3

INTERVENTIONS BY FIELD WING

Development of Cultivable Land

Avery small portion of only 9% of the total land is under cultivation at the moment. The uncultivated area consists of hundreds of acres of culturable wasteland. This wasteland can be brought under cultivation by land leveling and supply of irrigation water. The work to be carried out in different union councils has been worked out.

i. Bulldozer Work for Land Levelling:

Vast tracts of land can be levelled and brought under cultivation. The results of a survey conducted to asses the need of bulldozer work in various UC's in under:

Image 9: Bull dozer at work

Sr. No.	Name of Union Council	No. of hours of bulldozer work
1	Mithwan	200
2	Berote Mundwani	200
3	Fazla Kachh	200
4	Barthi	300
5	Thiker	200
6	Mubarki	300
7	Tuman Khosa	200
8	Tuman Leghari Zireen	200
9	Tuman Leghari Bala	200
10	General	1000
	TOTAL	**3000**

- **Responsibility of Execution** — **Agriculture Engineer DG Khan Division**
- **Place of Execution** — **UC's Mithwan, Berote Mundwani, Fazla Kachh, Barthi, Thiker, Mubarki, Tuman Khosa, Tuman Leghari Zireen and Tuman Leghari Bala**

- **Period** — **1st January2020 to 31st December 2021**
- **Financial Resources** — **Financial needs can be met out of Supplementary grant. Total Cost is around Rs. 8.05 million. Annex-I**

ii. Erosion Control Structures

Heavy rains and torrents during the monsoon season result in erosion of agriculture land. Sizeable portions of cultivable land are under threat of erosion. It is therefore proposed that erosion control measures may immediately be adopted. List of farmers with potential sites is attached as under:

Image 10: Some primitive erosion control structures in use

a. Gully Plugging / Spillway

Gully Plug is the technology for soil conservation. It prevents soil erosion from rain and water flood. It is stone base construction system. It passes water through it but stops soil flowing through. It works like soil trap for soil mixed water flow.

Image 11: Simple gully plugging technique

- **Place of Execution** — **Villages Mubarki, Surthokh Tuman Buzdar, Zahr-offTuman Buzdar, Rojhani Sakhi Sarwar**

b. Gabion Spurs

Gabions protect slopes and streambanks from the erosive forces of moving water. Rockfilled gabion baskets or mattresses can be used as retaining walls for slopes, to armor the bed and banks of channels, or to divert flow away from eroding channel sections.

Image 12: Gabion spur

- **Place of Execution** **Villages Surthokh, Tuman Buzdar, Rojhani, Sakhi Sarwar**

c. Retaining wall

Retaining walls are rigid walls used for supporting soil laterally so that it can be retained at different levels on the two sides. Retaining walls are structures designed to restrain soil to a slop that it would not naturally keep to.

Image 13: Retaining wall

- **Place of Execution** **Neelagh Halti Tuman Khosa, Neelagh Halti Tuman Khosa, Peshi Khosa, Tuman Khosa**

d. Earthen Bund

An earthen bund is a raised confining structure made from compacted soil to confine runoff either for surface storage or for ground water recharge. When constructed across natural channel to induce channel storage, the embankment also called earthen dam. Requirement for construction of earthen Bunds in the area is given as under:

Image14: Showing earthen bund for water retention

- **Place of Execution** — **LophaniDuf, Tuman Buzdar, Surthokh, Tuman Buzdar, TakraShumali, Tuman Khosa**

e. Outlet/Inlet

Construction of concrete inlet/outlet plays its role in saving the soil from erosion with the water flow on slopes.

Image15: Showing concrete outlet

• **Place of Execution**	**Villages Takra Shumali, Tuman Khosa, Neelagh Halti Tuman Khosa, Peshi Leghari, Tuman Khosa, Buga Phar, Tuman Khosa**
• **Responsibility of Execution**	**Director Soil Conservation Rwp.**
• **Place of Execution**	**UC's Mubarki, Tuman Khosa, and Sakhi Sarwar.**
• **Period**	**1st January2020 to 31st December 2021**
• **Financial Resources**	**Financial needs can be met out of Supplementary grant. Total Cost is around Rs. 5.460 million. Annex-J**

f. Water Conservation Structures

Soil and water conservation increase agricultural productivity. Structure for water conservation can support sustainable agriculture and conservation of potentially productive land. It also protects infrastructure such as roads from erosion. Structures of water conservation will be helpful on specific sites for storing of water and thus improving catchment area hydrology.

