piece	–	–	–	–	–	–	–	–
Nipa Sap	liter	–	–	–	–	–	–	–	–
Diliman Vine	kilo	1	600	–	–	–	–	–	–
Bamban	kilo	–	–	–	–	–	–	–	–
Hingiw	kilo	–	–	–	–	–	–	–	–

* – No breakdown per region since the permits cover the whole Philippines.
Source: Bureau of Forest Development.

TABLE 2.9 ROUNDWOOD PRODUCTION: FY 1969–70 TO 1971–72, CY 1973–79

(In Thousand Cubic Meters)

Year	Sawlogs/ Veneer Logs	Pulpwood	Fuelwood		Charcoal
			Mangrove	Upland	
FY 1969 – 1970	11,005	–	–	–	–
1970 – 1971	10,680	–	–	–	–
1971 – 1972	8,416	–	–	–	–
1972 – 1973	10,446	–	–	–	–
1973 – 1974	10,190	–	–	–	–
1974 – 1975	7,332	–	–	–	–
1975 – 1976	8,441	–	–	–	–
CY 1976	8,646	–	8	42	42
1977	7,873	152	23	52	3
1978	7,169	395	1	73	3
1979	6,578	443	16	156	5

Source: Bureau of Forest Development

TABLE 2.9.1 LOG PRODUCTION BY REGION AND MONTH: 1979

(In Cubic Meters)

REGION	TOTAL	January	February	March	April	May	June
Philippines	6,577,864	436,387	460,132	597,534	674,095	623,203	568,888
Luzon	1,374,819	40,500	55,815	135,456	177,053	157,983	150,256
NCR	–	–	–	–	–	–	–
Region 1	107,874	3,912	10,666	16,089	4,751	4,828	8,645
2	940,252	10,181	24,416	91,457	145,855	118,872	110,747
3	18,048	2,598	1,941	3,394	3,264	1,156	1,279
4	241,144	20,693	16,550	21,014	15,627	26,913	19,360
5	67,501	3,116	2,242	3,502	7,556	6,214	10,225
Visayas	588,172	41,235	40,159	55,792	47,306	57,344	55,961
Region 6	176,032	18,733	16,162	19,809	16,757	17,712	18,120
7	104,639	7,800	4,962	13,538	5,004	14,347	10,376
8	307,501	14,702	19,035	22,445	25,545	25,285	27,465
Mindanao	4,614,873	354,652	364,158	406,286	449,736	407,876	362,671
Region 9	634,042	51,726	58,401	62,373	70,575	63,701	50,317
10	1,298,251	72,879	88,128	123,237	117,010	108,613	88,974
11	1,951,163	157,679	141,829	148,263	165,559	156,385	163,956
12	731,417	72,368	75,800	72,413	96,592	79,177	59,424

Table 2.9.1 (cont'd.)

REGION	July	August	September	October	November	December
Philippines	547,103	604,256	591,947	530,996	487,911	455,412
Luzon	151,759	128,268	127,262	105,679	73,468	71,320
NCR	—	—	—	—	—	—
Region 1	8,271	9,859	13,211	12,388	7,172	8,082
2	116,721	100,304	87,770	60,277	51,535	22,117
3	3,727	221	—	468	—	—
4	14,609	12,644	20,681	24,433	10,520	38,100
5	8,431	5,240	5,600	8,113	4,241	3,021
Visayas	44,840	45,990	64,040	59,890	42,487	33,128
Region 6	16,640	14,515	16,939	16,784	3,861	—
7	7,377	8,247	8,247	8,247	8,247	8,247
8	20,823	23,228	38,854	34,859	30,379	24,881
Mindanao	350,504	429,998	400,645	365,427	371,956	350,964
Region 9	40,489	62,756	51,518	37,477	47,305	37,404
10	100,574	139,266	114,823	127,980	106,165	110,602
11	155,819	164,277	186,449	162,348	176,802	171,797
12	53,622	63,699	47,855	37,622	41,684	31,161

