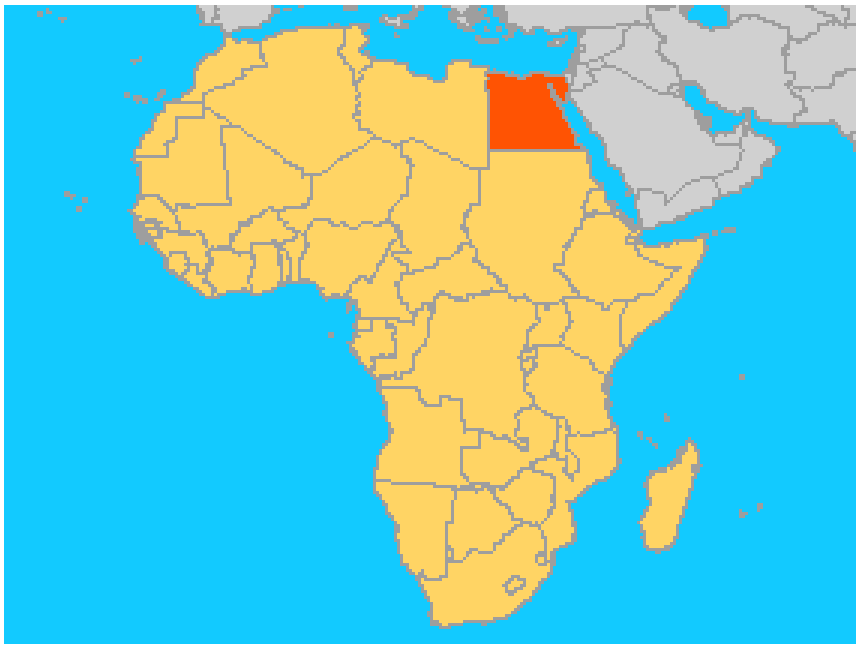
Forestry Outlook Studies in Africa (FOSA)

EGYPT



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This paper has been minimally edited for clarity and style.

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SUMMARY

Total land area (ha)	**99,545**
Total natural forest area 1995 (ha) / % of total land	**34,000 / 0,03%**
Annual deforestation 1990-1995 (ha)	**0**
Population 1997 (millions)/Annual Growth Rate 1995-2000	**64,5 / 1,9%**
Rural population 1993	**55%**
Gross Domestic Product (GDP per capita) 1995 US$	**820**

The recent period witnessed large scale political moves on both the regional and the international levels, in particular aiming to strengthen the economic relations between Egypt and other friendly countries. The government is making a lot of efforts to attract foreign investors in different economic fields. In 1996, the GDP grew by 3.5 %. The objective of the Government is to increase the growth rate of GNP to 5 % annually. Exports increased to US$ 4.5 billion and imports reached US $ 11 billion.

Since desert area covers 96 % of the total land area of the country, the maintenance and enhancement of the productivity of existing agricultural land and the increase in the area of land available for cultivation through desert reclamation are important development priorities for Egypt.
Agriculture plays a vital role in Egypt's socio-economic development, providing employment to more than 40 % of the active labor force, contributing about 20 % of the Growth Domestic Product and accounting for about 30 % of the nation's total exports. Most of food and field crops productions have increased and the gross agricultural products reached 30 % of state budget for 1996. Major innovations in the agricultural sector include Al Wadi Al Gadid Canal, Which will transfer water to the southern areas of Egypt in the New Valley from Lake Nasser behind Aswan Dam, and Al Salam Canal which would cross Suez Canal to North Sinai.

The government has prepared an environmental action plan that served as the basis for a comprehensive Environmental Law. The action programme emphasized the need to strengthen the institutional framework at the central government and provincial levels, and recommended extensive technical assistance and training to improve the capacity of the Egyptian Environmental Affairs Agency. The government has embarked on a programme to strengthen its institutional framework to improve natural resource management and to combat environmental degradation.

The environmental action plan also calls for policy reforms to create a milieu within which market forces can generate incentives for efficient utilisation of natural resources and protecting the environment. The plan recommends giving initial emphasis to the water and waste-water sectors, and problems of soil, land, and air pollution.

Area of forest plantations (i.e. shelterbelts, windbreaks, and strip plantings, woodlots, on-farm trees) is approximately 34,000 ha (0.03 % of the country area). Casuarinas, eucalyptus and acacia species dominate the plantations. Other species include tamrix, poplar, mulberry, Prsopsis spp, Dalbergia sissoo and Salix spp. Most of tree plantations in Egypt are irrigated windbreaks that receive water with the field crops they protect. Some of round-wood (i.e. industrial round-wood and fuel-wood and charcoal) is produced from forest plantations (2.4 m m3. in 1993). The country depends heavily on imported timber. A number of pulp and paper mills, composite board mills, plywood, and sawmills exist using local woods and a large amount of imported ones.

