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NO.PMU/AGRI/SAGP/2013

# GOVERNMENT OF SINDH
# AGRICULTURE DEPARTMENT

Karachi dated the 17 – 12 – 2013

To,

Ms. Tahira Syed,
Task Team Leader,
(Sindh Agricultural Growth Project)
The World Bank

**SUBJECT: FINAL VERSION OF THE OPERATIONAL MANUAL - SAGP.**

It is to inform that final version of the operational manual dated 2nd October, 2013 approved by the Bank, will be followed and it will be available in all offices i.e PMU and PIUs as guideline.

**(ABDUL QADIR TAREEN)**
**PROJECT DIRECTOR, PMU (AGRICULTURE)**

Government of Sindh

# Sindh Agricultural Growth Project Operational Manual

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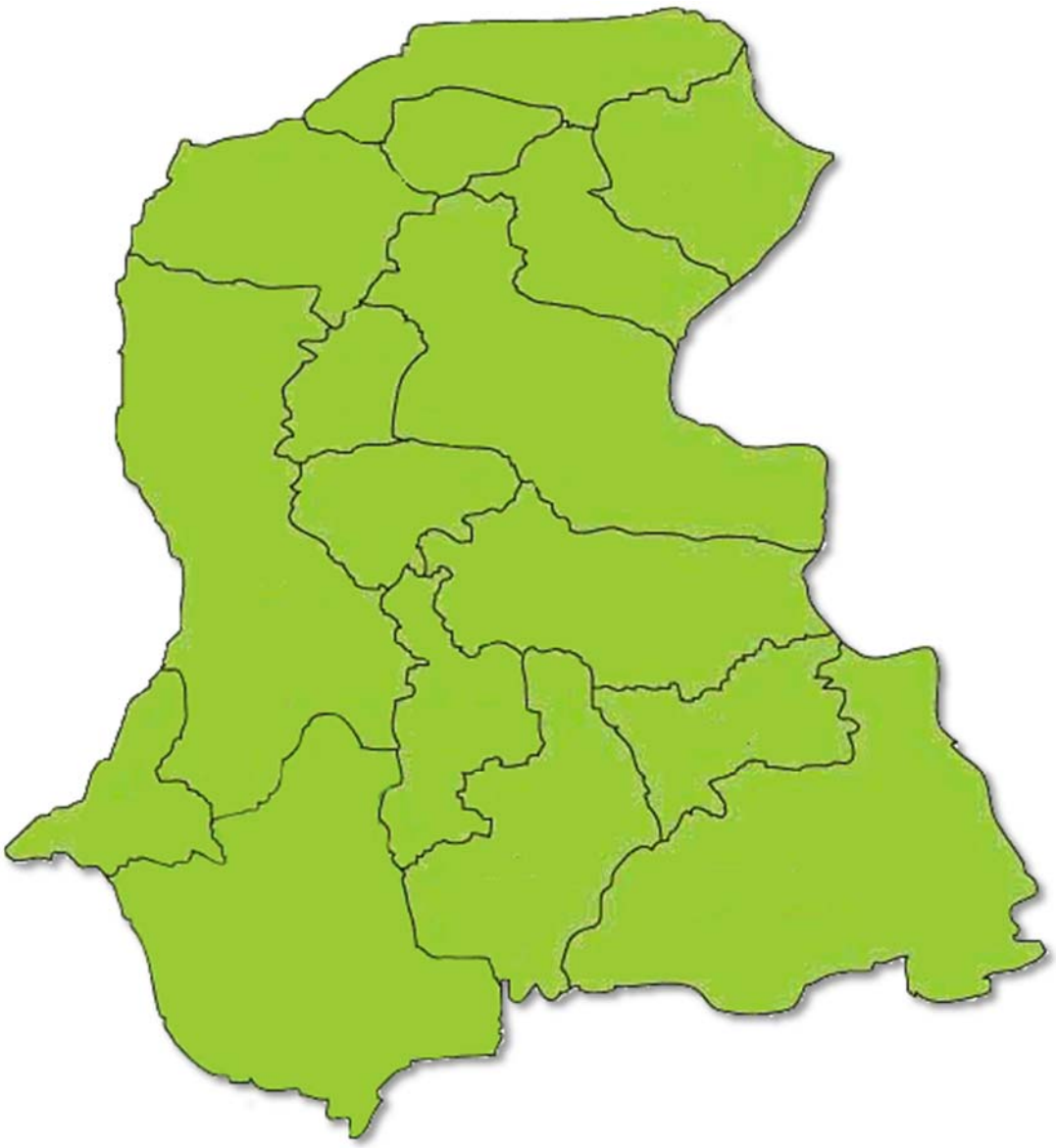


# Contents

## Acronyms

AI Artificial insemination

AVRDC World Vegetable Centre

CGIAR Consultative Group for International Agricultural Research

CRF Competitive Research Fund

ACS Additional Chief Secretary

DoA Department of Agriculture

DoLF Department of Livestock and Fisheries

EOI Expression of Interest

ESMF Environment & Social Management Framework

ESMP Environment & Social Management Plan

FM Financial Management

GRM Grievance Redressal Mechanism

ICT Information & Communication Technology

ILRI International Livestock Research Centre

M&E Monitoring and Evaluation

MIS Management Information System

MPG Milk Producer Group

NGO non-government organization

PIP Project implementation Plan

PIU Project Implementation Unit (district level)

PMU Project Management Unit (provincial level)

