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**UNITED STATES
AGENCY for INTERNATIONAL DEVELOPMENT
to AFGHANISTAN**

TERMINATION of ASSIGNMENT REPORT

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END OF TOUR REPORT ON FORESTRY IN AFGHANISTAN

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January 1960 - April, 1962.

Afghanistan is land locked and approximately the size of Texas with 12% of it arable, 40% grazing lands, and only 0.3% in natural Forest lands. The natural forests plus a relatively minor acreage in tree plantations supply the total requirements of wood for construction, fuel wood, and other uses since there are no imports of unmanufactured wood. This does not mean that the Forests of Afghanistan are highly productive but rather it reflects a low national economy which utilizes a very small amount of wood. The country lacks oil, and coal is poor in quality and not yet fully developed. The result is a heavy dependence on wood, manures, and roots of agricultural crops such as alfalfa and corn for use as fuel. Small shrubs and roots of woody plants important for erosion control are heavily used for fuel. Sawn boards are mostly made by hand whip saws from cants transported out of the forests by camel pack train. Band saws and one circle saw have recently been introduced into Kabul but have not replaced hand sawing. In the forest, trees are felled by primitive axe, or if the tree is too large, burning is often resorted to. Because there are no truck roads into the remote forest areas the log is squared by hand hewing with a heavy loss of wood at the source, and the cants transported to the road head by camel back. Although the forests are rapidly being pushed further and further into more inaccessible areas and wood is always in short supply, Afghanistan remains the only major nation in the region without a national Forest and Range policy or uniform regulatory laws to manage her resources.

The forests along the eastern border with Pakistan are composed of high quality stands of *cedrus deodara*, *Pinus excelsa*, (blue pine), *Picea morinda* (Himalayan spruce) and *Abies webbiana* (Silver spruce).

In the west around Herat pistachio nuts are an important export item. Baloot oak used mostly for fuel and agricultural implements, and pinus gerardiana, an important source of edible nuts, are found extensively in the Parwan province, northern part of Kabul Province and the northern and western parts of the Eastern Province. Elsewhere poplar plantations are the primary local source of wood. In all of Afghanistan poplar poles are an important item for floor and roof supports, where they are used without preventive rot treatment.

Although numerous reports and recommendations made by previous ICA, FAO, and other foreign experts, including an early Russian commission, all point out the danger of continued neglect of the forest and ranges, no real interest has yet been taken towards safeguarding these most important national resources from complete loss. Tree planting has been a popular project for many years, but has been confined to planting of poplar groves on agricultural lands and planting of trees in parks and along roads for aesthetic purposes with no attempt being made to improve the watersheds or to prevent destruction of natural forests.

U.S. assistance started in 1955 - 1956 when a Forestry Advisor assisted by his counterpart made a study of forestry problems, but there was no means of implementing these recommendations. At that time an Afghan forester trained in Tehran was appointed as Director of Forests within the Ministry of Agriculture. ICA assistance consisted of a technician until 1959, and a small amount of forestry equipment, hand tools, tree seed, and books.

This technician arrived in January 1960 and was to set up a forestry program in two major fields: A Forest Management Utilization demonstration at Manadhar near the Pakistan border in the Southern Province; and a Nursery development Reforestation program near Kabul and Jalalabad areas.

Plans developed with the Management-Utilization program as far as ordering the necessary equipment and requesting an American technician before it became evident that border disputes between Pakistan and Afghanistan would prevent this phase of Forestry from being carried out. The equipment orders were cancelled with the exception of the D1 Caterpillar Bulldozer tractor, and the technician was never nominated.

About 13 acres of tree nursery at Paghman, near Kabul had previously been developed in small flat benches which made operations difficult and nursery practices in use were inefficient. The tree stock produced was very large and not over 50,000 were being made available annually. Since all of the stock produced was being utilized as roadside and park plantings large stock was required, but the number of trees produced was unsatisfactory for a reforestation program.

The AID program attempted to assist with a Reforestation program in the Kabul area in two ways:-

1. A mountain reforestation area designed to control erosion and to produce wood for fuel would demonstrate the value of planting forest trees other than along roadsides and parks. For this type of planting smaller sized stock could be used.

2. Develop nursery practices suitable to local conditions that would increase the number and quality of the seedlings produced on the acreage available at Paghman. The first part was carried out in conjunction with Badakh Training center demonstration farm and approximately 300 acres of mountain land immediately above the farm received erosion control treatment and forest tree planting. Approximately 125,000 tree seedlings consisting of Pinus Halipensis (Karat Pine), Pinus Migra, black locust, apricot, mulberry, almond and red bud, were planted during 1960 - 1962.