Private forests are very limited in Egypt and monetary incentives such as grant or loans for stablishing and maintaining private forests are not practised in Egypt. However, there are numerous private nurseries. There are also few private woodlots being established by some companies with private financial aid mostly for wood industries.

INTRODUCTION

In ancient ages, Egypt was considered as one of the forest zones, due to the dense tree-cover extended over most of the lands. The production of the said trees was sufficient for pottery industry, plus other small mining industries that prevailed in these times, particularly during the period of the Nile flood on both banks of the river.

There are many justifications supporting this idea, mainly the excavations and the monuments found in Assiut governorate, Saqqara Necropolis and Tel AI-Amarna In Upper Egypt.

Also Sinai peninsula was very rich in its forest cover, and this is justified by the numerous names given to the dry valleys scattered on this desert.

Moreover, the historic records refer to the existence of a developed system for forest management in ancient Egypt, established during the 11th century A.D. to include the governorates of Beni-Swelf, Menya, Suhag and Asswan at the said era, where total area of the forest in the South of the valley exceeded 19 thousand feddans (8 Heetars).

Furtherinore, the said records refer to the fact that the highest rate of forest tree-cutting in Egypt took place during the Ayobeed Era (where more than 12,000 trees were cut down in a rather short time span, of which 9,500 In Qualiobeya governorate alone).

This proves that forest eradication was done by man and not due to the climatic or environmental changes.

THE FOREST HABITAT IN EGYPT, (Location & Area)

Egypt occupies the north-eastern corner of Africa between latitudes; 22 & 32 North, and altitudes 25 & 37 East. Its total area about 1.002,000 Km2., representing 3% of the total area of the African continent. lt's natural boundarles (borders) are, the Mediterranean from the North, the Sudan from the South, Lybia from the West, and Aqqaba Gulf, Red Sea & Palestine from the East.

Climate :

Egypt's climate can be classified according to the three main zones:

- Mediterranean basin.
- The desert zone.
- The semi-desert zone.

The Mediterranean climate is characterized by a hot-dry summer, and a warm winter. However, according to the climatic data, we find that the southern part of the country is characterized by its continental climate, where the range in temperature between day and night, or summer and winter is very wide. For instance, the temperature in summer time goes up to 42 and on winter it goes down to 13. While, the maximum temperature prevailing in the areas close or adjacent to the Mediterranean is about 30 in summer and 18 in winter.

Rainfall :

Rainfall is very scarce, with an annual average of 10 mm., mainly during winter months, i.e., December & January, which is concentrated on the northern part of the country (between 150 - 200 mm.), and decreases gradually as we go southward reaching around 24 mm. on Cairo and as little as 1,5 mm. on Aswan.

Humidity:
It is high on the northern part of the country (between 70 - 72%) during summer months and decreases gradually upwards as we bead towards Upper Egypt till it reaches 13% in the south of the valley at Asswan.

CURRENT STATUS OF THE FOREST SECTOR

The Arab Republic of Egypt is internationally committed and signed to the agreements of environment protection and preserving the natural resources. It also attaches great importance to afforestation activities, especially, depending on treated sewage water, plus its numerous achievements accomplished in the realm of land reclamation and desert rehabilitation, the best example on that is the currently executed giant project in TOUSHKI to develop the south of the valley. However, it suffers from desertification and the shortage in timber wood production. Thus, lt. imports big quantities of woods.

Accordingly, the Ministry of Agriculture and Land Reclamation gave paramount importance to all afforestation processes, and laid down the development plans and the agricultural legislation aiming at magnifying the afforestated (green) stretch, through applying the following:

- Increasing the number of trees used as windbreaks, especially in the newly reclaimed areas, graduate youth-villages and new settlement cites.
- Using treated sewage water In establishing forest-plantations (man-made forests).
- Selecting some poplar varieties, plus some of the fast growing timber trees and expanding its cultivation as well as the cultivation of the multi-purposes trees that suits the Egyptian conditions.
- Introducing many of the new timber tree varieties to boost and support the State's Afforestation Plan. For example, many expansions took place in the realm of establishing timber trees nurseries which is now 25 new nursery on the Republic level distributed among all governorates where propagation and reproduction of newly introduced varieties takes place, namely: (Neem, Polonia, Jatropha, Pinus, Cupressus), plus some new sp. of Poplar which suit the Egyptian conditions and also tolerant to soil and water salinity, pests and diseases, especially pourers.
- Using new advanced techniques in irrigating and propagating timber trees.
- Expansion in planting tropical trees in Upper Egypt like; Khaya, Teak & Neem.

