

Environmental Impact Assessment

Project number: 49372-002
September 2021

Pakistan: Greater Thal Canal Irrigation Project

Annex N: Tree Management Plan

Prepared by the Irrigation Department, Government of the Punjab for the Asian Development Bank. This is an updated version of the draft originally posted in February 2020 available on <https://www.adb.org/projects/documents/pak-49372-002-eia>.

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**GOVERNMENT OF THE PUNJAB
PMO FOR PUNJAB BARRAGES
IRRIGATION DEPARTMENT**



**GREATER THAL CANAL IRRIGATION PROJECT
UPDATED TREE MANAGEMENT PLAN**

TMP (UPDATED)

May 2021

TABLE OF CONTENTS

1. Introduction	5
1.1. Project Background/Details	5
1.2. Purpose and Objectives of TMP	8
2. Components of TMP	8
3. Regulatory Framework	8
4. Scope of Work	10
4.1 Trees Plantation	10
5. Tree Cutting & Compensation.....	11
6. Suitable Seasons.....	12
7. Suitable Plant Species	12
8. Plantation Strategy.....	13
9. Plantation Methodology.....	13
9.1 Manpower and Material Resources	13
9.1.1 Planting Stock (Procurement, Transport & Storage)	14
9.2 Plantation Procedures.....	14
9.3 Use of Fertilizers	14
9.4 Care and Maintenance Strategy	14
9.5 Watering Strategy	15
9.6 Removal and Disposal of Trees	16
10. Schedule & Location of Plantation	16
11. Roles and Responsibilities.....	16
12. Budget	16

List of Figure

Figure 1 GTC Command Areas

Figure 2 Rakh Area Map of GTC

List of Tables

Table 1: Estimated Compensation cost for trees

Table 2: Selected/Proposed Tree Species

Table 3: Tree Plantation Strategy

Table 4: Budget for New Plantation

List of Annexures

Annexure I : NOC from the Forest, Wildlife and Fisheries Department

Annexure II : Forrest Notifications

Annexure III : Standard Operating Procedure" with respect to Replenishment Cost

CURRENCY EQUIVALENTS

(as of 18 May 2021)

Currency Unit – Pakistan rupee/s (PKR/PRs.)

PKR 1.00 = \$ 0.0065

\$ 1.00 = PRs. 152.92

LIST OF ABBREVIATIONS

ADB	Asian Development Bank
CBC	Choubara Branch Canal
CSC	Construction Supervision Consultant
CSCEnv	Construction Supervision Consultant Environmentalist
CEnv	Contractor Environmentalist
DMF	Design and Monitoring Framework
EA	Executing Agency
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
ESU	Environment and Social Unit
GoP	Government of Pakistan
GTC	Greater Thal Canal
km	kilometer
M&E	Monitoring and Evaluation
MBC	Mankera Branch Canal
MC	Main Canal
mm	Millimeter
NOC	No Objection Certificate
O&M	Operation and Maintenance
PEPA	Pakistan Environmental Protection Act
PID	Punjab Irrigation Department
PMO	Project Management Office
PMU	Project Management Unit
SEMU	Social & Environmental Management Unit
SPS	Safeguard Policy Statement
TMP	Tree Management Plan
TA	Technical Assistance
TrTA	Transaction Technical Assistance
WUAs	Water User Associations

1. Introduction

1.1. Project Background/Details

1. The Greater Thal Canal Irrigation Project envisages supplying irrigation water to the Project Area by means of a new irrigation canal i.e., Choubara Branch Canal (CBC) system. The CBC system will be constructed to command an overall 264,000 ha command area of the existing Main Canal, Mankera Branch canal. The new canal system will be developed for enhancing agricultural production in the target areas in three districts (Khushab, Bhakkar, Layyah), which are presently dependent on rain fed agriculture.
2. The project involves the construction of the 71 km Choubara Branch Canal (primary canal), 11 distributary canals (251 km) and 11 minor canals (124 km), and associated structures, to convey irrigation water to approximately 120,000 ha of cultivable lands. To improve irrigation efficiency and improved water management the primary, distributaries and minor canals will be lined, and gated off takes installed (possibly with flow measurement devices). Construction will be undertaken by private civil works contractors with construction supervision undertaken by Consultant. To protect canals from siltation, tree windbreaks would be planted on both sides of the Canal, Distributaries and Minors. GTC Command areas are shown in the Figure 1.
3. Transactional Technical Assistance (TrTA) Consultants has conducted the Environmental Impact Assessment (EIA) study of the project for the Punjab Irrigation Department (PID) acting as the Executive Agency (EA). Based on the national and provincial regulations, as well as the ADB policy, this project is categorized as "A" for environmental safeguards. The Project is expected to be funded by the Asian Development Bank (ADB).
4. Trees/vegetation protection is an important aspect of the environmental safeguards of the ADB as well as national environmental regulations. Proposed project may affect trees, and bushes present in the RoW of the proposed Canal, Distributaries and Minors. The above said water channels will also pass through the Rakh /Rangeland areas that are situated within the project area. The Rakh Areas Map is shown in Figure 2.
5. The clearance/uprooting of trees in the project area (including Rakh area) will be carried out in accordance with the NOC for the Construction of GTC, issued by the Forest, Wildlife and Fisheries Department and the approval, thereof, under the Notification No. FOFT (EXT) VIII.-4/2000 (copy attached in Annex-II).
6. The loss of trees will be compensated by the tree plantation to be carried out on large scale along Choubara Main Canal, Distributaries and Minors and also along Mankera Canal System, which sets out the requirement for development of a Tree Management Plan (TMP).
7. This document comprises the Tree Management Plan (TMP) for development of Greater Thal Canal Irrigation Project. This is an illustrative plan which outlines the guidelines to be followed by the Forest Department during the tree plantation

activity. The Tree Plantation Plan is to be prepared by the Forest Department in accordance with these guidelines, for approval before commencement of the Project activities, which will subsequently be implemented at site, as part of the Contract