I. Earthen Bund Pond

Small earthen bund ponds on various places can be of great value for fulfilling the water demands of the small farmers of the area.

Figure 16: Earthen Bund Pond

- **Place of Execution** **Villages Lophani Duf, Surthokh, Tuman Buzdar, Takra**

II. Lift Irrigation Schemes

Lift irrigation is a method of irrigation in which water is not transported by natural flow, (as in gravity-fed canal) but is lifted with pumps or surge pools etc.

Image17: Lift irrigation system

Place of Execution (Villages):

,

- **Place of Execution** — **Villages Peeshi Khosa, Takra Shumali, Neelagh Halti, Tuman Khosa**

➢ **Dugwell**

Although it's most primitive method of irrigation even then it's relevant in some areas.

- **Place of Execution** — **Villages Burgrah, Sakhi Sarwar**
- **Responsibility of Execution** — **Director Soil Conservation Rawalpindi.**
- **Place of Execution** — **UC's Mubarki, Tuman Khosa, and Sakhi Sarwar and Tuman Leghari Zireen**
- **Period** — **1st January2020 to 31st December 2021**
- **Financial Resources** — **Financial needs can be met out of Supplementary grant. Total Cost is around Rs. 10.250 million. Annex-K**

g. Electric Resistivity Meter (ERM) Survey

Before decision about water boring or development of land, it is necessary to have information about quantity, quality and depth of available water. The facility available with the department is conduction of Electric Resistivity Survey (ERM) to have information about all mentioned parameters. But due to poor financial position of the local community, they are not able to pay prescribed fee for these surveys. It is proposed to waive off fee or subsidy may be provided to the farmers.

Image 18: ERM survey

Proposed scope of work is given as under:

Sr. No.	Name of Union Council	No. of ERM Surveys to be conducted
1	Mithwan	5
2	Berote Mundwani	5
3	Fazla Kachh	5
4	Barthi	10
5	Thiker	5
6	Mubarki	5
7	Tuman Khosa	5
8	Tuman Leghari Zireen	5
9	Tuman Leghari Bala	5
10	General	10
	TOTAL	**60**

- **Responsibility of Execution** — **Agriculture Engineer DG KhanDivision.**
- **Place of Execution** — **UC's Mithwan, Berote Mundwani, Fazla Kachh, Barthi, Thiker, Mubarki, Tuman Khosa, Tuman Leghari Zireen and Tuman Leghari Bala.**
- **Period** — **1st January2020 to 31st December 2021**
- **Financial Resources** — **Financial needs can be met out of Supplementary grant. Total Cost is around Rs. 6.23 million. Annex-L**

4

INTERVENTIONS BY ON FARM WATER MANAGEMENT WING

The tribal area of koh-e-Suleman is deficient in water resources, there is a need to adopt and promote climate smart interventions for efficient use of water. These interventions are given in the following table.

i. Lining and Improvement of water courses

Lining of water courses is necessary for efficient use of water in the Tribal Area. It's proposed to provide 71% share by the Govt for improvement of the identified schemes.

Figure 19: Lining of water courses

ii. Installation of High efficiency Irrigation System

50 sites for installation of HEIS have been identified. Installation of HEIS would be of great benefit for the water starved areas of the Koh-e-Suleman.

Figure 20: Image of High Efficiency Irrigation System

iii. Provision of Solar System for Operating HEIS

Most of the areas in Koh-e-Suleman are without electricity. It's therefore proposed that solar systems to the identified farmers may be provided at a subsidy of 90% to make all HEIS viable.