PC Project Coordinator

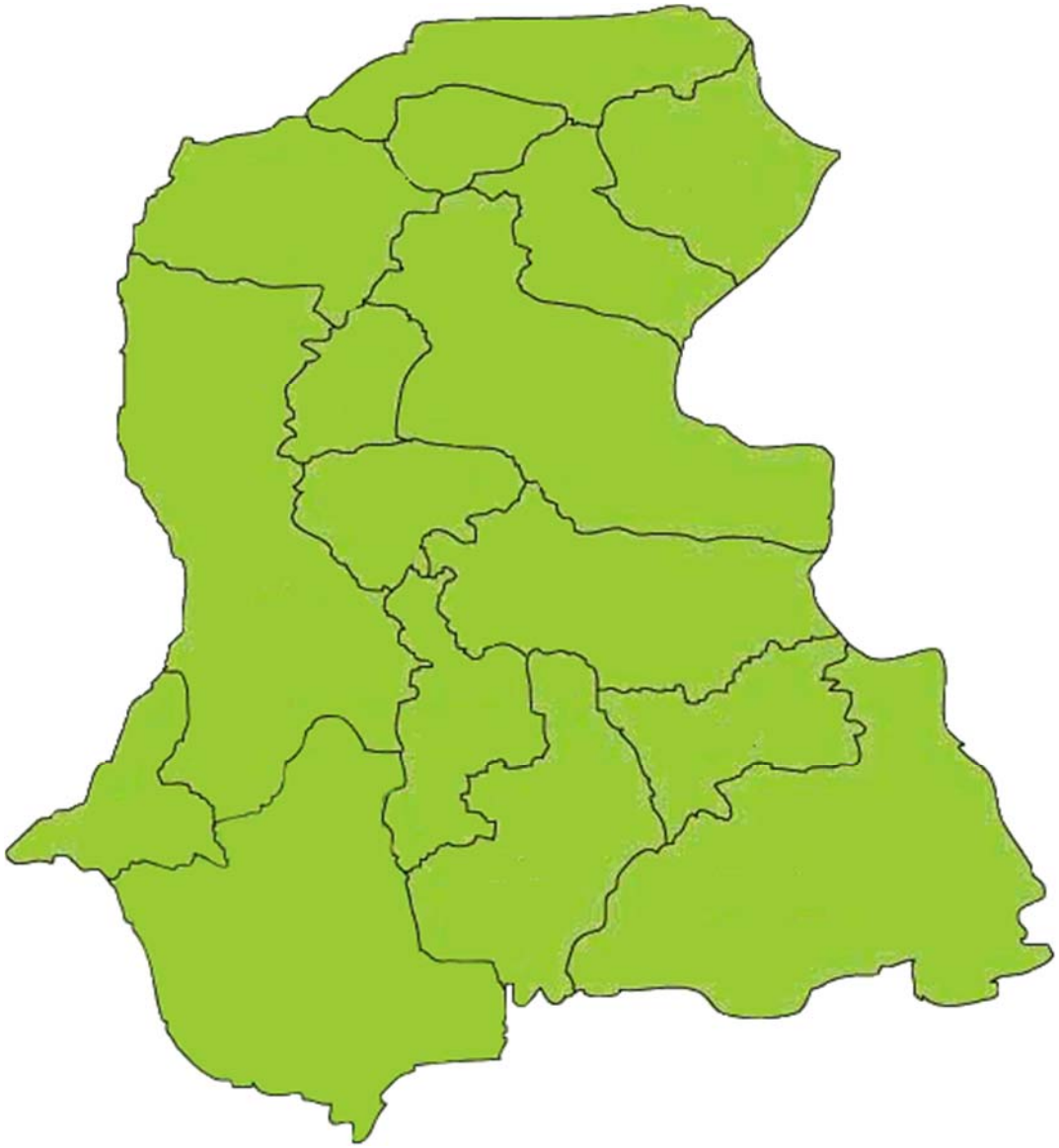
PCU Project Coordinating Unit

PSC Project Steering Committee

RFP Request for Proposal

TOR Terms of Reference

# BACKGROUND INFORMATION



# About the Operational Manual

### WHY HAVE AN OPERATIONAL MANUAL?

This Operational Manual (or Manual) is a user-friendly guide to the processes and procedures for implementing the Sindh Agricultural Growth Project of the project. It outlines the basic concepts and norms of the project and provides detailed guidance on how to implement every component of SAGP.

The Manual describes the processes and procedures that need to be followed for each component and commodity, the flow of funds for activities, guidelines for managing risks to the environment or to individual or groups, and the organisational and management structure of the project at the Province and District levels.

### WHO SHOULD USE THIS MANUAL?

This Manual is designed for the project implementers (PMUs, PIUs, support organizations, private sector partners, and farmers) and other key stakeholders (Project Coordinator, Project Steering Committee). It is designed as a practical guideline for the project staff, the project management unit and the agency implementation units.

### CAN THE OPERATIONAL MANUAL BE REVISED?

The Manual is a "living document". After approval by the Project Management Units, the Project Steering Committee, and the Bank, the Manual will subject to regular review to assess how relevant and accurate the information is and what information should be changed. Review of the Manual is mandatory at least once each year. Changes to the Manual must be agreed between the relevant PMU, the World Bank, and the Project Steering Committee before they are finalized. Updated information will be circulated to all concerned parties (i.e., PMU staff, PIU staff, support organization staff, PSC, PC, World Bank, etc.). All versions of the Manual will be maintained in the records of both departments. Older versions will be held in archives for reference purposes.

# Overview of Agriculture and Livestock in Sindh

Sindh Province has 23.8 per cent of Pakistan's population, 18 per cent of its land area, and 14 per cent of its total cropped area.[1] About 30-35 per cent of Sindh's population lives below poverty line, and a majority of the poor are rural. Landholding patterns in Sindh are highly skewed from national norms, with a median farm size of around 11.33 hectares, as compared

[1] Sindh's cultivated area is 3.1 million hectares.

with 2.83 hectares in Punjab. According to one estimate in 2005, wealthy landlords in Sindh, who held farms in excess of 100 acres and who accounted for less than 1 per cent of all farmers in the province, owned 150 per cent more land than the combined holdings of 62 per cent of small farmers with landholding less than 5 acres. Large landowners dominate production of the four major crops in Sindh—rice, wheat, sugar cane, and cotton. These crops are heavily regulated and receive extensive government subsidies through price support structures that often favour one segment of the value chain over another.

The first order constraint identified in the analysis of the targeted value chains is the quality of production and the high level of post-harvest losses, so SAGP will first focus on improving that quality. The interaction between producers and other actors along a value chain varies by commodity. In milk, producers generally produce directly for processors. In horticulture, they may link with either traders or processors. In all of targeted value chains, there are several private sector actors (traders and processors) who are actively seeking high-quality products for domestic and international markets. Despite the presence of many value chain actors, 25 per cent of Pakistan's fruits and vegetables produced annually go to waste between the farm and the consumer. Only four per cent of Pakistan's total fruit and vegetables are exported and at far lower prices (less than 41% of the world average) due to poor quality and the reliance on traditional low end markets. In milk production, losses climb to about 30 per cent in the summer due to lack of infrastructure and equipment. Milk production declines by 50 per cent in the summer, which leads to huge shortages and high prices.