—None
Source: BFD Field Reports

TABLE 2.9.1 PERCENT DISTRIBUTION OF LOG PRODUCTION BY REGION PER SPECIES: 1979

SPECIES	TOTAL	LOG PRODUCTION (%)												
		NCR	R – 1	R – 2	R – 3	R – 4	R – 5	R – 6	R – 6	R – 8	R – 9	R – 10	R – 11	R – 12
Mayapis	100.0	18.7	–	9.7	–	0.1	9.3	–	–	12.2	7.5	11.2	9.6	21.7
Tanguile	100.0	11.2	–	6.6	17.2	0.1	8.8	7.8	13.7	5.9	19.3	2.9	4.2	2.3
Red Lauan	100.0	12.9	–	15.3	–	–	14.2	15.6	10.8	13.7	–	7.5	8.1	1.9
White Lauan	100.0	10.7	–	5.8	2.3	0.3	18.3	9.2	14.3	6.5	16.8	3.4	6.0	6.4
Guijo	100.0	51.2	–	17.8	1.2	0.6	–	–	–	–	5.0	–	19.2	5.0
Bagtikan	100.0	2.9	–	4.1	–	–	–	15.3	9.5	6.8	15.0	15.6	18.4	12.4
Apitong	100.0	1.4	–	2.3	24.2	41.4	4.5	5.6	3.7	2.8	2.4	6.2	4.1	1.4
Palosapis	100.0	8.4	–	13.5	–	–	34.8	–	–	43.3	–	–	–	–
Manggachapui	100.0	46.2	–	7.7	–	–	–	–	–	–	–	–	46.1	–
Benguet Pine	100.0	–	100.0	–	–	–	–	–	–	–	–	–	–	–
Almon	100.0	–	–	13.0	–	–	–	22.4	7.7	9.4	4.5	12.1	20.8	10.1
Narra	100.0	–	–	98.9	–	–	–	–	–	–	–	–	1.1	–
Supa	100.0	–	–	100.0	–	–	–	–	–	–	–	–	–	–
Binuang	100.0	–	–	46.6	–	22.4	–	–	–	–	–	13.8	15.5	1.7
Nato	100.0	–	–	4.3	–	7.8	–	–	35.3	32.8	–	3.4	7.8	8.6
Kalumpit	100.0	–	–	100.0	–	–	–	–	–	–	–	–	–	–
Kalantas	100.0	–	–	6.9	–	41.9	–	–	–	–	–	–	27.9	23.3
Yakal	100.0	–	–	1.6	–	–	2.4	–	–	13.2	–	72.9	9.9	–
Dao	100.0	–	–	99.9	–	–	–	–	–	–	–	–	0.1	–
Bansalagin	100.0	–	–	100.0	–	–	–	–	–	–	–	–	–	–
Amugis	100.0	–	–	–	–	97.6	–	–	–	–	–	–	2.4	–
Malugai	100.0	–	–	–	–	96.7	–	–	–	–	–	–	3.3	–
Ipil	100.0	–	–	–	–	100.0	–	–	–	–	–	–	–	–
Akleng Parang	100.0	–	–	–	–	100.0	–	–	–	–	–	–	–	–
Dungon	100.0	–	–	–	–	100.0	–	–	–	–	–	–	–	–
Bago	100.0	–	–	–	–	100.0	–	–	–	–	–	–	–	–
Kupang	100.0	–	–	–	–	100.0	–	–	–	–	–	–	–	–
Alupag	100.0	–	–	–	–	50.0	–	–	–	–	–	–	50.0	–
Pahutan	100.0	–	–	–	–	100.0	–	–	–	–	–	–	–	–
Dita	100.0	–	–	–	–	100.0	–	–	–	–	–	–	–	–
Batino	100.0	–	–	–	–	100.0	–	–	–	–	–	–	–	–
Palomaria	100.0	–	–	–	–	100.0	–	–	–	–	–	–	–	–
Anaplan	100.0	100.0	–	–	–	100.0	–	–	–	–	–	–	–	–

Table 2.9.2 (cont'd.)