The second part of development of Paghman nursery is not yet completed. The physical development work has consisted of increasing the size of the benches and making row irrigation possible with a slope of .5 ~~per~~ foot per hundred. Overhead irrigation of permanent pipe was purchased for part of the area but has not yet been installed. Additional benches will be brought under row irrigation as soon as the stock now growing is removed. Evergreen seed beds are now sown in standard 4 foot seed beds with hand sprinkling irrigation. About 30,000 pine seedlings 1-0 were transplanted from seedbeds last year. 300,000 seedlings will be transplanted in the current year. These transplants will be available for outplanting by 1963-64. The nursery will continue to grow outsized trees up to 4 feet tall for roadside and park planting, in addition to the smaller two and three year old stock. Trials with polyethalene bags as pots that will make it possible to move seedlings from the nursery without disturbing the roots are being made. After only one year trial this method of growing looks very favorable for Afghanistan and should reduce the number of plants lost due to moving to the field. With the development work now accomplished and with what should be accomplished during the summer of 1962 this nursery should be able to produce all the forest seedlings that can be used in the Kabul area, both in the large sized stock and in the smaller stock for use as watershed mountain reforestation work.

At Jalalabad where the climate is warmer, Eucalyptus grows very rapidly and can satisfy a need for both fuel and timber. Afghanistan needs a source of wood that can be replenished quickly. AID attempted to assist in a program that would produce a number of seedlings that could sustain a planting program of Eucalyptus each year for an indefinite period. This program has not yet been wholly successful because of administrative problems as yet unsolved. American personnel have not been available to spend enough time with the project and the local government has not been sufficiently interested to push the program without outside assistance.

COMMENTS AND RECOMMENDATIONS:

Renewable natural resources will tolerate a tremendous amount of abuse without spectacular danger signals appearing. Society tends to learn how to live with shortages and becomes apathetic to the obvious warning signals of impending disaster until damage to the resource has either become irreplaceable or repaired at so great an expense as to become a strain on the economy. Once a forest or grass cover is removed and the soil is washed away the microclimate is changed and vegetative cover cannot be replaced until after a new suitable environment is restored. Environmental deterioration has occurred over large areas of Afghanistan and unless action is taken soon additional areas will have lost their ability to produce. Dams at Wardak, Sirobi and others built 25 years ago or less have lost their effective storage capacity because of sediment from the fertile fields and mountain sides. New dams at Qargah and Jalalabad built or under construction cannot be expected to have any appreciable water storage beyond 25 or 30 years unless something is done to prevent silting. Irrigation water during the summer months can be expected to decrease in both quality and quantity unless measures are taken to provide vegetative cover on the watersheds. Engineering works such as dams and canals cannot prevent the loss of soil and water that occurs during periods of heavy rainfall or snow melt from the vast watersheds at medium to higher elevations. Vegetation forms a sponge to absorb and hold back water and allow it to soak into the ground to appear later in springs or to slowly find its way over the surface to the stream below. Grass cover that is abused loses its ability to carry the required number of animals. Forests are gradually pushed back to more inaccessible areas and wood becomes a scarce material. Simple easy to apply management practices if applied in time to forest, ranges and water can prevent destruction of the resource and will increase the usefulness of the resource.

Immediate action is needed from the Federal and Provincial governments to prevent complete destruction of these resources. I am suggesting some projects which would assist in a resource development

program:

1. There is no clearly defined Forest and Range policy or laws that give direction and force to resource management by the government. Afghanistan is the only country in the Middle East-South Asia without such documents on their statute books. Preparation of these documents requires the combined services of a technician familiar with the resource, and some one familiar with an understanding of law as it applies to Afghanistan. Advantage may be taken of the experiences of other countries, but local conditions must be considered. Foreign help may be utilized in either of two ways:

(a) A foreign expert either through FAO, AID or other sources may sit with a representative of the Afghan government and together suitable documents could be drawn up, or

(b) A qualified Afghan could be sent to the United States or other suitable country to study these subjects and return to prepare policy statements and legislation for adoption by the government. This latter method would seem to make the best use of foreign assistance since this man thus trained would then be available to follow through and direct the work of the administrative organization that would carry out the law.

During this period of planning and legislation, projects designed to show what results can be achieved with simple forestry and range management practices and to test methods under local conditions should be started in the Provinces.