Moreover, the Undersecretariat for Afforestation and Environment, MALR has directed its efforts towards establishing new forest-plantations (man-made forests) depending on the application of the new irrigation techniques, i.e. drip-irrigation, modified surface irrigation and using treated sewage water produced from the Sanitary Treatment Stations (plants) adjacent to the desert areas to be afforestated, with a view to environment protection from the hazard of polluted and contaminated sewage water, plus exploiting the said treated waste water in the production of valuable timber resource to fill the gap of the local (domestic) market requirements, and to secure the underground water reservoir from contamination, in addition to the environmental dimension and the socio-economic dimension for the said forests including,

improving the climatic conditions in the area, plus finding and creating job-opportunities for the altizens living in it or in the vicinity. (A statement on the areas of already established forest plantations is attached).

TYPES AND DENSITY OF TREE-COVER EXISTING (PREVAILING):

Due to the prevailing climatic conditions in Egypt, particularly, the scarcity of rain, the chance of having natural forests is nil. Accordingly, it was a must for the Ministry of Agriculture and Land Reclamation represented in its line-Undersecretariat for Afforestation and Environment to direct its efforts to develop and upgrade the afforestation process in Egypt as follows :

First : expansion in afforestating the water courses, drains and roads by means of using modern and up-to-date technologies, In view of increasing the timber resources through introducing new and high-economic value varieties,, (e.g., Cupressus, Pinus, Poplar & Taxodium) as windbreaks and as shades to south the high temperature degrees.

Second : Introducing new fast growing Eucalyptus varieties, characterized by dense blossoming (high rate), so as to use its flowers as non-timber products as well as for rearing and breeding honey-bees. This, plus introducing two new varieties of Mal-Berries namely; Kanya 2 (morus alba vm5) & Kokozo 20, with the aim of encouraging and developing natural silk industry in the Egyptian villages and rural areas.

Consequently, the range of activities rendered by the Undersecretariat for Afforestation and Environment became wider, with variable plans.

Third : In addition to the aforementioned, the Undersecretarlat for Afforestation and environment MALR has upgraded and established 25 nurseries for timber trees distributed all over the Republic's governors. The average nursery area ranges between 3 - 5 feddans to magnify the production of seedlings annually with nearly 1,5 million plantations. Also many of the Pinus varieties were propagate and reproduced in such nurseries, as well as some of the poplar varieties, in addition to numerous imported varieties which is high-resistant to salinity and infection with pourers. This, in addition to the expansion in propagating Polonia and Jatropha trees too.

CURRENT USAGE OF TIMBER PRODUCTS

- Environment protection from pollution.
- Exploiting and using treated sewage water.
- The production of some non-timber products like, (Honey bees rearing, silk worm breeding, glue production, etc.).
- Some of the produced timber is being used in some of the domestic small industries like, Cartoon (boxes) production, packaging, char-coal, fuel & green-forage).
- Some of the trees and shrubs are used far sand-dunes fixation, and as wind- breaks.
- Some species of Acacia are used as forage and pasture crops, especially in the north-west coast and Sinai.

- The production of Arabic gum (glue) from some trees growing in the South of the valley region.
- Manufacturing and processing of some wood types namely, pressed wood and Aplackage, plus the production of furniture and packing boxes or cartoons.
- The production of botanical (plant) coal as a fuel used In some domestic and local industries.

FOREST CONTRIBUTION TO LOCAL AGRICULTURAL PRODUCTION

The area under forest In Egypt is estimated at 2500 Hectare, mostly planted with Casuarina, Eucalyptus, Cupressus, Pinus and Khaya trees planted by both the governmental and the private sectors for purposes of protecting soils, water-courses and farms from winds and storms.

Research results indicate that wind-breaks under the conditions of reclaimed areas in Egypt, lead to a positive impact on the return (revenue) of field crops amounting to 33,3% and 25,2% for fruit crops. Also, the produced wood is used for supplying the saw-mills, workshops and factories producing wood-sheets, aplakage, furniture and paper.

Also, the shrubs are used for grazing as pastures for rearing goats and sheep, especially in the north-western coast region of the country. It is worthy noting that the total area under forest in Egypt represents about 0,01% of the total area of the Republic, and that the area under timber trees represents around 5% of the irrigated lands as wind-breaks.

POSITIVE CONTRIBUTION IN THE FORESTRY SECTOR

- The man-made forests established in Egypt play a role of paramount importance in improving the climatic conditions in the afforestated desert areas.
- It also decreases the chances of pollution by excessive quantities of sewage water.
- It stops desertification and protects farms of the agricultural areas adjacent to these forests.
- It provides work-opportunities for the citizens living the vicinity and nearby areas.
- It creates an environmental balance by offering the chance for wild birds and animate to live and reproduce.
- Some of the woods produced from pruning are used as fuel.

As for the pasture lands, some of the citizens are raising goats and sheep herds on the Acacia trees grown, especially in the north-western coast in the governors of Matrooh, Arish and Sinai.