The majority of Sindh residents are directly or indirectly engaged in livestock, producing significant amounts of the nation's milk (27%), beef (27%), mutton (21%), and poultry products (18%). In addition livestock provides financial security and a risk mitigation strategy, plus draft power and by-products such as wool, hides and manure. Livestock Census 2006 shows 6.9 million cattle, 7.3 million buffalo, 12.6 million goats, and 3.9 million sheep population in Sindh.

The milk sector has a large number of smallholders in the rural areas in addition to 'milk colonies' around Karachi and some of the other larger cities in Sindh, which are all very commercial. Besides its importance in the national economy, livestock rearing is an integral part of socio-economic activities of the rural areas and plays a very supportive role in mitigating the effects of poverty by providing essential items of daily use. The milk sector is an important source of regular income for rural communities and offers ample scope for improvement. The competition for raw milk provides a good starting point to invest in farm development: smallholders and medium scale farmers that can be motivated to improve their efficiency and productivity, responding to a growing demand for raw milk.

# Overview of the Sindh Agricultural Growth Project[2]

The SAGP will focus on horticulture—particularly chilies (92 per cent of national production), onions (33 per cent), and dates (about 50 per cent)—and milk production because they have a small farmer focus, have significant involvement of women in production and processing, and, from a national perspective, Sindh enjoys the greatest competitive advantage in these pro-poor production value chains. Horticulture is largely unregulated, includes more private sector actors than the major crops, and has received little donor attention in the past. When donors have invested, they have focused largely on mangos and bananas—the two most profitable horticulture crops, which are often grown by large landowners. Investing in horticulture is seen to offer the best potential for increased small producer incomes, new employment opportunities in production and processing, improved resource productivity, and enhanced micronutrient availability in the market.[3] The one exception to this strategy is the planned intervention in the rice value chain, which will target a cluster of small and medium sized producers to help them reduce the post-harvest damage and loss from poor practices.

### WHAT IS THE GOAL OF THE PROJECT?

The proposed Project Development Objective (PDO) is *to improve the productivity and competitiveness of small and medium producers in selected commodity value chains.* This will be achieved by:

a. investing in knowledge and technology for producers in the sub-sectors of crops and livestock; and

b. strengthening public sector institutions to enhance the enabling environment for sustained sectoral growth.

### WHO WILL BENEFIT FROM THE PROJECT?

SAGP is designed to help **small and medium producers in Sindh**, especially those producing one of the selected commodities:

- Dates
- Onions

[2] In this operational manual and all project documents, the term "agriculture" refers to major, minor, and condiment crops. The term "agricultural" refers to the broad production section including agriculture, livestock, fisheries, forestry, and agribusiness." This project is addressing issues in the agricultural sector and making specific interventions in agriculture and livestock.

[3] Dr. Muhammad Jameel Khan, Advisor for Agriculture Planning, Government of Pakistan Planning Commission. 2011. "Agricultural Growth and Productivity Enhancement". Presentation made at the Roundtable Dialogue on Agriculture and Water in Pakistan.

- Chilies
- Rice (focusing on post-harvest loss)
- Milk

The project will use official Government of Sindh definitions of small and medium producer for this project. In milk production, it is:

- Small holder: 1-6 milk animals
- Medium holders: 6-25 milk animals.

In the rice and horticulture value chains, this is:

- Small holder: 1-12.5 acres
- Medium holder: 12.5–50 acres

## WHERE WILL THE PROJECT BE IMPLEMENTED?

The project will be provincial in scope but specific activities will be concentrated geographically based on agro-ecological conditions or natural clustering of economic activities. It aims to reach 112,360 farmers working about 69,589 acres and 153 milk producer groups managing 30,600 milk animals. The geographic area for each commodity is provided in the tables below.

**Table 1 Implementation Districts for SAGP by Commodity Crop**

| Commodity | Implementation District | S No. | Implementation Talukas | Target Farmers (number) | Targeted Acres (number) |
|---|---|---|---|---|---|
| Chilies | Mirpurkhas | 1 | Mirpurkhas | 11,750.00 | 5,875.00 |
| | | 2 | Digri | | |
| | | 3 | Jhudo | | |
| | | 4 | KGM | | |
| | Umerkot | 5 | Umerkot | 12,000.00 | 8,000.00 |
| | | 6 | Kunri | | |
| | | 7 | Samaro | | |
| | Badin | 8 | Talhar | 7,270.00 | 3,635.00 |
| | | 9 | Matli | | |
| | **CHILIES TOTAL** | | | **31,020.00** | **17,510.00** |
| Onions | Ghotki | 10 | Ghotki | 3,336.00 | 1,668.00 |
| | | 11 | Khangarh | | |
| | | 12 | Mirpur Mathelo | | |
| | | 13 | Ubauro | | |
| | | 14 | Daharki | | |
| | Nausherhro Feroze | 15 | Kandioro | 2,988.00 | 1,494.00 |

| Commodity | Implementation District | S No. | Implementation Talukas | Target Farmers (number) | Targeted Acres (number) |
|---|---|---|---|---|---|
| | | 16 | Naushero Feroze | | |
| | | 17 | Bhiria | | |
| | | 18 | Moro | | |
| | Nawabshah | 19 | Nawabshah | 2,900.00 | 1,450.00 |
| | | 20 | Sakrand | | |
| | Shikarpur | 21 | Shikarpur | 2,200.00 | 1,100.00 |
| | | 22 | Khanpur | | |
| | | 23 | Garhi Yasin | | |
| | | 24 | Lakhi | | |
| | Sanghar | 25 | Sanghar | 4,500.00 | 2,250.00 |
| | | 26 | Sinjhoro | | |
| | | 27 | Jam Nawaz Ali | | |
| | | 28 | Shahdadpur | | |
| | | 29 | Tando Adam | | |
| | | 30 | Sindhri | | |
| | | 31 | Khipro | | |
| | MirpurKhas | 32 | Mirpurkhas | 3,336.00 | 1,668.00 |
| | | 33 | Digri | | |
| | | 34 | Jhudo | | |
| | | 35 | KGM | | |
| | Hyderabad & Tando Allahyar | 36 | Hyderabad Rural | 4,500.00 | 2,250.00 |
| | | 37 | Tando Allahyar | | |
| | | 38 | Chamber | | |
| | | 39 | Jhando Mari | | |
| | Matiari | 40 | Matiari | 3,600.00 | 2,925.00 |
| | | 41 | Saeedabad | | |
| | | 42 | Hala | | |
| | Badin | 43 | Matli, | 3,300.00 | 3,112.00 |
| | | 44 | Talhar | | |
| | Jamshoro | 45 | Thana Bulla Khan | 2,700.00 | 2,906.00 |
| | **ONIONS TOTAL** | | | **33,360.00** | **20,823.00** |
| Dates | Khairpur | 46 | Khairpur | 5,000.00 | 2,500.00 |
| | | 47 | Kingri, | | |
| | | 48 | Sobhodero | | |
| | | 49 | Gambat | | |
| | | 50 | Kot Diji | | |
| | | 51 | Mirwah | | |
| | | 52 | Faiz Ganj | | |
| | Sukkur | 53 | Sukkur | 2,980.00 | 1,490.00 |