SPECIES	TOTAL	LOG PRODUCTION (%)												
		NCR	R – 1	R – 2	R – 3	R – 4	R – 5	R – 6	R – 7	R – 8	R – 9	R – 10	R – 11	R – 12
Marang	100.0	100.0	–	–	–	–	–	–	–	–	–	–	–	–
Kamatog	100.0	100.0	–	–	–	–	–	–	–	–	–	–	–	–
Makaasim	100	22.2	–	–	–	–	–	77.8	–	–	–	–	–	–
Taguilumboy	100.0	–	–	–	–	–	–	100.0	–	–	–	–	–	–
Gubas	100.0	–	–	–	–	–	–	–	–	–	–	98.4	1.6	–
Banlag	100.0	–	–	–	–	–	–	–	–	–	–	100.0	–	–
Kalunti	100.0	–	–	–	–	–	–	–	–	–	–	–	100.0	–
Lanutan	100.0	–	–	–	–	–	–	–	–	–	–	–	100.0	–
Toog	100.0	–	–	–	–	–	–	–	–	–	–	–	100.0	–
Aguho	100.0	–	–	–	–	–	–	–	–	–	–	–	100.0	–
Manggasinuro	100.0	–	–	–	–	–	–	–	–	–	–	–	100.0	–
Molave	100.0	–	–	–	–	–	–	–	–	–	–	–	100.0	–
Narek	100.0	–	–	–	–	–	–	–	–	–	–	–	100.0	–
Balete	100.0	–	–	–	–	–	–	–	–	–	–	–	100.0	–
Malakawayan	100.0	–	–	–	–	–	–	–	–	–	–	–	–	100.0
Igem	100.0	–	–	–	–	–	–	–	–	–	–	–	–	100.0
Bayok	100.0	–	–	–	–	–	–	–	–	–	–	–	–	100.0
Loctob	100.0	–	–	–	–	–	–	–	–	–	–	–	–	100.0
Lamio	100.0	–	–	–	–	–	–	–	–	–	–	–	–	100.0
Others	100.0	1.3	3.8	4.5	32.2	12.7	–	–	6.0	11.4	–	14.4	8.7	5.0

Source: Bureau of Forest Development, Report of Licensees.

TABLE 2.9.3 PERCENT DISTRIBUTION OF LOG PRODUCTION BY SPECIES PER REGION: 1979

SPECIES	Log Production (%)												
	NCR	R – 1	R – 2	R – 3	R – 4	R – 5	R – 6	R – 7	R – 8	R – 9	R – 10	R – 11	R – 12
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mayapis	26.6	–	13.7	–	0.2	13.1	–	–	17.2	10.6	15.8	13.5	30.6
Tanguile	24.8	–	14.6	38.0	0.3	19.4	17.3	30.3	13.0	42.8	6.5	9.2	5.2
Red Lauan	21.4	–	25.4	–	–	23.6	25.9	17.9	22.8	–	12.4	13.7	3.2
White Lauan	15.5	–	8.4	3.3	0.4	26.5	13.3	20.7	9.4	24.3	5.0	8.7	9.2
Guijo	4.0	–	1.4	0.1	0.1	–	–	–	–	0.4	–	1.5	0.4
Bagtikan	2.7	–	3.8	–	–	–	14.1	8.7	6.3	13.8	14.4	16.9	11.3
Apitong	2.4	–	3.9	41.6	71.2	7.8	9.6	6.3	4.9	4.2	10.6	7.1	2.4
Palosapis	1.3	–	2.6	–	–	5.4	–	–	6.7	–	–	–	–
Manggachapui	0.6	–	0.1	–	–	–	–	–	–	–	–	0.1	–
Benguet Pine	–	98.0	–	–	–	–	–	–	–	–	–	–	–
Almon	–	–	11.5	–	–	–	19.8	6.8	8.3	3.9	10.7	18.4	8.9
Narra	–	–	4.6	–	–	–	–	–	–	–	–	.0	–
Supa	–	–	3.4	–	–	–	–	–	–	–	–	–	–
Binuang	–	–	2.7	–	1.3	–	–	–	–	–	0.8	0.9	0.1
Nato	–	–	0.5	–	0.9	–	–	4.1	3.8	–	0.4	0.9	1.0
Kalumpit	–	–	0.4	–	–	–	–	–	–	–	–	–	1.0
Kalantas	–	–	0.3	–	1.8	–	–	–	–	–	–	1.2	–
Yakal	–	–	0.2	–	–	0.3	–	–	1.6	–	8.7	1.2	–
Dao	–	–	0.1	–	–	–	–	–	–	–	–	.0	–
Bansalangin	–	–	.0	–	–	–	–	–	–	–	–	0.1	–
Amugis	–	–	–	–	4.1	–	–	–	–	–	–	–	–
Malugai	–	–	–	–	5.8	–	–	–	–	–	–	0.2	–
Ipil	–	–	–	–	3.2	–	–	–	–	–	–	–	–
Akleng Parang	–	–	–	–	0.8	–	–	–	–	–	–	–	–
Dungon	–	–	–	–	0.8	–	–	–	–	–	–	–	–
Bago	–	–	–	–	1.3	–	–	–	–	–	–	–	–
Kupang	–	–	–	–	0.4	–	–	–	–	–	–	–	–
Alupag	–	–	–	–	0.2	–	–	–	–	–	–	0.2	–
Pahutan	–	–	–	–	0.2	–	–	–	–	–	–	–	–
Dita	–	–	–	–	0.1	–	–	–	–	–	–	–	–