NEW TECHNIQUES IN THE REALM OF DEVELOPING THE FORESTRY RESOURCE IN EGYPT

The Under secretariat for Afforestation and Environment is participating with many research institutions and universities in the realm of developing the forest resources and timber wood wealth in Egypt, through:

- Formulating program to assess the number of local timber tree varieties, plus the areas of their existence in abundance and their environmental needs. This in addition to using the modern systems for propagation like tissue- culture for the varieties not producing seeds with economic quantities under the Egyptian conditions. Also, the use of advanced means of vegetative reproduction via root and stem-cuttings, as well as formulating efficient selection program with the aim of seed production improvement.
- Conducting experiments on the new varieties recently introduced to Egypt, e.g., pruning experiment on some varieties of Neem. Jatropha, Pinus, Teak, and Khaya, with a view to promoting their economic returns.
- Carrying out some experiments on the seeds such as seed treatment methods to improve germination and storing properties.
- Egypt has established a SEED BANK for forest trees, which registers and stores the seeds and the plant parts coming from abroad, plus exchanging the local seeds with friendly countries.
- Inventing seed-stocks (mother-plants) for timber trees by means of using selected seeds and conducting breeding-program , improvement and hybridization experiments to ensure the stability of genetic characteristics of such species
- Using the modern and up-to-date technologies in the realm of preparing forestry afforestation by means of advanced systems like, drip-irrigation, using treated sewage water, and issuing publications including the technical specifications for timber trees, plus the proper means of caring and afforestation.
- Expansion in vertical afforestation projects and establishment of man-made forests.
- Magnifying the benefit or the revenue from non-timber products like glue, aromatic oils, fruits and seeds.
- Formulating programs for attaining the optimal revenue from produced woods either for the production of proceeded or minced woods, as well as Counter and aplackage sheets of wood and other sorts. In this respect, two factories were established to benefit from the woods of Casuarina and Eucalyptus trees found in abundance In Egypt, mainly as wind-breaks and for afforestating the banks of canals and drains or other water courses, plus the high-ways and roads.
- Expansion in the agro-forestry system, plus getting acquainted with the systems prevailing in other world countries, in view of applying some of the modern systems that suit the conditions of the reclaimed lands in Egypt.

AGRO-FORESTRY TECHNIQUES

- Allocating 5% of the irrigated agricultural lands for establishing irrigated belts, specifically from fast-growing timber trees as; Poplar, Eucalyptus, Casuarina, ... etc., which should be subjected to quick-cutting rotations to provide to wood necessary for the local market.
- Formulating cultural and educational programs for the farmers to inform them with the importance of establishing wind-breaks and shelter-belts, plus clarifying the revenue resulted from them as a positive impact on their crop yields and production increase from field and horticultural crops.

It is to be noted that knowledge gaining and cultural education is best if coming through agricultural extension program via T.V. (e.g., GOOD MORNING EGYPT, GREEN EGYPT &

EARTH SECRET PROGRAMS), plus the broadcasting programs and other public media methods like newspapers, posters and extension publications.

SUSTAINABLE FOREST DEVELOPMENT

Among the important issues in the realm is the preparation of management plans for man-made forests on sustainable basis and in the light of the target from establishing them and the overall afforestation policy followed. For instance, the forest should have multi-purposes as (productive, environmental, protective and tourist).

- Sustainable development could be done through encouraging the formulation of public committees from the non-governmental organizations or associations in the forest areas to provide the help and assistance needed for forest cleaning and protection from destroy or fire hazards.
- Closing the Pinus forests and the newly established man-made forests to protect the joint seedlings from destroy or removal.
- Educating the public and raising their awareness and knowledge level with the importance of the forest and its great benefits for them as protective and productive asset to gain their confidence trust and co-operation via establishing friendship and intimate ties with them.
- Involving the citizens living nearby the forest in agricultural, maintenance and tree-caring works.
- Encouraging the systems and types of integrate agro-forestry in the rural areas.
- Encouraging the establishment of cities and villages forests through the local communities and city-councils, along with giving them the right to enjoy the forest and investing in it in collaboration with the State.

FOREST POLICY & LEGISLATION

The prevailing forest policy in Egypt which is enforced without an official law is working to protect the environment, improve the climatic and natural conditions, plus protecting the inhabitant areas and public arenas or roads from the hazards of wind storms, particularly the sandy ones.. Among the most important points receiving the top priority from the Ministry of Agriculture are :

- Issuing a new policy to develop the afforestation process in Egypt.
- Protecting and keeping the already existing trees in Egypt.
- Increasing the productive capacity of seedling, especially from the public sector’s nurseries.
- Increasing the afforestated stretch every year.
- Creating an equilibrium or a balance between the works of' afforestation, cultivation and plantation, plus maintaining this balance.
- Allocating certain areas to be devoted for the vertical afforestation in the newly reclaimed lands.
- Encouraging the researches and studies in the realm of propagating and breeding of timber trees.
- Assessing the number of trees and work for protecting and keeping them.