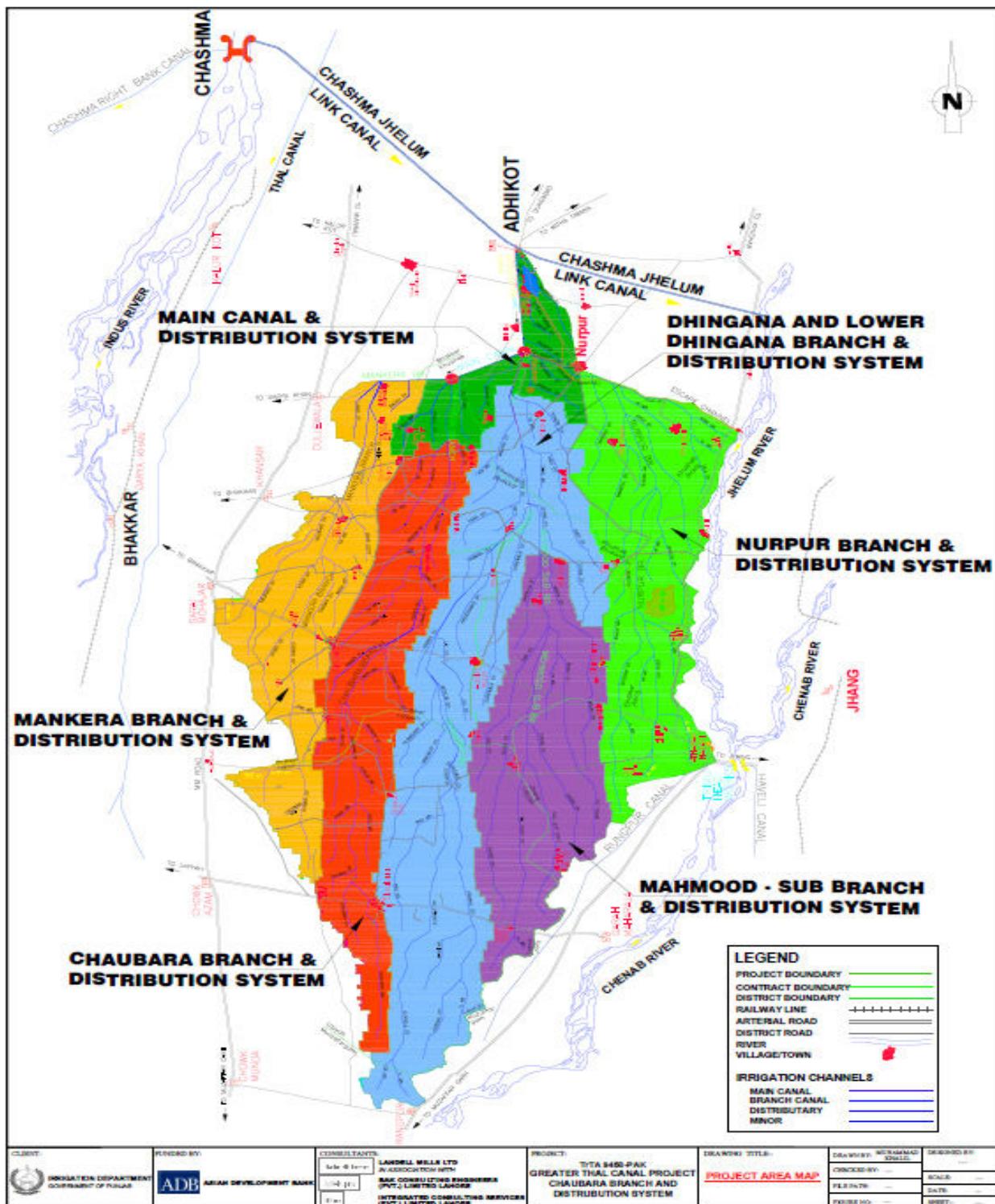


Figure 1: GTC Command Areas

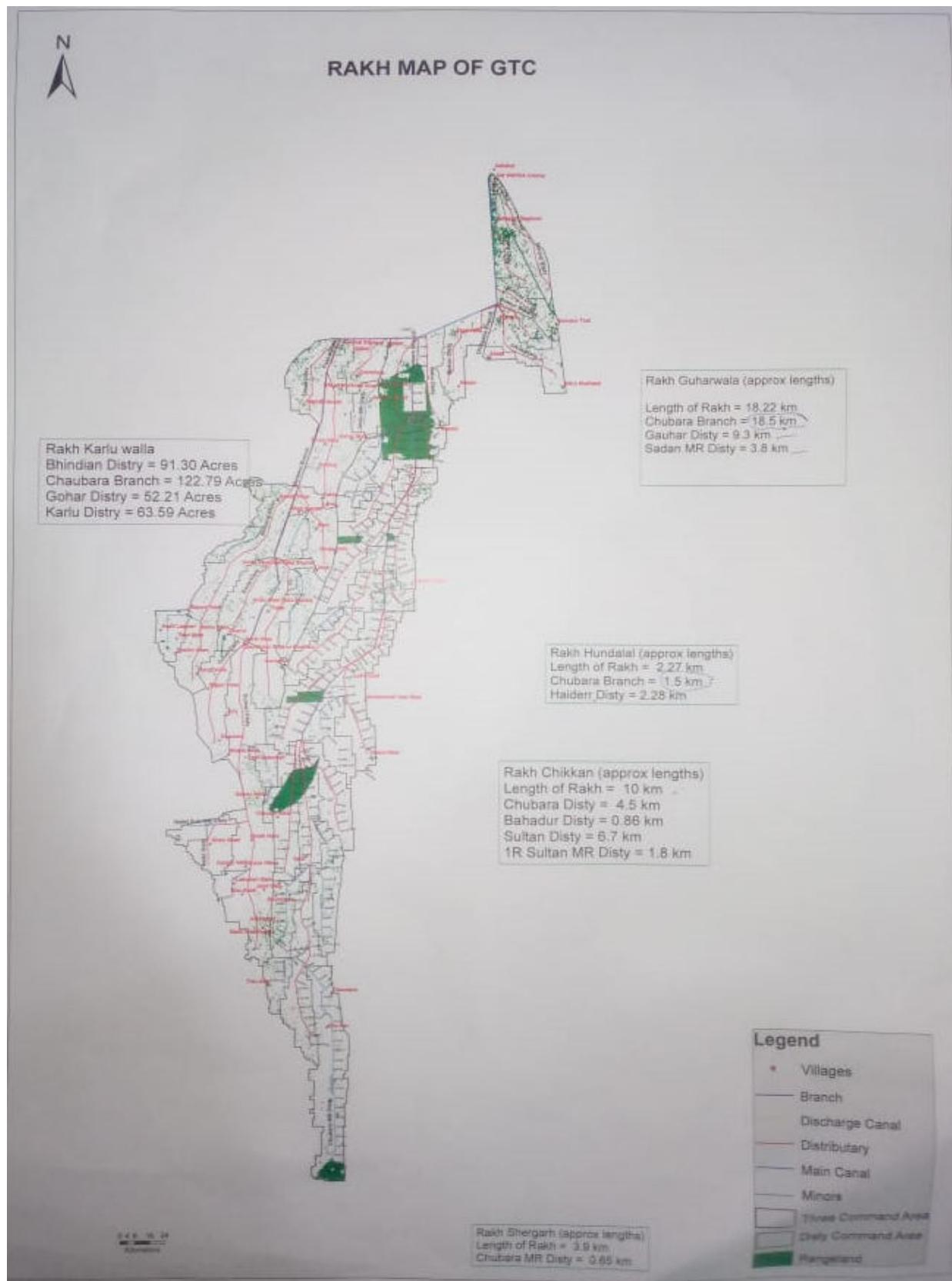


Figure 2: Rakh Area Map of GTC

1.2. Purpose and Objectives of TMP

8. The Tree Management Plan (TMP) is one of the essential components of the Environmental Management Plan EMP, which is to be prepared and submitted for approval before commencement of the Project activities and is subsequently implemented at site. It provides a mechanism to carry out the tree plantation as set out in the EMP, address the adverse environmental impacts of a project during its construction, to accelerate project benefits, and to introduce standards of good practice to be adopted for all project works.
9. This document comprises the Tree Management Plan (TMP) for development of Greater Thal Canal Irrigation Project. This is an illustrative plan which outlines the guidelines to be followed by the Forest Department during the tree plantation activity. Two separate Tree Plantation Plan will be prepared by the Forest Department; one for the Rakh areas and second for other than Rakh areas in accordance with these guidelines, for approval before commencement of the Project activities, which will subsequently be implemented at site, as part of the Contract.
10. The main objective of Plans are to compensate for the tree loss in an environmentally responsible manner, to add and improve the overall aesthetic values of the Project Area besides getting additional environmental benefits of tree plantation. Other specific objectives of the Plan is to:
 - Provide guidelines and define role and responsibilities of concerned staff.
 - Identify guidelines for tree selection criteria, suitable locations, suitable seasons, plantation methodology, nutrition techniques as well as care and maintenance of the new plantation.
 - Facilitate the implementation of the measures identified in the document;
 - Define a monitoring mechanism to ensure proper care, handling and maintenance
 - Preserve existing tree cover and provide sustainable, productive and green assets for the community by increasing the quantity and quality of tree cover.

2. Components of TMP

11. The TMP comprise of the following components.

- Applicable Regulatory Framework
- Scope of Work
- Tree Cutting and Compensation
- Plantation Strategy and Methodology
- Roles and Responsibilities
- Budget Estimate

3. Regulatory Framework

12. The Government of Pakistan has formulated and proclaimed a comprehensive policy and legal framework to get approval of cutting trees(Government) from the forest department.
13. As mentioned in the main EIA Report, Rakh areas present in RoW of the CBC are

legally classified as "Protected Forests". Measures to address construction impacts within the Rakhs and command area are set out in a Biodiversity Management Plan which is included as part of the project EMP. This plan covers both construction management and education/capacity building of construction and supervisory personnel.