Table 2.9.3 (cont'd.)

SPECIES	Log Production (%)												
	NCR	R – 1	R – 2	R – 3	R – 4	R – 5	R – 6	R – 7	R – 8	R – 9	R – 10	R – 11	R – 12
Batino	–	–	–	–	0.1	–	–	–	–	–	–	–	–
Palomaria	–	–	–	–	0.1	–	–	–	–	–	–	–	–
Anaplan	–	–	–	–	0.1	–	–	–	–	–	–	–	–
Marang	–	–	–	–	–	2.2	–	–	–	–	–	–	–
Kamatog	–	–	–	–	–	1.3	–	–	–	–	–	–	–
Makaasim	–	–	–	–	–	0.4	–	1.4	–	–	–	–	–
Taguilumboy	–	–	–	–	–	–	–	0.6	–	–	–	–	–
Gubas	–	–	–	–	–	–	–	–	–	–	6.2	0.1	–
Banglad	–	–	–	–	–	–	–	–	–	–	0.9	–	–
Kalunti	–	–	–	–	–	–	–	–	–	–	–	1.0	–
Lanutan	–	–	–	–	–	–	–	–	–	–	–	0.2	–
Toog	–	–	–	–	–	–	–	–	–	–	–	0.1	–
Agoho	–	–	–	–	–	–	–	–	–	–	–	0.1	–
Manggasinoro	–	–	–	–	–	–	–	–	–	–	–	0.1	–
Molave	–	–	–	–	–	–	–	–	–	–	–	.0	–
Narek	–	–	–	–	–	–	–	–	–	–	–	.0	–
Balete	–	–	–	–	–	–	–	–	–	–	–	.0	–
Malakawayan	–	–	–	–	–	–	–	–	–	–	–	–	14.1
Igem	–	–	–	–	–	–	–	–	–	–	–	–	6.6
Bayok	–	–	–	–	–	–	–	–	–	–	–	–	0.9
Loktob	–	–	–	–	–	–	–	–	–	–	–	–	0.8
Lamio	–	–	–	–	–	–	–	–	–	–	–	–	1.6
Others	2.0	2.4	17.0	6.6	0.7	–	–	3.2	6.0	–	7.6	4.6	2.7

0 – Less than 0.1

Source: Report of Licensees, Bureau of Forest Development.

TABLE 2.9.4 PRODUCTION OF PULPWOOD, POLES & PILES, FUELWOOD AND CHARCOAL BY REGION: 1979

REGION	Pulpwood (cu.m.)	Poles & Piles (cu.m.)	Fuelwood		Charcoal (cu.m.)
			Upland (cu.m.)	Mangrove (cu.m.)	
TOTAL	442,892	17,516	156,395	16,443	4,795
1	14,476	188	5,576	–	2,100
2	–	409	–	–	–
3	–	–	1,099	–	120
NCR	–	–	645	1,684	1,728
4	–	473	3,403	12,179	25,750*
5	–	–	564	297	–
6	56	70	12,773	1,418	11,823*
					822
7	–	–	25,220**	–	–
8	–	1,997	20	–	–
9	–	–	–	721	–
10	74,483	10,301	–	–	–
11	353,877	4,078	130,936	144	–
12	–	–	1,379	–	25

* In kilos

** Includes mangrove fuelwood and charcoal

Source: BFD Field Reports.