| Commodity | Implementation District | S No. | Implementation Talukas | Target Farmers (number) | Targeted Acres (number) |
|---|---|---|---|---|---|
| | | 54 | Rohri | | |
| | | 55 | Pano Aqil | | |
| | **DATES TOTAL** | | | **7,980.00** | **3,990.00** |
| Rice (post-harvest) | Larkana | 56 | Larkana | 4,500.00 | 3,000.00 |
| | | 57 | Dokri | | |
| | | 58 | Rato dero | | |
| | Shikarpur | 59 | Shikarpur | 4,600.00 | 3,067.00 |
| | | 60 | Garhi Yasin | | |
| | | 61 | Lakhi | | |
| | Qambar | 62 | Qambar | 3,600.00 | 3,000.00 |
| | | 63 | Shahdadkot | | |
| | | 64 | Merokhan | | |
| | | 65 | Naseerabad | | |
| | | 66 | Warah | | |
| | Jacobabad | 67 | Jacobabad | 5,000.00 | 3,333.00 |
| | | 68 | Garhi Khairo | | |
| | | 69 | Thul | | |
| | Kashmore | 70 | Kashmore | 4,400.00 | 2,933.00 |
| | | 71 | Kandhkot | | |
| | Dadu | 72 | Dadu | 6,500.00 | 4,333.00 |
| | | 73 | K.N Shah | | |
| | | 74 | Mehar | | |
| | | 75 | Juhi | | |
| | Badin | 76 | Badin | 5,300.00 | 3,533.00 |
| | | 77 | Golarchi | | |
| | | 78 | Matli, | | |
| | | 79 | Talhar | | |
| | | 80 | T.Bago | | |
| | Thatta | 81 | Thatta | 6,100.00 | 4,067.00 |
| | | 82 | Mirpur Sakro, | | |
| | | 83 | Keti Bandar | | |
| | | 84 | Ghorabari, Sujawal | | |
| | | 85 | Mirpur Bathoro | | |
| | | 86 | Jati | | |
| | | 87 | Shah Bandar | | |
| | | 88 | Kharo Chan | | |
| | **RICE TOTAL** | | | **40,000.00** | **27,266.00** |
| **GRAND TOTAL** | | | | **112,360.00** | **69,589.00** |

**Table 2 Implementation Districts for SAGP Milk Investment**

| Implementation District | Implementation Talukas | Target MPGs (number) | Targeted dairy animals (number) |
|---|---|---|---|
| Khairpur | Khairpur | 30 | 6000.00 |
| | Kingri | | |
| | Sobhodero | | |
| | Gambat | | |
| | Kot Diji | | |
| | Mirwah | | |
| | Faiz Ganj | | |
| | Nara | | |
| Nausheroferoze | Kandioro | 25 | 5000.00 |
| | Naushahro Feroze | | |
| | Bhiria | | |
| | Moro | | |
| | Mehrabpur | | |
| Hyderabad | Hyderabad City | 6 | 1200.00 |
| | Latifabad | | |
| | Hyderabad Rural | | |
| | Qasimabad | | |
| Thatta | Thatta | 12 | 2400.00 |
| | Mirpur Sakro | | |
| | Keti Bunder | | |
| | Ghorabari | | |
| | Sujawal | | |
| | Mirpur Bathoro | | |
| | Jati | | |
| | Shah Bandar | | |
| | Kharo Chan | | |
| Sukkur | Sukkur | 10 | 2000.00 |
| | Rohri | | |
| | Pano Aqil | | |
| | Salehpat | | |
| | New Sukkur | | |
| Larkana | Bakrani | 20 | 4000.00 |
| | Dokri | | |
| | Rato Dero | | |
| | Larkana | | |
| Mirpurkhas | Mirpur Khas | 26 | 5200.00 |
| | Digri | | |
| | Kot Ghulam Mohammad | | |
| | Jhuddo | | |
| | Sindhri | | |
| | Jhando Mari | | |
| Shaheed Benazirabad | Sakrand | 24 | 4800.00 |
| | Nawab Shah | | |
| | Kazi Ahmed | | |
| | Daur | | |
| **TOTAL** | | **153** | **30,600.00** |

**Phased Geographic Implementation**

SAGP will implement in phases over the first 4 years of the project, with the 5th year focusing on consolidation of lessons and activities. This means that for each commodity, the project will implement in a limited geographic area in Year 1, gradually expanding its scope in Years 2-4. This gives implementers a chance to apply lessons learned from implementation in Year 1 to the work in Year 2, and so on. In addition, leading/innovative farmers from Year 1 can be brought into the help transfer lessons to new farmers in Year 2, and so on.

Table 3 below outlines the phased implementation plan.