14. Moreover, the project will affect trees, and bushes present in the ROW of the proposed canal. These factors make the project fall under jurisdiction of national regulations as well as ADB's safeguard policy 2009.

15. Directly relevant regulatory provisions for the development of the GTC Project are:

- I. As per the **Forest Act, 1927**; the Government shall not allow change in land use of a protected forest, except for the purposes of right of way, building of roads and development of a forest park, but the Government shall not allow construction of concrete building or permanent structure in the protected forest. Moreover, it regulates that the Government, with the approval of the Provincial Cabinet, may declare a protected forest or any part of a protected forest as no longer protected forest, if the organization requiring reserved forest land satisfies the Government that there is no other option but to use the proposed protected forest land for purposes of a national project of strategic importance and provides offsets prescribed in the Act.
- II. The NOC for the Construction of Greater Thal Canal has already been issued from the Forest, Wildlife and Fisheries Department, vide Letter No. SO (EXT) II-3/2003, dated: October 03, 2005 (attached as Annex-I). Mutation of Land has also been accomplished during year 2020-21.
- III. **The Punjab Plantation and Maintenance of Trees Act, (1974)** regulates tree plantations and enforces measures for their protection. The requirements of this act are applicable in terms of planting new trees and their maintenance by the occupier of the existing land who would have the physical possession. i.e., Proponent of project.

IV. **Forrest Notifications:**

All the attached Forrest Notifications will apply at GTC –Project (Copies attached as **Annexure –II**).

The Notification of the Government of Punjab, Forestry, Wildlife, Fisheries and Tourism Department No. FOFT (EXT) VIII.-4/2000 (copy attached) defines the approvals required for the falling of trees for development projects in canal side and roadside plantation. If the number of trees to be cut for a project exceeds 100, or if the project falls within the jurisdiction of more than one district, the following committee will be constituted to consider and approve the cutting of trees.

1. Chief Conservator of Forest concerned-----Convenor
2. Conservator of Forest Concerned-----Member/ Sect

3. Superintendent Engineer of the concerned-----Member
4. Deputy District Officer (revenue) of the concerned Tehsil-----Member

16. More details are given in attached Forest notifications (attached as **Annexure –II**).

4. Scope of Work

17. As mentioned earlier, trees need to be uprooted for the construction of CBC System. A total of 127,442 trees will be uprooted from the RoW of the proposed project channels. Of the total 1,400 are the fruit trees (dates and citruses) and 121,482 wood trees (of 8 different species).

18. The tree plantation practices under this project include;

- Compensatory Tree Plantation to mitigate the loss of trees, and bushes present in the RoW of the proposed canals.
- Tree plantation as Plantation for Environmental Improvement/Protection.

19. The scope of tree plantation work includes;

- Plantation of a total of 367,260 new trees along the channels of the CBC System and also required plantation at MBC will be carried out as windbreaks to check against siltation and for stabilization of the newly constructed channels as well as for improvement of surrounding environment.
- Care and maintenance of the plantation (i.e., till end of the Contract)

20. The plantation will be carried out by the Forest Department both in Rakh area as well as other than Rakh areas while keeping due coordination with Irrigation Department's representative(s), in the favorable plantation seasons (i.e., from mid of February, 2021 to mid of April, 2021). The Forest Department will be responsible for its care and maintenance till end of the Contract. After that plantation will be handed over to the Punjab Irrigation Department.

4.1 Trees Plantation

21. A total 127,442 trees shall be removed/ uprooted from the RoW of the proposed Canals, Distributaries and Minors of CBS (source: DDR/CAP-GTC). To mitigate this environmental loss, a total of 367,260 new trees will be planted along the channels of the Chaubara Branch Canal System and also required tree plantation will also be carried out at existing Mankera Branch Canal system by Forest Department while keeping due coordination with Irrigation Department's representative(s). The proposed cost for tree plantation at GTC -System and Mankera Branch System has been included in the PC-1 of GTC Project.

22. As mentioned above the water channels will also pass through the Rakh /Rangeland areas and will involve clearance/uprooting of trees. The forest department will submit the Replenishment Cost Plan to PMO for cutting and disposal of trees of the Rakh area. The PMO then intends to engage the Forest Department for the replantation in the Rakh area, along the canals and distributaries as well as minors passing through the Rakh area.

23. As project area is Arid/Desert area, with very low rainfall and harsh climate, Canal system is prone to problems of filling with sand as well as wind erosion and shifting of sand dunes in project area. Therefore, to protect newly constructed canals from siltation, trees will be planted as windbreaks on the sides of the canals.

24. Windbreaks are generally the linear plantings of trees designed to check wind erosion, enhance crop production, protect livestock and benefit soil and water conservation. Windbreaks can also provide shade and forage. The hot and scorching winds not only damage the fruits and agriculture crops but also significantly decrease the crop yield. It is of immense importance to plant tree rows along the agriculture fields to protect the agriculture crops.

5. Tree Cutting & Compensation

25. Tree cutting approval will be carried out through above mentioned Forrest Notifications in the Rakh Areas only. Out of total 127,442 trees (Source: DDR/CAP-GTC) ,4560 trees will be uprooted from the RoW of the proposed channels passing through Rakh areas. Forrest department will prepare Replenishment Cost Plan (which is under preparation) and submit it to Irrigation Department for approval and payment.

26. Compensation for trees is assessed for 104,418 wood trees, of which 99,858 (95.5%) are private trees and 4,560 belongs to forest department. All fruit trees (1,400) are in private land, grown on the hedges of agriculture land. Trees are further divided into fruit trees (1388), Timber (106,632) and pole crop or nursery (14,600).

27. Total compensation for private trees is estimated at PKR.111,164,600,(USD: 716254.41) whereas, for private fruit trees is PKR 7,462,000 (USD: 48079.00). The cost of forest trees including replenishment cost is estimated at PKR 70,224,000(USD: 45246643). Thus, total estimate for compensation of trees is PKR.188,850,000(USD: 1216799.9)..

28. **Fruit Trees:** Only two species of fruit trees i.e., Dates and citrus fruit are identified in the RoW. Of the total 1,400 fruit trees, 14 counted are the nursery plants and remaining 1,386 meet the criteria for compensation. Of the total 1400 fruit trees, 238 are date palm and assessed for compensation of PKR 1,071,000 (USD:6900.65). A total of 1162 of Citrus fruits of five different age groups were assessed for compensation of PKR 6,391000. Total compensation for fruit trees is calculated to be PKR 7,462,000(USD:48079.06) .

29. **Wood Trees:** A total of 121,482 wood trees of 8 different species and 5 different girth sizes will need to be uprooted for the construction of CBCS. Total compensation for wood trees is calculated to be PKR 111,164,600

30. The Forest Department rates were mentioned in PC-1 of the GTC. The Census and DMS survey calculated the number of trees with girth size. The provincial government rates are overlapped with the number and size of trees to calculate the total compensation for trees. The owners of these trees will be compensated on the official compensation rate for trees at the implementation of the project. The

following Table presents estimated compensation cost for trees.

Table-1-Estimated Compensation Cost for Trees

Nature/ Ownership	Type	No. of Trees	Avg. Mond	Rate Mond	Average Rate	Total Amount Cost)
A. Private	Timber/Small	75053	3	200	600	45,031,800
	Timber/Medium	44542	7	200	1400	62,358,800
	Timber/Large	1887	10	200	2000	3,774,000
Total Private		121482				111,164,600
B. Fruit Trees	Dates	238			4500	1,071,000
	Citrus	1162			5500	6,391,000
	Total Fruit Trees	1400				7,462,000
C. Forest	Timber	4560	7	200	1400	6,384,000
	Replenishment Cost					63,840,000
	Total Forest Timber	4560				70,224,000
Grand Total (A+B+C)		127442				1,88,850,600
1\$=155.20 dated: 2/6/21						Rs: 1,88,850,600 USD: 1216820.9

6. Suitable Seasons

31. Pakistan is a country which lies in the monsoon region. In this country, there is a sequence of four seasons and variable weather conditions throughout the year. In this country, specifically in the Project Area, tree plantation activity will be suitable in following two seasonal months:

- I. Mid-February to mid-April
- II. Mid-July to mid-September

32. These seasons are good for overall plant growth and nourishment.

7. Suitable Plant Species

33. The tree species will be selected by the PMO in consultation with the Forest Department, keeping in view the soil feasibility and ground water table conditions of the Project area as well as their ability to serve as windbreaks.

