

MANAGEMENT OF IRRIGATED PLANTATIONS IN KOTRI BARRAGE ZONE

by

Javed Ahmad*

Summary

The raising of irrigated forest plantations was attempted over about 8,442 hectares in the Kotri Barrage area of Sind from 1958 to 1973. In only about 50% of the area could a crop exceeding 50% stocking be got established.

Future performance can be improved if the trench system is replaced by flood system of irrigation, and due care is given to ploughing and levelling of the land either by tractors or through forest lessees settled on the land with suitable incentives.

History of management

An area of 24,280 hectares in Kotri Barrage Zone was reserved for raising irrigated plantations. For the afforestation of this area, two schemes entitled "Irrigated plantations in Kotri Barrage Zone" were prepared, Part I and Part II each for 12,140 hectares. The period of implementation of Part I scheme was 10 years from 1-4-1958 to 30-6-1968 and that of Part II was also 10 years from 1-7-1963 to 30-6-1973. In 1962, the scheme was transferred by the provincial Forest Department to the West Pakistan Agriculture Development Corporation. By this time the scheme had run into difficulties as a result of which performance evaluation became necessary.

Assessment of afforestation was carried out by a committee consisting of Chief Conservator of Forests, Hyderabad and Conservator of Forests, Kotri/Guddu Barrage Project under the orders of Government. The Committee found that the reasons for failure were:

- (a) Difficult areas to operate on account of water-logging and salinity.
- (b) Defective Working Plan prescriptions
- (c) Lack of earth moving machinery
- (d) Shortage of manual labour

* The author is Divisional Forest Officer, Direction, Lahore.

- (e) Defective earlier layout system
- (f) Improper utilization of funds.

Another technical evaluation was carried out by a committee appointed by the Government of West Pakistan consisting of Forestry Advisor U.S. Aid, Chief Conservator of Forests, Sind and Conservator of Forests, Kotri/Guddu Barrage in January, 1963. Summary of the report and recommendations of the committee are as under:

- (a) Afforestation should be carried out after leaching the salts in highly saline and alkaline soil. The species recommended was babul.
- (b) Line sowing along trenches should be preferred to broadcast sowing.
- (c) Mechanical levelling was considered essential.
- (d) Research was recommended.

Implementation of the scheme, nevertheless went on during the Second Five Years Plan. During the Third Five Years Plan, this scheme had been under execution as an on-going scheme.

Present position of the scheme

Against physical target of 24,280 hectares, 8,442 hectares were taken up for afforestation. The short fall is due to insufficient budget allocation.

The evaluation in respect of the planted area of 8,442 hectares upto 30-6-1973 is as follows:

Percentage of success	Area (hectares)
51 to 100%	3,830
26 to 50%	2,023
1 to 25%	2,309
Failed	280
Total	8,442

In order to overcome sizeable short fall in the above two schemes it became necessary to prepare a revised scheme. The revised scheme envisaged not only to complete the targets within 7 years but also aimed to rehabilitate the failed areas.

P.C.I. scheme with a total cost of Rs. 23,233,000 was prepared for a period of 7 years and submitted to the Government. The scheme was discussed with Provincial Development Working Party and it was decided that the scheme under consideration will be reviewed and only the area best suited for irrigated plantations shall be selected and on remaining areas, irrigated pastures will be taken up which will not only yield maximum returns but also increase the livestock wealth of the country.

Causes of Failures

From what has so far been said one gathers the impression that natural factors are responsible more than anything else for the failure of plantations in Kotri Barrage Zone. My opinion is otherwise. It is not the natural factors but the ill-conceived schemes and their improper implementation. My opinion is based on the following facts:

1. Total area covered by the schemes was 24,280 hectares and it was envisaged to afforest the entire area in 10 years by taking 2,426 hectares annually. This is against all principles of forest management. The annual regeneration area should have been calculated by dividing the total area with rotation. The rotation with the above target comes to 10 years while the rotation for babul and other species is not less than 20 years. Heavy annual targets are the main reasons of failure.
2. The schemes were prepared without any feasibility survey report otherwise there was no reason why such factors as water-logging, salinity and shortage of manual labour which have been held to be the causes of failures could not have been visualized.
3. As has already been said implementation of the Part I scheme continued as such even after the technical assessment and without any regard to the recommendations of the committee. In the meantime Part II scheme was also prepared and put into operation without eliminating the factors hindering the successful afforestation in the tract. As area of 7,313 hectares of which 3,743 in Part I and 3,570 Part II were tackled after technical assessment without correcting the causes of past failures.

The reasons for continuing afforestation under such difficult circumstances are not available on record. It appears as if every officer who sponsored the Project wanted to show his capability by raising successful plantations in Kotri Barrage Zone against heavy odds or nobody had courage enough to tell the Government that he could not undertake further afforestation as it was not likely to be successful.

After disbandment of A.D.C., although the schemes were raised to complete the targets, better sense prevailed and some courageous forester told the Planning and Develop-

ment Department, Government of Sind, that it was no use to continue afforestation in Kotri Barrage under the present conditions.

Future Plans

In order to make best use of the area in Kotri Barrage a scheme "Kotri Barrage (Irrigated) Forage and Pasture" has been prepared to grow Castor and Forage crops in the area. The scheme consists of three parts viz:

- (i) Castor-cum-irrigated plantations
- (ii) Irrigated pasture and Forage, and
- (iii) Grove Plantations

In case of Castor-cum-Irrigated Plantations, babul will be sown in strips 6 metre apart and in between, castor will be raised in lines 0.8 metre apart. Standing crops of castor will be sold by open auction. The crop will be harvested for three years after which the area will be maintained as irrigated plantation.

In case of "Irrigated Pasture and Forage" fodder/forage seed will be sown after ploughing. The crop will be sold standing in open auction. It will be worked on annual rotation.

In case of "Grove Plantations" suitable timber species will be raised in 2 hectares patches at regular intervals to provide shade, shelter and fodder.

Proposals

It appears that the scheme aims at afforestation under the disguise of forage and pasture. Lands all around the forests areas of Kotri Barrage are under cultivation. There should be no reason why we should fail in raising irrigated plantations in the Zone. I am of the view that if we cannot raise irrigated plantations of babul we will also not be able to grow castor and pasture which are more exacting in requirements than babul. If we change our approach towards the art and science of raising irrigated plantations we can successfully afforest areas in Kotri Barrage Zone. My suggestions are as follows:

1. Change over from trench irrigation to flood irrigation.

The soils in the Kotri Barrage Zone have deteriorated due to long exposure. On top of the soil there is a salt crust. The salts can be easily leached with one or two irrigations except water-logged areas. In case of trench system the salts get washed and accumulate in trenches after the rains. This increases salinity in the root zone of young seedlings by ten times and the seedlings die of physiological drought. In case of flood irrigation there will be uniform leaching down of salts after irrigation and there will be only negligible damage by rains.

2. Since the areas have remained under natural flora, site development is necessary before afforestation either by mechanical levelling or by temporary cultivation. Shortage of earth moving machinery and high costs involved make levelling difficult and uneconomical. The experience of leasing out of lands is also bitter. The lessees resort to litigation and it is difficult to get back the possession of the area. Feasibility of having permanent forest tenants on the lines of "Tangya" cultivators in Bangla Desh should be studied. These tenants should be given equal areas for cultivation every year. Area should be cultivated for two years and every year we should take back half of the area and sow the same with babul by broadcasting seed. This system will not only help us to develop the area but also overcome shortage of labour in the tract.