- Introducing new tree varieties and species coming from zones similar in climatic and prevailing conditions to the Egyptian ecology.
- Selecting the mother-trees (stocks),for obtaining the good quality seeds enjoying the best characteristic of the variety.
- Enforcing the AFFORESTATION LAW, together with clarifying the importance of afforestation activity in the food-security process.

ADMINISTRATIVE ORGANIZATION

- Egypt is participating with the following authorities in laying down the instructions and directions, as well as in decree-issuance :
- The Under-secretariat for Afforestation and Environment, MALR
- The Agricultural Research Centre, (Timber-trees Research Division).
- The Desert Research Centre.
- University of Alexandria (Forestry Division)
- Environment Affairs Units.

RESPONSIBILITY OF CONCERNED AUTHORITIES

- Setting the afforestation policies
- Providing the proper seeds similar to the variety
- Introducing and experimented the new varieties, (e.g., Nee, Jatropha, Polonia, Pinus, Poplar, Teak and Khaya)
- Issuing the laws and legislation concerning afforestation activities and tree-protection.
- Publishing the extension publications in the realm of afforestation and forestry.
- Caring for the extension activity, through the public media program in the T.V.,(GOOD MORNING EGYPT, EARTH SECRET, ... etc.), broadcasting programs and press.
- Environment conservation.
- Providing the production requirements needed for afforestation purposes and nursery works.
- Creating job-opportunities for the youth in the realm of afforestation.
- Providing the seedlings necessary for ongoing afforestation programs.
- Selecting tree-varieties suitable for each governorate on the Republic level.

It is to be noted that the Under-secretariat for Afforestation and Environment, MALR comes on top of the Forestry Administrative Structure, with its numerous departments scattered in all governorates, which carry out the various works and activities of afforestation, nurseries and production of timber trees seedlings.

TRAINING IN THE REALM OF FORESTRY

- Faculty of Agriculture. Alex. Univ., (responsible for graduating agronomists specialised in forestry).
- Faculties of Agriculture in different universities are responsible for graduating agronomists specialised in the realms of forestry and horticulture

- The Agricultural Research Centre, affiliated to the Ministry of Agriculture responsible for qualifying and training the agronomists, specialists, technicians and professional of various vocations.
- The Agricultural Secondary and Preparatory Schools, belonging to the ministry of Education, which graduates agricultural technicians.

RESEARCH UNITS WORKING IN THE REALMS OF AFFORESTATION AND FORESTRY

- Alexandria University, Forestry Division (dept.) works in the applied and academic research.
- The Agricultural Research Centre, Timber Trees & Forestry Dept. works in the realm of applied research of tamer trees propagation and reproduction, plus afforestation works and wood technology.
- The Desert Research Centre, carries out applied researches in the realm of afforestation in desert areas, pasture lands, fixation of sand-dunes and combating desertification.

TECHNOLOGICAL CHANGES IN FORESTRY SECTOR

- Using and employing the treated sewage water in establishing man-made forest
- Using modern technologies and systems of irrigating man-.made forests like; drip-irrigation, sprinkler and pivot irrigation in the timber trees nurseries.
- Using up-to-date technologies in treating sewage water for eradicating the harmful bacteria in collaboration with the Japanese side through applying the use of Efficient Micro-organisms (EM).
- Using the advanced systems of cultivating the saline soils in cooperation with the Japanese side through; addition of soil fertilizers and organic substance.
- Using the modern means of seedling-production like; Casuarina inoculated with Francia inoculant which helps the fixation of atmosphere nitrogen, this is done in collaboration of the French side.

DEVELOPMENTS IN THE AGRICULTURAL SECTOR

The main objective of the agricultural Strategy during the 1990's is; completion the reform policy program being applied in the sector, plus increasing the production and magnifying the agricultural income, taking into account the changes witnessed by the Egyptian and world economy, and the connecting relationship between the agricultural sector and other sectors of the economy. In this context, the objectives should include, increasing the agricultural productivity per unit area and water. through the efficient use of these two illimited resources, along with decreasing the costs per production unit, hence, increasing the national agricultural production and farmers incomes. This orientation or attitude should progress and proceed towards the efficiency in the frame of justice, taking into account the issues of poverty alleviation and environment conservation throughout the process of agricultural development.

It is worthy noting that the development of the agricultural sector could lead to realization of the programs aiming to woman and landless development, plus its positive contribution to the government strategy devoted for poverty alleviation. Moreover, it is expected to lead to a notable production increase and also identifying the exports within the scope of liberalization climate. thus contributing to food-security achievement In Egypt. Furthermore. it is expected that the average targeted agricultural growth would reach about 3% annually during the 1990's, which matter that permits for attaining a national growth in the local gross production ranging between 4 - 5 % by the end of the 1990's, together with a per-capita increase from agriculture, in case of settled population growth rate at 2,5%.