34. The overall soil stratum of the Project area is observed as sandy. Soils of the area are generally free of salinity and alkalinity but some are deficient in nitrogen and humus contents. The soils have high infiltration rate and inherently low nutrient content. Under such conditions only specific plant species can grow. In the absence of sufficient moisture in soil and vegetative cover, the blowing winds continuously keep moving the sandy soil, in both small and large amounts, thus resulting in unstable topographic conditions.

35. Table-2 shows the tree species proposed, in general, by PMO that can be planted within vicinity of the Project area. The following tree species are recommended for planting as windbreaks.

Table-2-Selected/Proposed Tree Species

Sr.	Common Name	Scientific Name
1.	Karir	<i>Capparis aphylla</i>
2.	Shareen	<i>Albizia lebbec</i>
3.	Jand	<i>Prosopis cineraria</i>
4.	Kikar	<i>Acacia nilotica</i>
5.	Jujube	<i>Ziziphus mauritiana</i>
6.	Phog	<i>Caligonomus polygonoides</i>

8. Plantation Strategy

36. To safeguard canals and stabilize project area, land strips will be left along canals for plantation. Strips of 40 ft. width have been provided along both banks of Main Canal and strips of 20 ft width have been provided along both banks of Distributaries and Minors.

37. The arrangement of the plantation will be linear. The plantation will be done in two rows each side along the main canal and one row each side along the distributary and minor canals on standard pattern of irrigated plantation. The spacing for the linear arrangement will be as follows.

Table-3-Tree Plantation Spacing Strategy

Description	Distance
Distance Between Two Trees	10 feet
Distance Between Two Row Beds	15 feet

9. Plantation Methodology

38. This section intends to illustrate/outline the resources and procedures that will be adopted during execution of new plantation at proposed plantation area. The guidelines provided are to be used by the Forest Department to prepare and submit the Tree Plantation Plan (TPP), for approval, prior to commencement of activities. The plantation activity will be conducted, at site, as per the approved TPP developed and submitted to Irrigation Department/PMO by the Forest Department.

9.1 Manpower and Material Resources

39. The Forest Department will ensure the availability of all necessary man power and equipment/machinery resources at plantation site. Manpower will include the gardener and skilled labor for on-site plantation, care and maintenance. The material resources will plant stock and the machinery and equipment required for plantation, including (but not limited to); grader, water bowser, manual shovels, manual spades and humus for nutrition (if required).

9.1.1 Planting Stock (Procurement, Transport & Storage)

40. The Forest Department will ensure that the planting stock for the trees species to be planted is procured from well reputed nurseries. The planting stock type i.e., ball and burlap and size i.e., 4-5 ft tall sapling, will be used. It will be ensured that bare root stock or any sapling of size less than 3 ft is not used for planting.
41. Planting stock will be inspected for its type, size and quality during procurement. It will be lightly watered before leaving the nursery.
42. The vehicle carrying the plants, will be covered by a mat or a tarpaulin to prevent them from drying out by the wind.
43. If the stock has to be stored a few days before planting, it will be kept in a dark and cool place, a cool storage room or elsewhere in shade. It should be inspected for its quality before plantation and if required

9.2 Plantation Procedures

44. Following tree plantation procedure will be followed;

- Dig a hole a couple of inches deeper than the root ball (the bottom wrapped part of the tree that contains the roots) and twice as wide.
- If the soil is hard, break it up a bit with a shovel or a hoe.
- If the root ball is wrapped in burlap, simply untie it and leave it at the bottom of the hole (the burlap will disintegrate into organic matter over time).
- If necessary, knock away the "shoulders" (the soil surrounding the roots at the top and sides) so the roots can spread apart easily once they are in the ground.
- Place the tree in hole and fill in the area around the root ball with soil, making sure that there are no air pockets left.
- Build the soil up in a mound around the tree's trunk, slightly taller than the surrounding earth. In this way, there will be plenty of extra soil to cover the vulnerable roots even after washing away of some soil during watering.
- Water the tree for quite a while as soon as planting is done, to thoroughly drench the roots and help it settle in to its new home.

9.3 Use of Fertilizers

45. Fertilizer (e.g., Diammonium phosphate (DAP), Green Manure) will be added to plants depending upon its physical health, if required. Normally, 50 grams will be added after every month to each newly planted tree. It will be continued till completion of 01 year of new plantation. After that the plant roots will be strong enough to take up underground water for its further growth and nourishment.

9.4 Care and Maintenance Strategy

46. Care and maintenance provided by the Forest Department will be as follows.

- Planting stock will be inspected for its type, size and quality during procurement as well as before plantation
- Personnel will be assigned for the care and maintenance of plants

- Authorized personnel from ESU of PMO will inspect the plants before plantation for their quality, type and height of the sapling
- The survival count will be carried out by the Forest Department at the end of the dry season following planting
- Forest Department will re-plant the same species if any plant specie is found damaged/ withered/dead.
- Replanting will be done at the beginning of the rainy season that follows
- Forest Department will inspect the nutrition, watering, and quality of the plants during plantation and construction stage of the project, up till the handing over.
- The dead plants would be replaced in the upcoming season
- Personnel including trained gardeners ((no. to be specified after commencement of plantation at site) will be deputed for the care and maintenance (watering/fertilizing) of plants
- Separate personnel will be deputed for watch/ward of plantation in order to avoid its destruction by local cattle/pet animals (no. of watch/ward staff to be specified after commencement of plantation at site)
- Weed/pest control spray to be utilized to enhance survival rate of trees

47. Efforts will be made so that the trees may continue their growth for years to come. After the completion of the Project, all the plantation will be handed over to the concerned XEN / SDO (Irrigation Department) of the area.

9.5 Watering Strategy

48. The water should meet the NEQS/PEQS and FAO standards of Agriculture.

49. The groundwater in the project area if it is brackish, then should not be used for watering the trees.

50. The Forest department will be responsible for arrangement of water source for watering the newly developed plantation along canals, which can be done through installation of hand pumps/motors at suitable distances along the canal. However, in case the required watering quantity interferes with the allocated drinking water and agricultural irrigation needs the Forest Department will arrange manpower and machinery (gardeners and water bowser) for this purpose.

51. Trees are relatively sensitive to moisture stress during the establishment stage compared with their ability to withstand drought once their root systems are fully developed. The critical stage for most trees is in the first two years of seedling/sapling establishment.

52. The proposed tree species are often planted in arid/semi-arid areas. These mainly consist of native trees which require 40 to 45 irrigations a year (every 1 or 2 weeks) during initial years. New trees should be watered daily for the first week, especially if the weather gets hot and there is no rain. After completion of works, the trees will be handed over to the Irrigation Department and will be maintained as per the usual practice (hand watering) of maintaining trees/plantations in RoWs of irrigation channels by the Irrigation Department.

9.6 Removal and Disposal of Trees

53. The Forest Department will remove/clear the trees in Rakh areas by cutting the trees (using axe or chain saw) and then extracting the stumps. The disposal of the trees cut from the site will be the responsibility of the Forest Department. The Forest Department will mention the suitable/preferred method of tree removal and disposal in the Tree Plantation Plan, submitted to the Irrigation Department.
54. The trees uprooting/clearance from the Rakh areas will be carried out by the Forest Department. The forest department will submit the Replenishment Cost Plan to PMO for cutting and disposal of trees of the Rakh areas. The PMO intends to engage the Forest Department for the replantation in the Rakh area, along the canals and distributaries as well as minors passing through the Rakh area.