**Table 3 Phased Geographic Implementation Plan for SAGP by Commodity Crop**

| Commodity | District | Year 1 | | Year 2 | | Year 3 | | Year 4 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Target Areas | No. of Farmers | Target Areas | No. of Farmers | Target Areas | No. of Farmers | Target Areas | No. of Farmers |
| **Chilies** | Mirpurkhas | Mirpurkhas, Digri, Jhudo,K.G.M | 2,937 | Mirpurkhas, Digri, Jhudo,K.G.M | 2,937 | Mirpurkhas, Digri, Jhudo,K.G.M | 2,937 | Mirpurkhas, Digri, Jhudo,K.G.M | 2,935 |
| | Umerkot | Umerkot, Kunri, Samaro | 3,000 | Umerkot, Kunri, Samaro | 3,000 | Umerkot, Kunri, Samaro | 3,000 | Umerkot, Kunri, Samaro | 3,000 |
| | Badin | Talhar, Matli | 1,817 | Talhar, Matli | 1,817 | Talhar, Matli | 1,817 | Talhar, Matli | 1,819 |
| | **TOTAL** | | **7,754** | | **7,754** | | **7,754** | | **7,754** |
| **Onions** | Ghotki | Ghotki, Khangarh, Mirpur Mathelo, Ubauro, Daharki. | 834 | Ghotki, Khangarh, Mirpur Mathelo, Ubauro, Daharki. | 834 | Ghotki, Khangarh, Mirpur Mathelo, Ubauro, Daharki. | 834 | Ghotki, Khangarh, Mirpur Mathelo, Ubauro, Daharki. | 834 |
| | Nausherhro Feroze | Kandioro, Naushero Feroze, Bhiria, Moro | 747 | Kandioro, Naushero Feroze, Bhiria, Moro | 747 | Kandioro, Naushero Feroze, Bhiria, Moro | 747 | Kandioro, Naushero Feroze, Bhiria, Moro | 747 |
| | Nawabshah | Nawabshah, Sakrand, | 725 | Nawabshah, Sakrand, | 725 | Nawabshah, Sakrand, | 725 | Nawabshah, Sakrand, | 725 |
| | Shikarpur | Shikarpur, Khanpur,Garhi Yasin, Lakhi | 550 | Shikarpur, Khanpur,Garhi Yasin, Lakhi | 550 | Shikarpur, Khanpur,Garhi Yasin, Lakhi | 550 | Shikarpur, Khanpur,Garhi Yasin, Lakhi | 550 |
| | Sanghar | Sanghar, Sinjhoro, Jam Nawaz Ali, Shahdadpur, Tando Adam, Sindhri, Khipro | 1,125 | Sanghar, Sinjhoro, Jam Nawaz Ali, Shahdadpur, Tando Adam, Sindhri, Khipro | 1,125 | Sanghar, Sinjhoro, Jam Nawaz Ali, Shahdadpur, Tando Adam, Sindhri, Khipro | 1,125 | Sanghar, Sinjhoro, Jam Nawaz Ali, Shahdadpur, Tando Adam, Sindhri, Khipro | 1,125 |

| Commodity | District | Year 1 | | Year 2 | | Year 3 | | Year 4 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Target Areas | No. of Farmers | Target Areas | No. of Farmers | Target Areas | No. of Farmers | Target Areas | No. of Farmers |
| | MirpurKhas | Mirpurkhas, Digri, Jhudo, KGM | 834 | Mirpurkhas, Digri, Jhudo, KGM | 834 | Mirpurkhas, Digri, Jhudo, KGM | 834 | Mirpurkhas, Digri, Jhudo, KGM | 834 |
| | Hyderabad & T.Allahyar | Hyderabad Rural, Tando Allahyar, Chamber, Jhando Mari | 1,125 | Hyderabad Rural, Tando Allahyar, Chamber, Jhando Mari | 1,125 | Hyderabad Rural, Tando Allahyar, Chamber, Jhando Mari | 1,125 | Hyderabad Rural, Tando Allahyar, Chamber, Jhando Mari | 1,125 |
| | Matiari | Matiari, Saeedabad, Hala | 900 | Matiari, Saeedabad, Hala | 900 | Matiari, Saeedabad, Hala | 900 | Matiari, Saeedabad, Hala | 900 |
| | Badin | Matli, Talhar | 825 | Matli, Talhar | 825 | Matli, Talhar | 825 | Matli, Talhar | 825 |
| | Jamshoro | Thana Bulla Khan | 675 | Thana Bulla Khan | 675 | Thana Bulla Khan | 675 | Thana Bulla Khan | 675 |
| | **TOTAL** | | **8,340** | | **8,340** | | **8,340** | | **8,340** |
| **Dates** | Khairpur | Khairpur, Kingri, Sobhodero, Gambat, Kot Diji, Mirwah, Faiz Ganj | 1,250 | Khairpur, Kingri, Sobhodero, Gambat, Kot Diji, Mirwah, Faiz Ganj | 1,250 | Khairpur, Kingri, Sobhodero, Gambat, Kot Diji, Mirwah, Faiz Ganj | 1,259 | Khairpur, Kingri, Sobhodero, Gambat, Kot Diji, Mirwah, Faiz Ganj | 1,250 |
| | Sukkur | Sukkur, Rohri, Pano Aqil | 745 | Sukkur, Rohri, Pano Aqil | 745 | Sukkur, Rohri, Pano Aqil | 745 | Sukkur, Rohri, Pano Aqil | 745 |
| | **TOTAL** | | **1,995** | | **1,995** | | **2,004** | | **1,995** |
| **Rice (post-harvest)** | Larkana | Larkana, Dokri, Rato dero, | 1,125 | Larkana, Dokri, Rato dero, | 1,125 | Larkana, Dokri, Rato dero, | 1,125 | Larkana, Dokri, Rato dero, | 1,125 |
| | Shikarpur | Shikarpur, Garhi Yasin, Lakhi | 1,150 | Shikarpur, Garhi Yasin, Lakhi | 1,150 | Shikarpur, Garhi Yasin, Lakhi | 1,150 | Shikarpur, Garhi Yasin, Lakhi | 1,150 |

| Commodity | District | Year 1 | | Year 2 | | Year 3 | | Year 4 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Target Areas | No. of Farmers | Target Areas | No. of Farmers | Target Areas | No. of Farmers | Target Areas | No. of Farmers |
| | Qamber | Qambar, Shahdadkot, Merokhan, Naseerabad, Warah | 900 | Qambar, Shahdadkot, Merokhan, Naseerabad, Warah | 900 | Qambar, Shahdadkot, Merokhan, Naseerabad, Warah | 900 | Qambar, Shahdadkot, Merokhan, Naseerabad, Warah | 900 |
| | Jacobabad | Jacobabad, Garhi Khairo, Thul, | 1,250 | Jacobabad, Garhi Khairo, Thul, | 1,250 | Jacobabad, Garhi Khairo, Thul, | 1,250 | Jacobabad, Garhi Khairo, Thul, | 1,250 |
| | Kashmore | Kashmore, Kandhkot | 1,100 | Kashmore, Kandhkot | 1,100 | Kashmore, Kandhkot | 1,100 | Kashmore, Kandhkot | 1,100 |
| | Dadu | Dadu,K.N Shah, Mehar, Juhi | 1,625 | Dadu,K.N Shah, Mehar, Juhi | 1,625 | Dadu,K.N Shah, Mehar, Juhi | 1,625 | Dadu,K.N Shah, Mehar, Juhi | 1,625 |
| | Badin | Badin, Golarchi, Matli, Talhar, T.Bago | 1,325 | Badin, Golarchi, Matli, Talhar, T.Bago | 1,325 | Badin, Golarchi, Matli, Talhar, T.Bago | 1,325 | Badin, Golarchi, Matli, Talhar, T.Bago | 1,325 |
| | Thatta | Thatta, Mirpur Sakro, Keti Bandar, Ghorabari, Sujawal, Mirpur Bathoro, Jati, Shah Bandar, Kharo Chan | 1,525 | Thatta, Mirpur Sakro, Keti Bandar, Ghorabari, Sujawal, Mirpur Bathoro, Jati, Shah Bandar, Kharo Chan | 1,525 | Thatta, Mirpur Sakro, Keti Bandar, Ghorabari, Sujawal, Mirpur Bathoro, Jati, Shah Bandar, Kharo Chan | 1,525 | Thatta, Mirpur Sakro, Keti Bandar, Ghorabari, Sujawal, Mirpur Bathoro, Jati, Shah Bandar, Kharo Chan | 1,525 |
| | **TOTAL** | | **10,000** | | **10,000** | | **10,000** | | **10,000** |
| **GRAND TOTALS** | | **Year 1** | 28,089 | **Year 2** | 28,089 | **Year 3** | 28,098 | **Year 4** | 28,089 |
| **GRAND TOTAL PROJECT** | | | **112,365** | | | | | | |