Therefore, the current strategy depends on benefiting from the boost resulted from the application of agricultural policy reform program commenced by the Ministry of Agriculture and Land Reclamation, along with the general policy for economic reform applied by the government. This also necessitates adopting and enforcing a national population policy aiming to reducing the population growth rate.

It is almost to integrate and gather between the changes started during the last few years and the political and structural reforms. This is clarified in this report through :

- The need for taking actions aiming to ensuring the efficiency of protecting the environment and preserving it while managing the natural resources.
- Focusing on the application of free-market strategies in allocating the resources, particularly the promotion of the private sector.
- The need for implementing the agricultural sectors strategy within the frame of the integrated comprehensive rural development that ensures a greater role for the rural woman in the development process, plus verifying the rural activities, and providing the main social program , basically health and education.
- Admitting the social and the political issues, plus the need for extending the umbrella and the network of social security to help absorb the difficult cases like handicapped, ... etc.
- Commencing the execution of structural and organizational reform program with the aim of smooth flow in the work of the associations serving the agricultural sector and to make it more responding to its needs.

LAND AND WATER RESOURCES

Improving the use of land and water resources leads to attaining very important benefits, which matter that focuses the need to protecting the potentialities of the infrastructure, plus improving its efficiency and organization.

Despite the high efficiency of using the river Nile waters, yet there are some limiting problems in certain areas. Thus, it is necessary to review the overall efficiency of this whole structure, as well as the efficiency of using the irrigation water on the basis of works aiming to improving the irrigation in the main canals, started by the Ministry of Public Works and Water Resources. This also necessitates following up and using the improved technologies to save the irrigation water within the limits indicated by the technical and the economical feasibility studies. This, and it is also particularly essential to introduce a structural framework on the farm level to improve the partnership system in the water resources, plus improving the field irrigation

system, including the provision of the extension services to the farmers in view of raising the irrigation efficiency. This recommendation enjoys a greater importance in the context of completing the procedures adopted by the government which enables the farmer to be independent in making their decision concerning crop-structure.

Increasing the capital volume within the scope of the irrigation/drainage process necessitates higher levels for funding and maintenance, In addition to following the proper systems to avoid the collapse of the whole structure. In the light of the limited ability of the government to completely fulfil the operating and maintenance costs, it is essential to raise the farmers' contribution to such costs, especially after the considerable decrease occurred on the agricultural taxes.

Accordingly, improving the overall system organizing the water resources requires the implementation of a new system based on two axis's, namely :

Encouraging the conservation technologies regarding irrigation/drainage water of technical and economical feasibility, to be accompanied by a strong and sound program for improving field irrigation methods.

Introducing a system for re-gaining (reimbursement system) the costs of operating and maintaining the irrigation networks, which matter that would, eventually lead to price-investments for the most efficient water usage.

At present, there is a study being conducted for the issue of reimbursing the costs of operating and maintaining the irrigation/drainage network, which will identify the options available for implementing a program for imposing irrigation fees. This study could be counted as the basis for making governmental decisions on introducing a system for reimbursing the irrigation/drainage costs, hence proper options will be studied based on the outcomes of this study.

The old lands in the Nile Valley & its Delta are enjoying the good soil of high potentials for production increase. Therefore, it is essential to focus on the research efforts and extension procedures regarding the efficient management of ands with a view to sustainable agricultural land productivity.

Within the frame of the horizontal expansion, the new lands are considered a perfect opportunity for production increase, due to the limited water resources, and in the context of therefore program which requires early indications offered by the agriculture in response to the supplied offer, it is necessary to give the top priority to magnifying the revenue return from the newly reclaimed lands which investments are almost completed. Also, the strategy should focus, mainly on the provision of services to farmers already settled in the new lands, and on setting better criteria and measures for selecting the settlers of the new lands, especially the new graduates.

It is also important that the strategy cares for the environment protection while exploiting the land and water resources, particularly from the sustainable agricultural development view point and to take all necessary procedures to encourage the economic and optimal use for water resources, taking into account the environmental aspects, especially the impact of the population on the extent of water availability, especially that there are no sufficient official or ratified data on the quality or the quantity of surface and underground water. Moreover, the options for

treating and/or purifying the contaminated and polluted drainage water should be thoroughly studied together with the integrated pest control program to minimize the use of pesticides and to exploit the residues of crops via improved agricultural operations to reduce the use of chemical fertilizers.

As regards the agricultural lands resources, it is essential to follow the procedures aiming at conserving the soil fertility, reducing salinity and ground water level, plus maintaining and preserving the soil quality. However, with regard to the water and land reclamation projects, the State should adopt a policy setting specific procedures concerning estimating the environmental hazards to ensure conserving the environment while executing such investments.

STATE OF FOREST INDUSTRIES

The national wood industry includes veneer, plywood and particle board. The mills depend heavily on the imported raw material Only particle-boards are processed from local wood.