10. Schedule & Location of Plantation

55. Compensatory tree plantation will be conducted along the channels of the Chaubara Branch Canal System and Mankera Branch Canal as well as at irrigation colony and nearby area designated by the irrigation department.
56. The new plantation will be conducted in stages (suitably in three stages during the three phases of canal construction), subject to the availability/provision of land by the Irrigation Department.
57. The plantation will be established along the canal's RoW as per the approved "Tree Plantation Plan" developed and submitted to Irrigation Department/PMO by the Forest Department.

11. Roles and Responsibilities

58. Plantation activity is to be implemented by Irrigation Department through Forest Department of Punjab with three (03) years of maintenance of the plantation.
59. Irrigation Department will execute Tree Plantation work through Forest Department, as deposit work. Hence, the main responsibility for the tree plantation will rest upon Forest Department while monitoring of the plantation activity will be carried out by ESU of PMO and field staff of Irrigation Department (Adhikot).
60. The Forest Department will be asked to submit the quotation and cost breakup (Replenishment Cost Plan) for the works to be done.
61. The plantation activity will be done as per the approved Tree Plantation Plan, developed and submitted to Irrigation Department/PMO by the Forest Department.

12. Budget

62. The budget detail [as per PC-1](#) for three (03) year plantation and maintenance is presented in Table-4 as follows. [Detailed cost breakup is provided in the attached Annex-III.](#)

Table-4-Budget for New Plantation

A TREE PLANTATION ALONG CHAUBARA BRANCH CANAL SYSTEM PASSING THROUGH RAKH AREAS					
Sr. #	Particulars	Length (km)	Rate PKR (per km)	No. of Rows	Amount (PKR)
1.	Chaubara Main Canal	20.00	391,000	4 (2 rows each side)	3,19,05,600
2.	Distributaries	23.64	391,000	2 (1 row each side)	1,84,86,480
3.	Minors	6.25	391,000	2 (1 row each side)	48,87,500
Total A		49.89			5,52,79,580
B TREE PLANTATION ALONG CHAUBARA BRANCH CANAL SYSTEM OTHER THAN RAKH AREAS					
Sr. #	Particulars	Length (km)	Rate PKR (per km)	No. of Rows	Amount (PKR)
1.	Chaubara Main Canal	51.63	391,000	4 (2 rows each side)	8,07,49,320
2.	Distributaries	225.37	391,000	2 (1 row each side)	17,62,39,340
3.	Minors	120.57	391,000	2 (1 row each side)	9,42,85,740
Total B		397.57			35,12,74,400
C TREE PLANTATION ALONG MANKERA CANAL					
Sr. #	Particulars	Length (km)	Rate PKR (per km)	No. of Rows	Amount (PKR)
1.	Mankera Main Canal	64.59	391,000	4 (2 rows each side)	10,10,18,760
2.	Distributaries	122	391,000	2 (1 row each side)	9,54,04,000
3.	Minors	7.52	391,000	2 (1 row each side)	58,80,640
Total C		194.11 km			20,23,03,400
Grand Total (A+B+C)		641.57			60,88,5,380 (608.854 million)

Annexure-1 NOC from the Forest, Wildlife and Fisheries Department

NO. SO (EXT) II-3/2003
 GOVERNMENT OF THE PUNJAB
 FORESTRY, WILDLIFE AND FISHERIES
 DEPARTMENT.

Dated Lahore, the 03-10-2005.

To

The Senior Member
 Board of Revenue, Punjab
 Lahore,

SUBJECT:- ISSUANCE OF N.C.C. FOR CONSTRUCTION OF GREATER THAL CANAL SYSTEM

I am directed to refer to this Department's letter of even No. dated 24-5-2005 on the subject noted above and to enclose a copy of the letter No. 356/GB/D-102 dated 16-9-2005 from Chief Conservator of Forests, (P&E) and letter No. 980/RK dated 23-9-2005 from Conservator of Forests, Range Management, Lahore with the information that construction of Greater Thal Canal System is a development project of Irrigation & Power Department, which will pass through forest land of Range Management Division Bhekkar.

Resultantly the forest land/tree involved in Row of Canal is as under:

S.No.	Name of Rakh	Name of Distributary	Area involved.	
			Kenals	Marla.
1.	Goharwala	Choubara Branch,	2099	12 ✓
2.		Choubara Disty	655	7 681-7
3.		Sidhan Minor	367	19 ✓
4.		Kora Disty	703	19 ✓
5.		Behu Disty	279	13 ✓
6.		Phallu Disty	586	6 ✓
7		Jana Disty	235	15 ✓
<u>Total:-</u>			<u>4928</u>	<u>11</u>
1.	Dagger Kotli	Kumhari Disty	639	10 ✓
2.		Gondi Disty	557	13 ✓
<u>Total:-</u>			<u>1197</u>	<u>03 ✓</u>
<u>G.TOTAL:-</u>			<u>6125</u>	<u>14.</u>

C.P.2

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1-2-1

S.No. Name of Rakh

Name of Distributary

Area involved,

Kanals

Marla.

S.No.	Name of Rakh	Name of Distributary	Area involved,
		Total:-	Kanals
1.	Chikken	Choubara Disty	371 17
2.		Bahadar Disty	81 8
		Total:-	453 5
1.	Baba Hundalal	Choubara Branch	1077 -
2.		Heyder Disty	529 7
		Total:-	1606 7
1.	Karluwala	Choubara Branch	990 09
2.		Goharwala Disty	421 03
3.	Chikken	Bendian Disty	736 02
4.	No 5935	Karlu Disty	513 16
		Total:-	2661 10
		G.Total:-	4721 02
1.	Baba Hundalal	Jeven Minor	382 14
2.	Chikken	I-R Minor of Sultan Disty.	124 06
3.		Sultan Disty	506 11
		Total:-	630 17
4.	Shergarh	Choubara minor of Choubara Disty.	52 12
		G.Total:-	1066 03

The N.O.C. in respect of forest land measuring 6125 Kanals 14 Marlas situated in Rakh Goharwala and Dugger Kotli has already been issued vide this Department's letter of even No. dated 24-5-2005. In view of above, I am directed to state that for rest of the area i.e. Rakh Chikken 453 Kanal 5 Marla, Rakh Baba Hundalal 1606 Kanal 7 Marlas, Rakh Karluwala 2661 Kanal 10 Marlas, and 1066 Kanal 3 Marlas in Rakh Baba Hundalal, Chikken & Shergharh, this Department has no objection for transfer to Irrigation and Power Department subject to the following:-

1) Irrigation water should be sanctioned for forest area through which distributaries/channels pass or proposed to pass

ii) Irrigation and Power Department must pay value of trees/ plants and reseeded areas etc coming in the alignment of development works to Forest Department.

(MALIK SUBAH SADIQ)
SECTION OFFICER(FORESTS)

NO. & DATE EVEN.

A copy is forwarded for information and necessary action to.

1. The Secretary, Government of the Punjab, Irrigation & Power, Department.
2. The Chief Conservator of Forests, (P&E) Pb: C.Z. Lahore.
3. The Conservator of Forests, Range Management, Circle, Lahore.