TABLE 2.10 LUMBER PRODUCTION BY REGION AND MONTH: 1979

(In cubic meters)

Region	TOTAL	January	February	March	April	May	June
Philippines	1,626,115	132,641	121,014	143,465	150,446	155,198	161,877
N C R	48,026	4,819	2,958	2,642	1,763	3,798	2,900
R – 1	102,695	53,064	5,238	3,315	3,400	3,843	4,862
2	397,145	11,805	20,189	35,538	36,446	40,494	45,132
3	92,190	3,850	6,744	6,549	5,580	6,318	12,321
4	12,490	559	429	690	383	500	61
5	7,395	108	141	713	1,073	985	151
6	113,408	12,888	10,845	12,893	11,340	12,515	14,087
7	45,804	4,858	3,242	2,961	2,745	2,745	5,946
8	48,164	3,378	3,909	4,041	7,342	4,089	3,753
9	46,612	3,014	3,248	1,160	5,636	2,497	2,133
10	222,702	15,194	19,281	25,077	25,008	34,773	24,214
11	377,008	3,221	32,810	32,952	32,963	34,357	38,543
12	112,476	15,883	11,980	14,934	16,767	8,284	7,774

Table 2.10 (cont'd.)

Region	July	August	September	October	November	December
Philippines	134,780	158,669	148,964	144,938	114,523	59,600
N C R	2,787	5,984	3,415	8,417	4,120	4,423
R — 1	5,554	5,103	5,714	4,106	4,255	4,241
2	45,347	41,224	36,828	29,593	33,387	21,162
3	10,774	13,633	4,276	9,631	11,396	1,118
4	1,164	2,647	1,998	1,413	1,497	1,149
5	—	—	—	—	1,731	2,493
6	11,372	9,841	9,726	7,901	—	—
7	5,573	3,865	6,361	7,226	—	282
8	3,855	7,874	3,756	4,976	298	893
9	5,098	8,062	4,671	4,615	4,483	1,995
10	3,800	11,957	24,101	18,205	20,006	1,086
11	30,921	39,560	40,855	37,723	33,350	19,753
12	8,535	8,919	7,263	11,132	—	1,005

Source: Bureau of Forest Development

TABLE 2.11 PLYWOOD PRODUCTION BY REGION AND MONTH: 1979

(In Cubic Meters)

Region	TOTAL	January	February	March	April	May	June
Philippines	502,674	43,467	41,691	51,434	49,285	53,022	39,878
Luzon	46,268	1,727	2,189	3,929	3,067	5,246	5,974
N C R	11,545	–	120	383	–	3,003	1,286
R – 1	–	–	–	–	–	–	–
2	34,723	1,727	2,069	3,546	3,067	2,243	4,688
3	–	–	–	–	–	–	–
4	–	–	–	–	–	–	–
5	–	–	–	–	–	–	–
Visayas	–	–	–	–	–	–	–
R – 6	–	–	–	–	–	–	–
7	–	–	–	–	–	–	–
8	–	–	–	–	–	–	–
Mindanao	456,406	41,740	39,502	47,505	46,218	47,776	33,904
R – 9	41,871	3,468	–	3,433	3,465	3,852	–
10	110,196	11,226	10,665	12,924	12,202	12,306	8,052
11	166,255	10,855	14,798	12,849	14,281	14,098	14,674
12	138,084	16,191	14,039	18,299	16,270	17,520	11,178

Table 2.11 (cont'd.)