A couple of plywood and match industry mills have been trying to reduce the waste and increase the recovery.
Wood industry in Egypt has a long way to go with regard to financing, industrial incentives, taxation, legal framework as well as promotion of the creation of new wood industries.

WOOD DEMAND/SUPPLY SITUATION

Egypt is a large importer and user of softwood. Since Egypt lacks a saw-milling industry, most of its needs of softwood is imported as lumber. Some logs are imported for the plywood and match industries. Russian and Scandinavian redwood and white wood, (i.e., spruce and fir) are the major types of softwood lumber imported). Softwood consumption is split into 75% / 25%, as red woods over white woods. However, Chilean lumber continues to be the cheapest in the market although it has inferior quality compared to Scandinavian lumber.

Although concrete, rather than wood, is the main structural building material, softwoods including some plywood are used extensively for scaffolding, forming and joinery. Approximately 70 % of softwood is consumed by the construction industry and the balance is used by the furniture industry and for making doors and windows. The increasing trend towards using more softwood in the furniture industry is attributed to its relatively low price compared with hardwood.

The most commonly used quality in Egypt is grade No. 2 and better, as well as 10-15% of No-3. This grade is similar to the Scandinavian 5^{th} & 6^{th} grades, and the Russian 4^{th} & 5^{th} grades. The most common thickness is 50 mm., but 25, 37 and 75 mm. are also used. Most importers prefer to have at least 50% of their shipments of 50 mm. thickness. Relative distribution of the most common requested widths are 15% of the 200 mm., 10% from the 175 mm., 60% of 150 mm., and 15% of 100 mm. The most common demanded lengths are 2,70 meters and up, in increments of 30 cm., with about 2-3% of lengths 1,80-2,40 meters.

Egyptian importers and ensures prefer to buy rough sawn lumber with size to be measured after kiln drying. They do not accept nominal sizes; rather, goods must be invoiced and delivered in actual metric sizes. Moisture content should not exceed 19% at time of import inspection.

About 70% of the imported logs are softwoods, mainly Poplar from Belgium, France, Switzerland, Cyprus, Bulgaria, and Germany. The remainder are hardwood logs imported from Ghana and Gabon, Congo and Liberia. Birch and Aspen are also imported from Russia. Most of the logs imported from Africa have a diameter greater than 60 cm. The lengths of these logs are ranging between 6-10 meters. Imported Poplar, Birch, and Aspen logs have diameters of 45-50 cm., and a length of 3 meters and up. Poplar logs are used from both piling and in the manufacture of matches. Aspen is used only in the manufacture of matches because of its shorter diameter.

While about 32% of the redwood is used for furniture industry, 20% is used for non-structural construction, 18% for structural construction, 15% for joinery and 15% for other uses. About 35% of whitewood imported is used for concrete forming, 25% for scaffolding, 14% for packaging, 8% for furniture, 6% for joinery, and 12% for other uses. In scaffolding whitewood is used as poles as well as for planks. The poles are known in Egypt as "Fillery" white- wood which is used for concrete forming due to its relatively low weight and ability to absorb moisture from the concrete. No specialized packaging industries exist in Egypt which use large amounts of wood.

While wood lumber is imported from Chile for US$. 140/cm. C&F Alexandria, and from Canada at US$ 155 per cm., C&F Alexandria. Canadian whitewood is preferred to the Chilean lumber. Redwood lumber wholesaled at about L.E. 500 per cm., i.e., (US$ 1900 = L.E. 3.31) in 1991, then started to increase until it reached L.E. 780/cm in May 1992. Whitewood lumber wholesaled for around L.E. 580/cm.

Since Egypt has neither forests nor a saw milling industry, all softwood lumber is imported. The private sector imports about 75% of Egypt’s softwood lumber needs and the only public sector firm is Societé Commerciale Des Bois (FABAS), imports the balance. Before 1992, about 60% of FABAS IMPORTS WERE through barter agreement with the former USSR. Under the agreement, Egypt supplied agricultural and petroleum products in exchange for lumber and other Soviet goods. Yearly supply contracts were negotiated in May with price denominated in U.K. Pounds at L.E. 3,03/eacb English Pound. The balance, mainly redwoods, was imported from Sweden, Finland, Chile through international tenders. (FABAS) receives its allocation of foreign exchange from the government based on government determined priorities). Construction materials are accorded a lower priority than food and industrial imports.

In addition to FABAS, several large private sector firms play a major role in the lumber trade. Most of the private sector importers are traders not endusers, and are located in the port city of Alexandria. Finland, Chile, and Canada are the main softwood lumber suppliers to the private sector. In 1993, FABAS brought in close to 230,000 cm. of softwood lumber (red & white woods), all on cash basis. In accordance with the economic structural reform,, the company must now procure foreign exchange autonomously, and it must achieve profits in order to continue business.