(MALIK SUBAH SADIQ)
SECTION OFFICER(FORESTS)

AS/-(
060- CM 10
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ML (URP) N. 11

Annexure-II Forrest Notifications



29
 GOVERNMENT OF THE PUNJAB
 FOREST, WILDLIFE & FISHERIES
 DEPARTMENT
 Dated Lahore, the 23.10.2008

NOTIFICATION

NO.S.O.FT(EXT)VIII-4/2000. The Governor of the Punjab is pleased to amend this Department's Notification of even No. dated 14.11.2001 and to constitute the following committees to consider and approve the cutting of trees for development projects in Canalside and Roadside Plantations, excluding the area of the defunct MKDA, as under:-

I. Where number of trees to be cut is above 100 or the developmental project falls within the jurisdiction of more than one district;

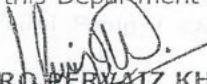
a) Chief Conservator of Forests concerned	= Convenor.
b) Conservator of Forests concerned	= Member / Secy.
c) Superintendent Engineer of the concerned nation building department	= Member
d) Deputy District Officer of the concerned Tehsil (Convenor)	= Member

II. Where number of trees to be cut is 100 or less;

a) Conservator of Forests concerned	= Convenor.
b) Divisional Forest Officer concerned	= Member / Secy.
c) Executive Engineer of the concerned nation building department	= Member
d) Revenue Officer of the concerned Tehsil	= Member

2. The aforementioned committees shall visit the sites and ensure that only those trees are cut which are essential for the execution of the development project. They shall also prepare replenishment plans for the areas from where trees are cut so that the regeneration efforts could be continued. The applicant(s) shall have to deposit cost of this replenishment plan to Punjab Forest Department (respective DFO), before the issuance of NOC by the Secretary, Forestry, Wildlife and Fisheries Department.

3. The cases of cutting of trees in area of defunct MKDA shall continue to be submitted to the Government of the Punjab through this Department for approval of the Chief Minister.


 (KHUSHROO PERWAIZ KHAN)
 SECRETARY, FW&F DEPARTMENT

NO.S.O.FT(EXT)VIII-4/2000

Dated Lahore the 23.10.2008

A copy is forwarded for information/necessary action to the:-

- 4) Secretary to the Governor Punjab, Lahore.
- 2) Secretary to the Chief Minister Punjab, Lahore.
- 3) All Administrative Secretaries in the Punjab.
- 4) P.S. to Chief Secretary, Punjab, S&GAD. Lahore.
- 5) All Regional Coordinators in Punjab.
- 6) All District Nazims in Punjab.
- 7) All-District Coordination Officer in Punjab.
- 8) All Chief Conservators of Forest in Punjab.
- 9) All Conservators of Forests in Punjab.
- 10) All Divisional Forest Officers in Punjab.
- 11) All District Officers Forest in Punjab.
- 12) Superintendent, Government Printing Press, Punjab Lahore for publication in the next

**NOTIFICATION**

GOVERNMENT OF THE PUNJAB
FOREST, WILDLIFE & FISHERIES
DEPARTMENT

Dated Lahore the 06.07.2012

NO.SOFT(EXT)VIII-4/2000. In supersession of this Department's Notification No. SOFT(Ext)VIII-4/2004 dated 23.09.2006 and in pursuance of the decision of the Senior Forest Officers meeting held on 14.05.2012, the committees constituted vide Notification No.SOFT(Ext)VIII-4/2000 dated 23.10.2008 observing the instructions issued vide letter No. SOFT(Ext)VIII-4/2000 dated 17.02.2009, are hereby authorized to consider and approve the removal of trees from linear plantations for execution of projects of nation building departments, subject to the fulfillment of all other legal, codal and procedural formalities as under:-

- Less than 100 trees committee headed by CF concerned
- More than 100 upto 500 trees committee headed by CCF concerned.
- More than 500 by the Administrative Department.

2. The revised replenishment cost according to prevailing rates of POL and wages shall be as under including maintenance upto fifth year (details attached):-

- a) On Hand Watering Rs.90,640/- per Av. Mile
- b) On Flow Irrigation Rs.61,045/- per Av. Mile

(MAJ. SHAHNAWAZ BADAR ®)
SECRETARY, FW&F DEPARTMENT

NO. & DATE EVEN

A copy is forwarded for information and necessary action to:-

1. All Administrative Secretaries in Punjab.
2. P.S. to Chief Secretary, Punjab.
3. All Commissioners in Punjab.
4. All District Coordination Officers in Punjab.
5. All Chief Conservators of Forests, in Punjab.
6. All Conservators of Forests, in Punjab.
7. All Divisional Forest Officers in Punjab.
8. All District Officers (Forest) in Punjab.
9. The Superintendent, Government Printing Press Lahore for publication in the next issue of Provincial Gazette.

SECTION OFFICER (FOREST)

CC:

- P.S to Secretary FW&T Department.
- P.A. to Additional Secretary, FW&T Department.
- P.A. to DS(A), QS(P) & Director B&A (Forest), FW&F Department



NOTIFICATION

GOVERNMENT OF THE PUNJAB
FOREST, WILDLIFE & FISHERIES
DEPARTMENT

Dated Lahore the 03.10.2013

25

NO.SOFT(EXT)VIII-53/2011. The Governor of the Punjab is pleased to constitute the following committees to consider and approve the cutting of trees for all matters other than government development projects in Canalside and Roadside plantations in Punjab, excluding the area of Murree, Kahuta and Kotli Sattian tehsils of district Rawalpindi:-

I. Where number of trees to be cut is above 100 or the project falls within the jurisdiction of more than one district:

a) Chief Conservator of Forests concerned.	=	Convener
b) Conservator of Forests concerned.	=	Member/Secretary
c) Superintending Engineer of the concerned nation building department	=	Member
d) Deputy District Officer (Revenue) of the concerned tehsil	=	Member

II. Where number of trees to be cut is 100 or less:

a) Conservator of Forests concerned.	=	Convener
b) Divisional Forest Officer concerned.	=	Member/Secretary
c) Executive Engineer of the concerned nation building department	=	Member
d) Revenue Officer of the concerned tehsil.	=	Member

2. The aforementioned committees shall visit the sites and ensure that only those trees are cut which are essential for the execution of the project. They shall also prepare replenishment plans for the areas from where trees are cut so that the regeneration efforts could be continued. The applicant(s) shall have to deposit cost of this replenishment plan to the Punjab forest Department (respective DFO) @ ten times more than the area from where trees are to be cut before the issuance of NOC by the Competent Authority.

3. The cases of cutting of trees in area of defunct MKDA shall continue to be submitted to the Government of the Punjab through this Department for approval of the Chief Minister.

(MAJ. SHAHNAWAZ BADAR (R))
SECRETARY, FW&F DEPARTMENT

NO. & DATE EVEN

A copy is forwarded for information and necessary action to:-

1. All Administrative Secretaries in Punjab.
2. P.S. to Chief Secretary, Punjab.
3. All Commissioners in Punjab.
4. All District Coordination Officers in Punjab.
5. All Chief Conservators of Forests, in Punjab.
6. All Conservators of Forests, in Punjab.
7. All Divisional Forest Officers in Punjab.
8. All District Officers (Forest) in Punjab.
9. The Superintendent, Government Printing Press Lahore for publication in the next issue of Provincial Gazette.

[Signature]
SECTION OFFICER (FOREST)

CC: - P.S to Secretary FW&F Department.
P.A. to Additional Secretary, DS(A), DS(P) & Director B&A (Forest), FW&F Department.

[Signature]
S. Q. A.



87
NO.SOFT(EXT) VIII-4/2000
 GOVERNMENT OF THE PUNJAB
 FOREST, WILDLIFE & FISHERIES
 DEPARTMENT

Dated Lahore the 18.04.2012

To,

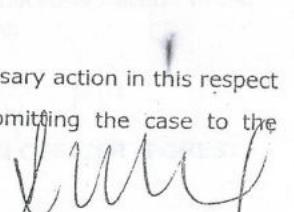
All Chief Conservators of Forests in Punjab.

SUBJECT: - INSPECTION / VERIFICATION OF TREES REQUIRED TO BE CUT ON ACCOUNT OF IMPLEMENTATION OF DEVELOPMENT PROJECTS OF GOVERNMENT DEPARTMENTS.