2. Watershed development in the Kabul Province: The watershed for Kabul water supply is in a serious condition and will limit the further growth of industry in the city. Overgrazing and lack of forest cover leaves the watershed areas open to excessive erosion with the resulting rapid silting of the Qargah reservoir and rapid runoff of the winter accumulation of snow water. Reforestation and controlled grazing above Paghman village will reduce erosion and allow a slower snow melt. Treating of this area should increase the present carrying capacity of grazing animals, and the forest plantations will in time be a source of wood for fuel and other purposes.

3. Eucalyptus plantations in the Jalalabad/area^{and Kandahar} of the Eastern Province: Eucalyptus is a semi-tropical tree capable of very rapid growth and producing a highly acceptable wood for fuel, poles or construction lumber. A sustained planting program of 100,000 seedlings planted on 700 acres yearly would go a long way in providing need wood in that area.

4. Reforestation in all Provinces: The need of wood is so great in all of Afghanistan that reforestation should be carried out in each province that has sufficient rainfall to make tree planting possible. Tests to improve planting methods and to discover the best tree species to plant should be a primary objective in each province.

5. Improvement of Forest Tree Nurseries in each of the Provinces: High quality planting stock suitable for planting under severe drought conditions should be a requirement. These nurseries should be under the supervision of the Federal Forest Service through the Provincial Governors or through the Provincial Agricultural Officers in order to make the best use of technical help available and to assure a co-ordinated nursery stock production throughout the country.

6. Forest Management Utilization at Mandahar Forest in the Southern Province: This should be set up as a demonstration project until techniques are perfected suitable to the area. A plan of work must be prepared before work starts and good quality equipment made available with which to do the work. Good cutting practices will assure a good crop of natural seedlings to reproduce the forest stand. Proper sawing methods will utilize the maximum amount of wood for sawlumber. Foreign experts should be utilized to prepare the plan of work and to train local people in the use of equipment to assure the best results. This is a highly important project and needed to prevent the high percent of waste now being left in the forest because of poor equipment and methods. Grazing control is a necessary part of the plan of work.

7. Oak and Pine Forest Improvement in Parwan Province: Demonstrations should be set up in at least two village areas on different drainages on the Panchier River basin. Each area should be compartmentalized so that a different compartment may be treated each year and avoid unnecessary hardship for the village during the period of conversion to a managed forest. The details of this plan of improvement are given in my report of August 5, 1961 "Field Trip to the Northern Portion of the Parwan Province."

8. Pistacio Improvement in Herat Province: Grazing control, grafting of improved varieties, replanting of areas with too few trees, and thinning of over thick stands are some of the suggested practices that should be tested.

9. Water spreading in the Kandahar, Kabul, and Parwan Provinces to test the possibility of improving the range by taking flood water from nearby stream bed and spreading it over large areas of grass land. In localities of very low rainfall but with annual flooding of the local

streams from the mountains advantage may be taken to increase the amount of soil water by directing these floods over a large area to soak into the soil. Areas near Kandahar, Dasti Top, near Kabul, and Samian in the Parwan Province would seem to meet these conditions.

10. Grazing studies in all provinces having important grazing resources should keep abreast of local conditions to improve the grazing of animals. Fenced enclosures in which natural plant successions, natural recovery, grass reseeding methods, and time of grazing trials can be studied, would be the basis for future grazing improvement plans in the province.

11. Hay and Fodder studies at Kabul: Tests should be run to test local supplement feeds and fodders so as to make it possible to defer grazing and lighten the load of heavy grazing on the ranges.

CONCLUSIONS: (Limited Distribution)

During my two years of duty in Afghanistan some basic facts have become obvious that influence the effectiveness of AID assistance in a Forestry Program and should be considered in future program development.

1. USAID forestry programs have been forced to confine most of their activities to the Kabul and Jalalabad areas. At Kabul, only nominal assistance has been possible except at Parchman and Badam Bagh.
2. In Jalalabad, political activities, greater emphasis on other agricultural activities such as silk worm, citrus, irrigation (including Russian irrigation schemes) makes the prospect of forestry assistance poor.
3. The need is great for a technical assistance program in the provinces outside of the Helmand Valley, but our participation in field programs outside of Kabul and Jalalabad has been discouraged.
4. In the Helmand Valley, past assistance by USOM and the presence of trained technicians in Forestry and Horticulture make that area self sufficient in Forest nursery and plantation activities.
5. The border difficulties with Pakistan prevent our planned Utilization and Management program from getting started in the Eastern Province, although assistance in this phase of forestry is needed more than any other phase and the results would have a more immediate impact on the national economy.
6. The Department of Forests of the RGA now has a small nucleus of trained forestry and range men. The services of these men cannot be fully utilized until there are important changes brought about in Administration. Experience in other countries has shown that there can be no consistent development of natural resources without a government policy statement and adequate legislation to guide the program. These are not possible until after basic agricultural legislation is enacted, and in Afghanistan the prospects of anything of this kind happening within the near future seems remote.
7. Government officials are not yet aware of the meaning of forestry nor of the value of the remaining ranges and forest resources. Watersheds and their protection have not yet entered into the minds of those in authority. Forestry is thought of as planting trees along roadsides and parks to beautify the country and not as watershed cover or to safeguard a continuing supply of forest products. Ranges have deteriorated under uncontrolled grazing for thousands of years and their