The expanding population with the concomitant increase in demand for housing, the recent trend toward using more softwood in the furniture industry, and the expected new talent-landlord law to be issued during CY 1996 that will allow for market-driven pricing, are expected to increase Egypt’s import demand for softwood lumber. However, economic difficulties and the relatively low priority the government places on wood imports, will continue to constrain imports below potential demand. Given economic difficulties, the private sector is

expected to play an increased role in the lumber trade. While the prices of Scandinavian wood were low in the beginning of 1993 and dropped to US$ 150- 160/cm., C&F Alexandria In July 1993, they have since rebounded to about US$ 320/cm. in 1994. During 1994, FABAS imported 90,000 cm. of Russian lumber on cash basis at US$ 160/cm. C&F Alexandria. The current Russian price for redwood is about US$ 210/cm. C&F Alexandra. Private sector importers also imported about 190,000 cm. of similar grade from Russia.

The continuous increase in prices of both Scandinavian and Russian woods has stimulated the demand for whitewood.

Furniture production declined during 1991 and 1992 due to the recession of the Egyptian market. Since furniture exporting is done by the private sector, it is difficult to track. But furniture exports as a percentage of all furniture manufactured represents less than 25% of lot production. Also, as mentioned earlier, softwood is being used to some degree in furniture manufacturing. Because of this fact coupled with the lack of available statistics, it is difficult to estimate the growth rate in the furniture industry.

Only moderate increases in hardwood consumption are forecasted for 1994 due to some substitution of softwood for hardwood limber. Temperate hardwood is used mainly by the furniture industry and for flooring and doors.

Beech accounts for over 70% of temperate hardwood imports and minor ainounts of Oak (15 - 20 %) are consumed.

POLICY FORMULATION AND STRATEGIC PLANNING

The main public institutions responsible for forestry administration on the national level are the Ministry of Agriculture and Land Reclamation, i.e. Undersecretary of Afforestation. However, on the provincial and local levels the municipalities are responsible for such affairs which are directed by the local authorities of the Governorates. Forestry activities represent 1 % approximately of the total budget allocated to Ministry of Agriculture and Land Reclamation. The current expenditure and investments are mainly used to establish and maintain nurseries, dealing with afforestation.

Briefly with respect to the situation and trends in forest ownership and tenure, one could state that in rural Egypt, the farmer owns the trees planted around his land. On the other hand, the government owns the timber trees planted on the side roads, highways, irrigation and drainage canals, natural garden and local parks. Apparently the forestry use rights belong to the owner of the land. Accordingly, the government gives the owners the right to cut down the mature trees on condition that it should be replaced.

The Ministry of Agriculture and Land Reclamation and New Communities create recreational areas when new cities are established. The establishment of recreational parks in the urban areas is encouraged by the government through different means such as the distribution of trees to farmers at no or nominal prices.

HUMAN RESOURCES AND CAPACITY BUILDING

In Egypt, forestry activities are mainly administrated by the Ministry of Agriculture and Land Reclamation (MALR) in cooperation with universities, and other ministries. At Governors and districts levels, forestry activities are under the supervision of Directorate of Agriculture and its branches. With about 14,000 personnel, activities are financed through the MALR budget as well as the budget of other Ministries, as well as from USAID, UNDP, WB, GTZ, WFP and FAO.

Formal education is conducted only at the department of Forestry at Alexandria University. Students take two years of basic sciences and general Agriculture, then they specialize in Forestry (during the next two years, Forestry is a part of the courses). There is no private forestry education in Egypt. However, there is a growing interest to expand forestry education to cover new areas such as arid land forestry and agro-forestry. Training programmes in the fields of forest seed collection and handling, tree planting and establishment of windbreaks, sand dune fixation and wood utilization are conducted periodically. The trainers are mainly technicians and agricultural engineers working in the tree nurseries and afforestation programmes.

Research in Forestry is improving in Egypt. Institutions involved in research are Department of Forestry and Wood technology at the Faculty of Agriculture (Alexandria University), Desert Development Center (DDC), at the American University in Cairo (AUC), Department of Timber and Forestry Research, Agriculture Research Center (ARC), the Ministry of Agriculture and Land Reclamation (MALR) and the Undersecretary for Afforestation (MALR). The research undertaken covers a wide range of areas, including basic and applied research, emphasis is directed toward, testing, selecting and/or adapting appropriate multipurpose tree species for shelter-belt and other desert agro-forestry systems, techniques for sand dunes stabilization, enhancement of seedlings production using several nursery techniques, wood processing parameters as well as properties of wood and its products. The Department of Forestry and Wood Technology at Alexandria University, DDC at AUC and ARC are playing an important role in diffusion of information and research results through on-site demonstration, training, consulting and on-site experience for farmers, students and technicians. The total labor force in forestry sector is estimated to be 171,000 representing only 1.2 % of the total labor force.