I am directed to state that the Department is receiving a number of requests for tree cutting to implement the development schemes particularly relating to road construction, road extension, remodeling of canals and electricity power transmission and installation of CNG / Petrol Pump Stations etc. These cases involve hundreds of trees to be cut for execution of the projects. The recommendations of the field formations regarding inspection of trees do not clearly indicate the level of inspection of trees required to be removed. The above situation creates ambiguity to decide the cases at the Administrative Department's level and cause un-necessary delay in finalization of the same. It has been decided that the field officer may ensure verification of standing trees required to be cut for execution of development project to the following ratio:-

- The Forest Guard / Forester 100%.
- The SDFO concerned 75%
- The DFO concerned 50%
- The CF concerned 25%
- The CCF concerned 10%.

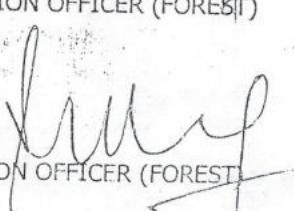
2. It is requested to kindly take further necessary action in this respect to ensure fulfillment of all the formalities before submitting the case to the Administrative Department.


(MALIK SUBAH SADIQ)
 SECTION OFFICER (FOREST)

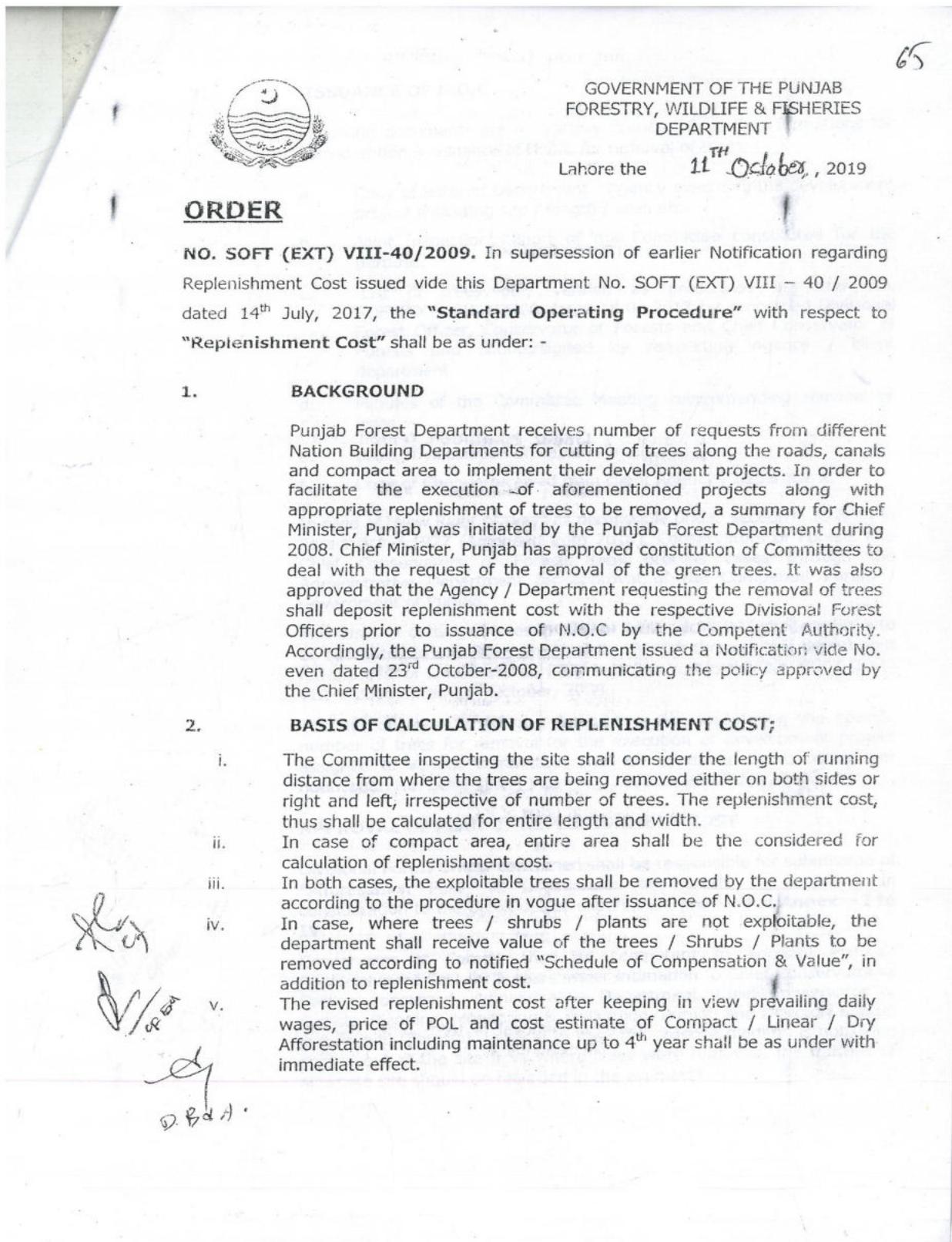
No. & Date Even

A copy is forwarded to:-

- All Conservators of Forests in Punjab.
- All Divisional Forest Officers in Punjab


 SECTION OFFICER (FOREST)

Annexure III Forest Department's Standard Operating Procedure" with respect to Replenishment Cost



3.

ISSUANCE OF N.O.C

i. Following documents are mandatory required from field formations for consideration & issuance of N.O.C for removal of trees: -

- Copy of letter of Department / Agency executing the development project indicating site / length / area etc.
- Joint Inspection Report of the Committee constituted for the purpose.
- List of trees duly verified as prescribed in letter No. SOFT(EXT)VIII-4/2000 dated 18.04.2012 by concerned Divisional Forest Officer, Conservator of Forests and Chief Conservator of Forests and countersigned by requesting Agency / client department.
- Minutes of the Committee Meeting recommending removal of trees.
- Basis of calculation of Replenishment Cost.
- Copy of Cheque received from client Agency / department.

ii. In case of "New Right of Way" as permissible under Section - 20 & 34 in Forest Act - 1927 (Amended upto 2016), Conservators of Forests and Chief Conservators of Forests shall process cases through the Administrative Department for approval of the Competent Forum / Government of Punjab.

iii. The cases of cutting of trees in area of "defunct MKDA" shall continue to be submitted to the Government of the Punjab through this department for approval of Chief Minister, Punjab as per Notification No. SOFT (EXT) VIII-4/2000 dated 23rd October, 2008.

iv. The authorization to various Committees for considering the specific number of trees for removal for the execution of development project assigned to various committees shall be continued as to act as per notification No. SOFT (EXT) VIII - 4 / 2000 dated 6th July, 2012.

4.

APPROVAL OF PLAN OF REPLENISHMENT COST

i. Divisional Forest Officer concerned shall be responsible for submission of "Afforestation Plan" to Conservator of Forests for approval in consideration to the break ups of expenditure provided at Annex - I to IV.

ii. Conservator of Forests shall be competent to approve Plan of Replenishment Cost for 5 years under intimation to Chief Conservator of Forests concerned, Administrative Department, Chief Conservator of Forests, Planning, Monitoring & Evaluation, Punjab and Director, Budget & Accounts (Forests), Lahore. In case the propose planting is not being carried out at the site from where trees were removed, the reasons of alternate site should be recorded in the estimates.