**Table 4 Phased implementation plan for milk investment**

| District | Year 1 | | Year 2 | | Year 3 | | Year 4 | |
|---|---|---|---|---|---|---|---|---|
| | Target MPGs | No. of Farmers | Target MPGs | No. of Farmers | Target MPGs | No. of Farmers | Target MPGs | No. of Farmers |
| Khairpur | **30** | **1,200** | 30 | 1,200 | 30 | 1,200 | 30 | 1,200 |
| Nausheroferoze | **25** | **1,000** | 25 | 1,000 | 25 | 1,000 | 25 | 1,000 |
| Hyderabad | | | **6** | **240** | 6 | 240 | 6 | 240 |
| Thatta | | | **12** | **480** | 12 | 480 | 12 | 480 |
| Sukkur | | | | | **26** | **1,040** | 26 | 1,040 |
| Larkana | | | | | **24** | **960** | 24 | 960 |
| Mirpurkhas | | | | | | | **10** | **400** |
| Shaheed Benazirabad | | | | | | | **20** | **800** |
| **TOTAL** | **55** | **2,200** | **18** | **720** | **50** | **2,000** | **30** | **1,200** |

**GRAND TOTAL:** **Target MPGs: 153** **Target Farmers: 6,120**

**WHO WILL IMPLEMENT THE PROJECT?**

The Department of Livestock and Fisheries and the Department of Agriculture will jointly be responsible for implementing the project and for ensuring that the project development objectives are met. The two Departments will be responsible for implementation of their respective components as well as project management. The project would largely be implemented through the existing structures of the two Departments for delivering local agriculture and livestock extension and research services. However, both Departments would be augmented with additional technical and project management capacities to support the implementation.

There will be three tiers of implementation:

1. Project oversight and coordination at inter-departmental provincial level;
2. Project management at the departmental provincial levels; and
3. Project implementation at the district level.

***Provincial Level Oversight and Coordination***

A provincial level the Project Steering Committee (PSC) will guide, monitor, and supervise the implementation of the Bank project. The PSC will be chaired by the Additional Chief Secretary and will provide overall decision making and policy guidance on aspects relating to agricultural sector development and growth for its contribution to the provincial GDP. The PSC would review progress and will meet every six months or as need to perform tasks including approval of annual work plans and review of project's financial reports and audit reports (internal and external). It would also look into mid-course correction, and issuing guidelines for smooth implementation of the project. The PSC members will include:

- ✓ Additional Chief Secretary (chair)
- ✓ Secretary Finance
- ✓ Secretary Agriculture
- ✓ Secretary Livestock
- ✓ Representatives of Private Sector Stakeholders
- ✓ Project Coordinator (member secretary)
- ✓ Any other member/members the Committee may co-opt

The PSC will be supported by a full-time Project Coordinator. The Project Coordinator would be responsible for consolidated monitoring and evaluation of the project. The quarterly reports prepared by the PMUs would be consolidated by the Project Coordinator. In addition, the Project Coordinator would prepare Annual Reports with Project Implementation

Plans (PIP). The project M&E consultants will report to the Project Coordinator. Development of the Sindh Agricultural Development Strategy will also be managed by the office of the Project Coordinator under the guidance of the Project Steering Committee (PSC). The Project Coordinator will also be responsible for managing the implementation and dissemination of feasibility studies.

***Project Management***

***Project Management Units:*** Two Project Management Units (PMUs) will be established in the Department of Agriculture and Department of Livestock respectively headed by Project Directors who are appointed by the Government. The position of a Project Coordinator will be established to ensure that joint monitoring, reporting and coordination takes place with the help of the two Departments.

The PMUs will be responsible for overall project management, monitoring and supervision, as well as fiduciary and safeguards implementation and compliance. The PMUs will have project management and implementation staff with adequate qualification and expertise. The PMUs and where needed, would be provided with additional technical support through consultants.

The PMUs will take the lead role in planning, coordinating and monitoring of project performance in line with the project implementation schedule, and facilitate regular decision making for quality and in time implementation of various components. The PMUs will also be responsible for ensuring that resources are budgeted as per approved Project Implementation Plans. The PMUs will have procurement and financial management responsibilities and will ensure that project accounts are managed and audited on time. Specific responsibilities of the PMUs would be:

- ✓ Preparing annual Project Implementation Plans (PIPs). The Agriculture and Livestock PMUs will prepare respective PIPs, which will be consolidated by the Project Coordinator into a single PIP for seeking approval of the PSC and sharing with the Bank task team
- ✓ Ensuring timely implementation according to the PIP including budgets, procurement plans and agreed quality controls
- ✓ Preparing procurement packages and overseeing technical quality of contracts
- ✓ Coordinating and providing technical and project management support to the field implementation teams at the respective Project Implementation Units
- ✓ Informing, supporting, coordinating and interacting with the key project partners and ensuring participation from project stakeholders as well as coordination with other development partners

- ✓ Reporting on the results of monitoring and evaluating all aspects of the project inputs, outputs and outcomes, as well as facilitating learning and stock taking for course correction during the project implementation
- ✓ Implementing and monitoring project risk management measures and accountability and information sharing mechanisms
- ✓ Disclosing project implementation information available through websites and other means of communication for enhanced transparency on project implementation and achievement of results
- ✓ Maintaining a robust grievance redressal mechanism which is fully communicated to the project stakeholders

The PMUs would be adequately staffed and would also be supported by additional technical assistance and monitoring support. The Project Coordinator's office would house the M&E consultants for the overall project and for tasks including baseline development, joint reporting and monitoring, management and information system (MIS) establishment and operationalization, etc.