Region	July	August	September	October	November	December
Philippines	37,611	39,494	45,254	40,330	33,916	27,292
Luzon	4,246	6,819	4,238	4,648	1,891	2,294
N C R	–	2,702	1,726	2,100	225	–
R – 1	–	–	–	–	–	–
2	4,246	4,117	2,512	2,548	1,668	2,294
3	–	–	–	–	–	–
4	–	–	–	–	–	–
5	–	–	–	–	–	–
Visayas	–	–	–	–	–	–
R – 6	–	–	–	–	–	–
7	–	–	–	–	–	–
8	–	–	–	–	–	–
Mindanao	33,365	32,675	41,016	35,682	32,025	24,998
R – 9	3,771	4,330	10,872	3,195	3,187	2,298
10	5,697	3,636	7,576	9,856	9,384	6,672
11	13,949	15,764	15,851	14,927	14,398	9,811
12	9,948	8,945	6,717	7,704	5,056	6,217

* – None
Source: BFD Field Reports

TABLE 2.12 VENEER PRODUCTION BY REGION AND MONTH: 1979

(In Cubic Meters)

Region	TOTAL	January	February	March	April	May	June
Philippines	633,940	50,207	56,053	56,599	52,444	54,299	61,635
Luzon	52,158	4,168	3,626	5,897	3,391	4,093	5,326
N C R	–	–	–	–	–	–	–
R – 1	–	–	–	–	–	–	–
2	51,871	4,168	3,626	5,897	3,299	4,017	5,268
3	–	–	–	–	–	–	–
4	287	–	–	–	92	76	58
5	–	–	–	–	–	–	–
Visayas	–	–	–	–	–	–	–
R – 6	–	–	–	–	–	–	–
7	–	–	–	–	–	–	–
8	–	–	–	–	–	–	–
Mindanao	581,782	46,039	52,427	50,702	49,053	50,206	56,309
R – 9	7,404	588	–	512	402	672	–
10	168,671	15,804	14,185	15,007	12,534	16,513	16,111
11	285,013	18,163	25,670	21,506	25,634	24,401	23,396
12	120,694	11,484	12,572	13,677	10,483	8,620	16,802

Table 2.12 (cont'd.)

Region	July	August	September	October	November	December
Philippines	53,530	48,986	56,179	51,545	55,039	37,424
Luzon	5,304	5,194	4,568	3,465	3,958	3,168
N C R	–	–	–	61	–	–
R – 1	–	–	–	–	–	–
2	5,304	5,194	4,568	3,404	3,958	3,168
3	–	–	–	–	–	–
4	–	–	–	–	–	–
5	–	–	–	–	–	–
Visayas	–	–	–	–	–	–
R – 6	–	–	–	–	–	–
7	–	–	–	–	–	–
8	–	–	–	–	–	–
Mindanao	48,226	43,792	51,611	48,080	51,081	34,256
R – 9	1,149	1,409	294	752	867	759
10	8,996	13,355	14,438	14,296	16,680	10,752
11	23,184	24,628	25,915	26,007	28,020	18,489
12	14,897	4,400	10,964	7,025	5,514	4,256

– None
Source: BFD Field Reports

TABLE 2.13 PRODUCTION OF PAPER, PAPERBOARD AND OTHER WOOD-BASED PANELS: 1974 – 1979

(In Metric Tons)

Year	Paper	Paperboard	Fiberboard	Particleboard	Blockboard
1974	136,760	–	65,059	6,749	11,279
1975	105,068	26,209	62,301	427	10,821
1976	157,068	26,995	51,381	30	19,355
1977	180,879	31,273	53,963	234	19,293
1978	170,059	30,393	61,216	1,111	14,505
1979	295,772*	29,993*	69,150	121	12,454

* Out of 16 member firms, only 5 makes use of local raw materials.

Source: PULPAPEL

TABLE 2.14 MINOR FOREST PRODUCTS PRODUCTION: 1973 – 1979

(Unit in thousand)