(Annex-I)

69

**COST BREAK UP FOR AFFORESTATION AND MAINTENANCE OF ONE
AV. K.M @ RS. 500/COOLY DAY (Irrigation through tractor & water
bowzer).**

YEAR	PARTICIPANTS	QUANTITY	RATE	AMOUNT
1 st	1. Site clearance, kana, wild growth and other obnoxious stubbing.	1 Av. Km	10 CD's	5000
2	Layout dagh bailing.	1 Av. Km	2 CD's	1000
3	Digging of pits @ 3 Cft each 330x3 cft	990Cft	5 CD's per 1000 Cft	2475
4	Cost of plant including carriage charges and planting of plants with restocking (15%)	380 No.	Rs. 16/- per plants / stumps	6080
5	Sowing of seed	330	2 CD's per 1000	330
6	Cost of seed	LS	LS	300
7	Hand watering 330x30 times	30 No's.	3807 per watering	114210
8	Weeding 2 times	2 Av.Km	2 C.D	2000
9	Re-opening of pits 330x1 time @ 1Cft each.	330Cft	5 C.D per 1000 No.	825
10	Employment of one Rakha/Neghaban for 12 month	20 Av. Km	1 No.	9000
11	Store/Repair/Contingency Miscellaneous, spray, kana fixing for straitening of plants etc.	Per Av.K.M	L/S	3000
Total 1st year				144220
2 nd	1 Cost of plant including carriage charges and restocking of plants (15%)	50 No's.	Rs. 16/- each	800
2	Hand watering 330x30 times	30 No's.	3807 per watering	114210
3	Reopening of pits 2 times 330x1 time @ 1Cft	660Cft	5 C.D per 1000 Av. Km	1650
4	Weeding 2 times	2 Av. Km	2 CD's	2000
5	Employment of one Rakha/Neghaban for 12 month	20 Av. Km	1 No.	9000
6	Store/Repair/Contingency Miscellaneous, spray, kana fixing for straitening of plants etc.	Per Av.K.M	L/S	2000
Total 2nd year				129660

Note:-

COST ANALYSIS OF REQUIREMENT FOR POL FOR TRACTOR PER AV. KM.

Sr. No.	Particulars	Amount (Rs.)
1	Purchase of Water	150
2	POL Charges 2.75 hoursX 7.5 litre per hour XRs.123 per litre Diesel	2537
3	Oil Change after 100 hours	120
4	Hand Watering 2 CD for 01 Av. Km (including filling of water bouzer)	1000
Total: -		3807

Note:

As per schedule of rates 1974 hand watering along roadside plantation.

i. %0 No. = 06 CD (upto lead of two furlongs)
 ii. %0 No. = 12 CD (beyond lead of two furlongs)

(ANNEX-II)

73

COST BREAK UP FOR AFFORESTATION AND MAINTENANCE OF ONE AV. K.M / ONE ACRE SPACING 10' X 6' @ RS. 500/COOLY DAY (Irrigation through Canal Water).

YEAR	PARTICIPANTS	QUANTITY	RATE	AMOUNT (RS.)
1 st	1. Site clearance, kana, mesquite and other obnoxious stubbing.	1 acre	10 CD's	5000
	2. Debris collection & burning	1 acre	2 CD's	1000
	3. Ploughing & leveling	1 acre	15 CD's	7500
	2. Layout & dagh-bailing.	1 acre	2 CD's	1000
	3. Earth Work 5000 cft	1 acre	5 CD's per 1000 Cft	12500
	4. Planting and cost of plants / carriage including restocking (15%) carriage of plants (726+109=835/acre)	1 acre	Rs. 14/- per plants 2CD's/1000 No's. in case of stumps	11690
	5. Sowing of seed between slots	330	2 CD's per 1000	330
	6. Irrigation 24 times for 12 months.	1 acre	½ CD's	6000
	7. Weeding 2 times	1 acre	5 CD's	2500
	9. Re-Stubbing of Kana- Mesquite	1 acre	5 CD's	2500
2 nd	10. Store / Repair		L.S	2000
			Total	52020
	1. Restocking including planting, cost of plants & carriage (10%) (72 No's.)	1 acre	Rs. 14/- each 2 CD's/1000 No's. in case of stumps	1008
	2. Irrigation 18 times for 12 months.	1 acre	½ CD's	4500
	Reopening of trenches	5 CD's		2500
	3.			
	4. Kana-Mesquite Stubbing	1 acre	5 CD's	2500
	5. Silt Clearance Main, Branch & Khals	1 acre	1 CD	500
			Total	11008
3 rd Year	1. Irrigation 12 Times for 12 months	1 acre	½ CD's	3000
	2. Re-opening of trenches	1 acre	5 CD's	2500
	3. Kana-Mesquite Stubbing	1 acre	5 CD's	2500
	4. Silt Clearance Main, Branch & Khals	1 acre	1 CD	500
4 th			Total	8500
	1. Irrigation 8 times for 12 months.	1 acre	½ CD's	2000
	2. Reopening of trenches	1 acre	5 CD's	2500
	3. Silt Clearance Main, Branch & Khals	1 acre	1 CD	500
5 th			Total	5000
	1. Irrigation 8 times for 12 months.	8 No's.	½ CD's	2000
	2. Reopening of trenches.	1 acre	5 CD's	2500
	3. Silt Clearance Main, Branch & Khals	1 acre	1 CD	500
			Total	5000
			Grand Total:	81528
			Total CD's	163

Note: In case of irrigation through Peter Engines, POL charges calculated as under shall also be the part of per acre estimates.

(ANNEXURE-IV)

**COST BREAK UP FOR DRY AFFORESTATION AND
MAINTENANCE OF ONE ACRE @ RS. -----**

YEAR	PARTICIPANTS	QUANTITY	RATE	AMOUNT (RS.)
1 st	1. Earth work for digging of trenches, making of troughs, pits, ridges & kacha bunds etc. (2000 cft spread over whole acre).	1 acre	12.5 CD's per 1000 cft	12500
	2. Cost of collection / purchase of seed (Phuli, Kiker, Bair, Sanatha, Shisham & Iple Iple) 4 Kg.	1 acre	1/2 CD's per Kg	250
	3. Sowing / Dibbling of Seed.	1 acre	1 CD's	500
	2. Weeding and Eradication of Invades.	1 acre	2 CD's	1000
	3. Rakha / Nighaban for 100 acres for protection from grazing & sowing of seed for 12 months.	1 acre	1 CD's per 100 acre	1800
TOTAL				16050
2 nd	1. Repair of Earth Work 15% of 1 st year.	1 acre	12.5 CD's	1875
	2. Weeding and Eradication of Invaders.	1 acre	2 CD's	1000
	3. Cost of collection / purchase of seed (Phuli, Kiker, Bair, Sanatha, Shisham & Iple Iple) 2 Kg.	1 acre	2 CD's	1000
	4. Re-Sowing	1/6 acre	1/6 CD's	83
	5. Rakha / Nighaban for 100 acres for 12 months.	1 acre	1 CD per 100 acre.	1800
Total				5758
Total: -				21808 (Man days 44)



GOVERNMENT OF THE PUNJAB
FORESTRY, WILDLIFE & FISHERIES
DEPARTMENT

Lahore the 14th July, 2017

NOTIFICATION

NO.SOFT(EXT) VIII-40/2009. In supersession of previous instructions issued vide this Department Notification No. SOFT(EXT)VIII-4/2000 DATED 06.07.2012. The revised replenishment cost according to prevailing man days and POL rates shall be as under including maintenance up to fifth year with immediate effect.

Sr. No.	Particulars	Man days	Cost @ Rs. 425/- per man day	Remarks
1	Afforestation (Linear / Compact) Hand watering	295 per AV mile	1,25,375	Annex-I
2	Afforestation (Linear / Compact) Flow irrigation	206 per AV mile	87,550	Annex-II

2. The replenishment cost shall be calculated on the basis of effected area (Av.mile) due to cutting / removal of trees.

Note: The prevailing rates of POL and cooly days shall be applicable:

(CAPT (RETD) JAHANZEB KHAN)
SECRETARY, FW&F DEPARTMENT

NO. AND DATED EVEN

A copy is forwarded for information and necessary action:-

1. All Chief Conservator of Forests, In Punjab.
2. All Conservator of Forests, In Punjab.
3. The Conservator of Forests, Dev. & Working Plan Circle, Rawalpindi.
4. All Divisional Forests Officer, In Punjab.
5. The Superintendent, Government Printing Press Lahore for publication in the next issue of Provincial Gazette.

JMK
SECTION OFFICER (FORESTS)

CC:

- P.S. to Secretary, FW&F Department.
- P.A to Additional Secretary (Tech), FW&F Department.
- P.A to DS(P) & Director B&A (Forest), FW&F Department.