***Project Implementation***

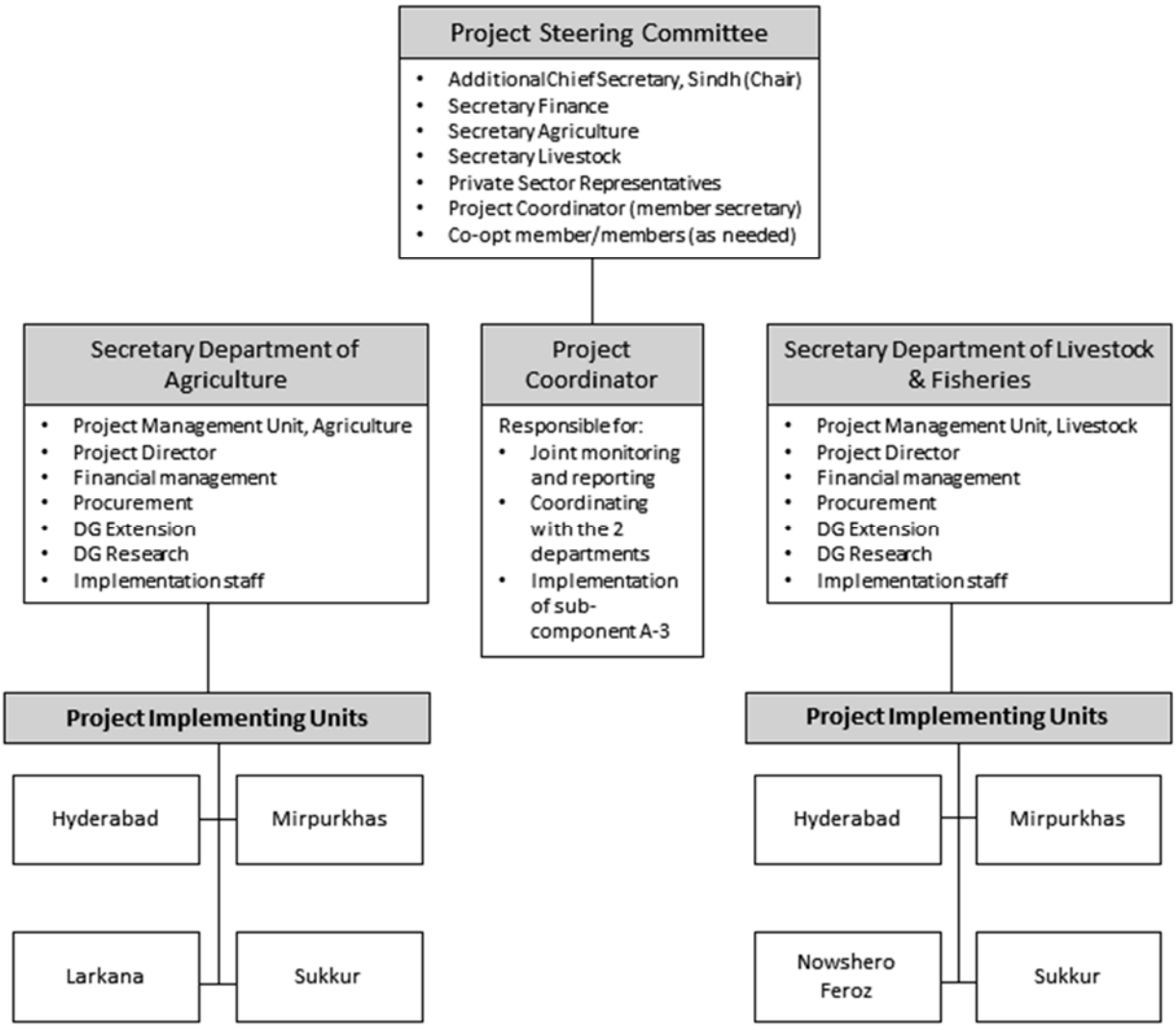
***Project Implementation Units:*** At the district level, Project Implementation Units (PIUs) will be established to provide support staff, training and equipment to build capacity and strengthen the arrangements already in place, mainly the existing Research and Extension wings of the Department of Agriculture and Department of Livestock. The PIUs would be provided with capacity building so that they can access and use a greater range of information products, decision tools, and manage field demonstrations.

A total of eight (8) PIUs will be established – two each in Hyderabad, Mirpukhas, and Sukkur and one in Larkana and Naushero Feroz districts. The PIUs would have adequate staff to ensure all implementation responsibilities are properly resourced. The PIUs will be responsible for the operational management and implementation of the specific sub-components. The PIUs will report to respective PMUs for day-to-day management and implementation of project sub-components and will be supported by implementation as well as fiduciary staff of the PMUs. Specifically the PIUs would be responsible for:

- ✓ Feeding into the preparation of Project Implementation Plans (PIPs) and annual budget projection and planning. The field PIPs will feed into preparation of the single PIP for seeking approval of the PSC and sharing with the Bank task team
- ✓ Ensuring timely implementation according to the PIP including budgets, procurement plans and agreed quality controls
- ✓ Providing detailed information for preparation of the procurement packages to respective PMUs as well as supervising contract implementation at field level

- ✓ Informing, supporting, coordinating and interacting with the farmers and producers at the district and sub-district levels
- ✓ Preparing regular, monthly and quarterly progress reports that feed into the overall project implementation reporting on the results of all aspects of the project inputs, outputs and outcomes
- ✓ Ensuring information availability to farmers and producers on project implementation and provide timely responses to requests for information from beneficiaries and other stakeholders
- ✓ Implementing the grievance redressal mechanism.