reduced carrying capacity does not appear to be a cause for concern.

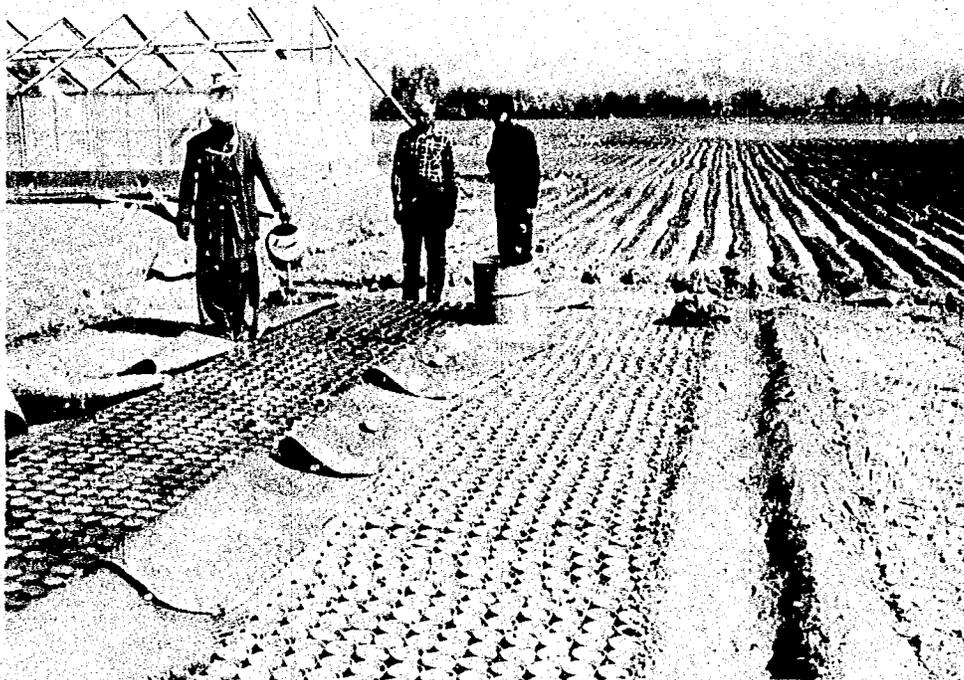
8. USAID activities in this field should be concentrated in continuation of development at Paghman Nursery and to establishing this nursery as a model forest nursery. The Participant training program should be continued. Technical assistance should be made available when requested, particularly in helping to establish policy statements and in the preparation of legislation, and in the preparation of working plans for future management of specific forest and range areas. Development of nurseries or any type of forestry in provinces outside Kabul should be confined to recommendations only until such a time as American technicians can be situated at the site.

Suggested Reports of Interest dealing with Forestry and Range in Afghanistan:

1. FAO Report No. 734 Report to the Government of Afghanistan on Forestry Development - B. Clarke.
2. Memorandum to Reed Lewis, January 4, 1952, prepared by O.M. Patten on the subject of Participant training.
3. Report on Field Trip to the North-Eastern portion of Parwan Province by O.M. Patten, August 5, 1961.
4. FAO No. 1093 Report to the Government of Afghanistan on Amelioration of Natural Pastures, by Henri Pahot.
5. Handbook on Range Management Near East-South Asia. IOA 1957.
6. Trip Report by Karl R. Mayer - Southern Province Forest Reconnaissance Trip - June 2, 1959.



Counterpart Akram Afganzada inspects Aleppo Pine grown at Pagnman Nursery.



Eucalyptus is grown in clay or polythalene pots at Jalalabad.



Counterpart Akram Afanzada instructs gardeners how to heal-in Nursery stock.



New methods in Nursery Practice are welcomed by gardeners.