Figure 21: An image of Solar system in operation

Sr. No.	Name of Structure/ intervention	No.
1	Installation of High efficiency Irrigation System (90% Govt share)	50
2	Provision of Solar System for Operating HEIS (90% Govt share)	50
3	Construction of Water Storage Ponds (90% Govt share)	5
4	Water Course Improvement (71% Govt share)	1
5	Rehabilitation of Irrigation Schemes (90% Govt share)	3
6	Water Pumping for irrigation (Lift Irrigation (90% Govt share) Schemes)	2
7	Provision of Solar System for Lift irrigation Schemes (90% Govt share)	2

- **Responsibility of Execution** — **Director (On Farm Water Management) DG Khan.**
- **Place of Execution** — **UC's Mithwan, Berote Mundwani, Fazla Kachh, Barthi, Thiker, Mubarki, Tuman Khosa, Tuman Leghari Zireen and Tuman Leghari Bala.**
- **Period** — **1st January2020 to 31st December 2021**
- **Financial Resources** — **Financial needs can be met out of Supplementary grant. Total Cost is around Rs. 31.906 million. Annex-M**

5

INTERVENTIONS BY PEST WARNING & QUALITY CONTROL WING

In order to prepare the farmers about plant protection, regular training and awareness sessions shall be held on the pattern of the Extension wing. The farmers shall be given the basic training of pest identification of various crops, methods of pest scouting and the way of their treatment as per detail given as under:

i. Holding of Farmer Days

Regular farmer days shall be held by the Pest Warning Department to educate the farmers about pests of various crops. They shall be provided literature containing important information about the pests and the useful insects. They shall also be educated about the ETL etc.

Image 22: A scene of farmer day

ii. Provision of Spray Machines

It is proposed that the farmers may be provided spray machines of good quality at subsidized rates.

iii. Sessions for Imparting Spray Techniques

Regular sessions for imparting spray techniques may be held by the Pest Warning Department. The farmers may be provided all necessary information about the spray machines and their usage.

Image 23: A scene showing spray technique

Sr. No.	Activity	Rabi 2020	Kharif 2020	Total
1	Seminars	09	09	**18**
2	Farmer Days at demonstration Plots	52	33	**85**
3	Farmers trainings (05 per Union Council at selective sites for each two seasons)	45	45	**90**

- **Responsibility of Execution** — **Deputy Director Agriculture Pest Warning &Quality Control DG Khan**
- **Place of Execution** — **UC's Mithwan, Berote Mundwani, Fazla Kachh, Barthi, Thiker, Mubarki, Tuman Khosa, Tuman Leghari Zireen and Tuman Leghari Bala.**
- **Period** — **1st January2020 to 31st December 2021**
- **Financial Resources** — **Existing resources in collaboration with Ext. wing Rs. 31.906 million. Annex-N.**

6

NEED ASSESSMENT SURVEY

In order to know the demands of the farmers of this area, a comprehensive survey was conducted through the Agriculture Staff. In this survey 326 farmers were interviewed. They were asked to priorities their requirements for development of Agriculture in this area. Maximum number of farmers demanded provision of solar system. The next demands in descending order were of supply of water bore, construction of irrigation schemes, supply of fertilizers, supply of drinking water, construction of water ponds, supply of seeds, provision of erosion control structures, supply of fruit plants nursery, construction of ponds and financial assistance.

Sr. No.	Farmer Demand	No. of Farmers	%age
1.	Solar System	285	87
2.	Water Bore	230	71
3.	Irrigation Scheme	215	66
4.	Fertilizer	211	65
5.	Drinking water	94	29
6.	Water pond	79	24
7.	Seed	49	15

8.	Erosion Control Structure	23	7
9.	Fruit plants	22	7
10.	Pond	02	0.6
11.	Financial assistance	01	0.3

7

IMPACT ASSESSMENT

i. Economic

- Business opportunities in the rural areas would increase.
- Per capita income of the area would increase considerably.
- As a consequence of expansion in labour intensive enterprises new employment opportunities would be created for rural poor.
- would be improve living standards, life expectancy and opportunities of education for the people of this area.
- Would help introduce the culture of entrepreneurship in this area.
- Using water conservation techniques can save money used to divert water from different resources.

Image 24 Impact assessment

ii. Social

- The farmers' net income would increase.
- Health & living standard of the masses as a consequent would increase.
- Skill and awareness of farming community would improve.
- The local livestock will flourish due to available flora and water resources.
- There would be reduction in poverty.
- Economic prosperity would increase opportunities of better educational
- Life expectancy would be enhanced
- There would be considerable decrease in unemployment
- Health expenditure

Image 24 Social impact of development in agriculture

iii. Environmental

- The plan activities are in line with natural resource conservation.
- Enhanced vegetative cover and plantations will improve the environment and decrease environmental pollution.
- Installation of erosion preventive structures will decrease soil erosion considerably.
- Water storage structures will improve the underground water level.

Image 25 Environmental impact assessment