Product	Unit of Measure	1979	1978	1977	1976	1975	1974	1973
Almaciga resin	kilo	317	618	648	375	411	863	772
Buri midrib	kilo	4	29	22	–	75	75	6
Diliman	kilo	2	11	3	3	11	13	8
Manila elemi (Gum)	kilo	–	–	–	–	106	461	299
Oleo resin	kilo	216	204	46	142	261	164	206
Tanbark	kilo	41	21	131	500	823	589	394
Rattan (split)	kilo	1,055	187	66	139	159	143	86
Rattan (Unsplit)	LM*	10,628	6,884	3,751	3,599	7,450	4,181	5,900
Bamboo & Boho	Piece	1,769	426	787	76	212	184	129
Nipa Shingle	Piece	809	1,492	736	109	1,049	684	903
Nipa sap	Liter	–	10	25	–	12	202	12
	Kilo	244	110	196	–	211	114	300
Others	Piece	–	37	3	–	285	20	46

* Linear Meter

– None

Source: BFD

TABLE 2.14-1 PRODUCTION OF SELECTED MINOR PRODUCTS BY REGION: 1979

PRODUCT	Unit of Measure	TOTAL	NCR	R – 1	R – 2	R – 3	R – 4	R – 5
Almaciga	Kilo	316,839	11,620	–	8,572	63,650	225,147	–
Bamboo & Boho	Piece	1,768,742	515,538	308,461	3,200	313,750	290	–
Beeswax & Honey	Kilo	53,447	1,341	–	–	–	51,406	–
Nipa Shingle	Piece	809,450	96,650	–	89,000	8,400	27,800	63,000
Oleo resin	Kilo	216,233	–	204,410	–	350*	–	–
Rattan (Split)	Kilo	1,054,898	43,700	–	725	10,710	888,788	644
Rattan (Unsplit)	LM	10,628,280	566,757	4,000	36,767	1,761,659	287,165	61,093
Tanbark	Kilo	41,100	–	–	–	–	4,500	–
Salago bark	Kilo	190,840	–	–	–	–	–	–

PRODUCT	Unit of Measure	R – 6	R – 7	R – 8	R – 9	R – 10	R – 11	R – 12
Almaciga	Kilo	850	–	5,000	–	2,000	–	-
Bamboo & Boho	Piece	800	3,604	–	–	111,191	403,848	108,060
Beeswax & Honey	Kilo	–	–	–	–	–	–	700
Nipa Shingle	Piece	15,550	102,000	–	30,000	244,050	403,000**	133,000
Oleo resin	Kilo	11,823	–	–	–	–	–	–
Rattan (Split)	Kilo	915	–	700	5,490	54,023	41,253	7,950
Rattan (Unsplit)	LM	4,683	–	167,900	107,773	4,215,300	2,351,163	1,064,020
Tanbark	Kilo	–	–	–	–	–	9,600	–
Salago bark	Kilo	–	190,840	–	–	–	–	–

* – Unit of measurement in plastic bag, not included in the total.

** – Unit of measurement in kilo, not included in the total.

Source: Bureau of Forest Development

TABLE 2.15 ESTIMATED VOLUME OF LOGGING WASTES AND RESIDUES BY REGION: 1979

Region	TOTAL	FORM OF LOGGING WASTE				
		Damaged Residuals	Tops and Branches	Stumps	Abandoned Logs	Butt Trimmings
Philippines	5,262,291	2,631,148	1,776,023	526,228	197,336	131,556
Luzon	1,099,855	549,929	371,201	109,985	41,244	27,496
R – 1	86,299	43,150	29,126	8,630	3,236	2,157
2	752,202	376,101	253,868	75,220	28,208	18,805
3	14,438	7,219	4,873	1,444	541	361
NCR	–	–	–	–	–	–
4	192,915	96,458	65,109	19,291	7,234	4,823
5	54,001	27,001	18,225	5,400	2,025	1,350
Visayas	470,538	235,270	158,806	47,054	17,645	11,763
R – 6	140,826	70,413	47,529	14,083	5,281	3,520
7	83,711	41,856	28,252	8,371	3,139	2,093
8	246,001	123,001	83,025	24,600	9,225	6,150
Mindanao	3,691,898	1,845,949	1,246,016	369,189	138,447	92,297
R – 9	507,233	253,617	171,191	50,723	19,021	12,681
10	1,038,601	519,300	350,528	103,860	38,948	25,965
11	1,560,930	780,465	526,814	156,093	58,535	39,023
12	585,134	292,567	197,483	58,513	21,943	14,628

Source: Projection based on log production and study of FORPRIDECOM.