**Figure 1 Implementing institutions for the SAGP**

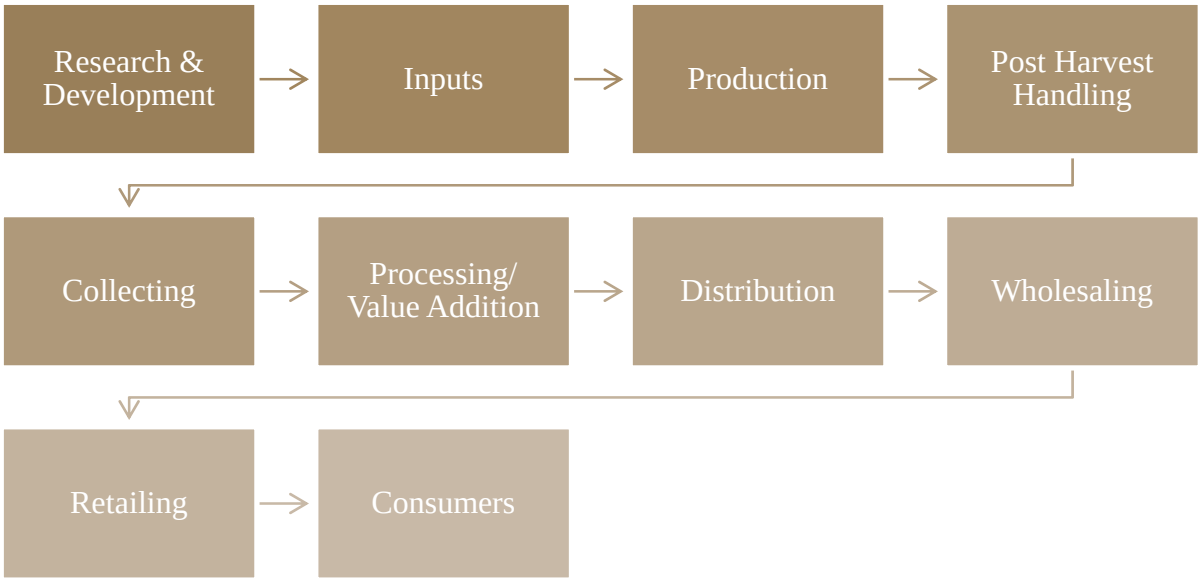


## WHAT WILL THE PROJECT DO?

SAGP will use a value chain approach to provide direct investment support for: (1) developing more effective and efficient farming systems; (2) introducing technology packages for increased productivity and value addition, and; (3) improving market access. The project will further contribute to accelerated growth by supporting more effective institutional and policy development.

The working hypothesis for the project is that a major constraint on market access (and therefore on farmer incomes) is low production and low quality of produce in the selected value chains. If these problems can be addressed, the existing private sector in the value chain will be able to respond. SAGP is envisioned as the first engagement between the Government of Sindh and the World Bank to improve the functioning of the agricultural sector, and in this first instalment, it will invest in upstream of the value chain.

**Figure 2 Sample commodity value chain**



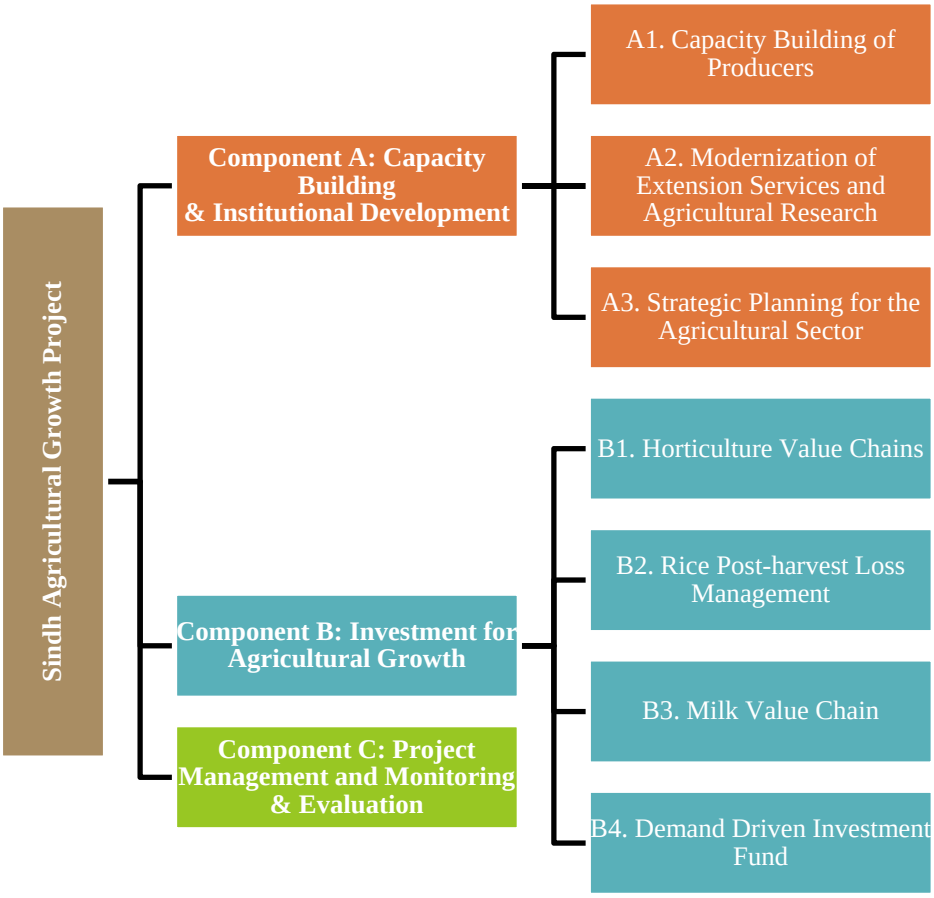

## HOW IS THE PROJECT ORGANIZED?

SAGP is divided into three separate components:

- Component A: Capacity Building & Institutional Development
- Component B: Investment for Agricultural Growth
- Component C: Project Management and Monitoring & Evaluation

Each component is further divided into specific sub-components and investment activities, which are described in the following sections. The figure below shows only the official components and subcomponents. The activities to be undertaken by each PMU will be elaborated in subsequent sections.

**Figure 3 Overview of SAGP Components**




## WHAT BENEFITS ARE AVAILABLE FOR PROJECT STAKEHOLDERS?

The targeted producers in SAGP will be able to avail the equipment, services, and training which are bundled into Technology Transfer Packages under Component B (Sub-components 1-3). These packages include the equipment and services that are absolutely necessary for producers to have in order to increase their production and improve their production quality.

There exists in the market other more complex equipment, and more technologies, that are good, but not essential; they are not suitable for individual farmers to own and maintain. If a producer/entrepreneur, producer group, or enterprise wishes to access that technology through the project, they can avail the Demand Driven Innovation Fund. This fund can

finance the capital costs of equipment that can be used for production and/or for a service providing enterprise in the local area.

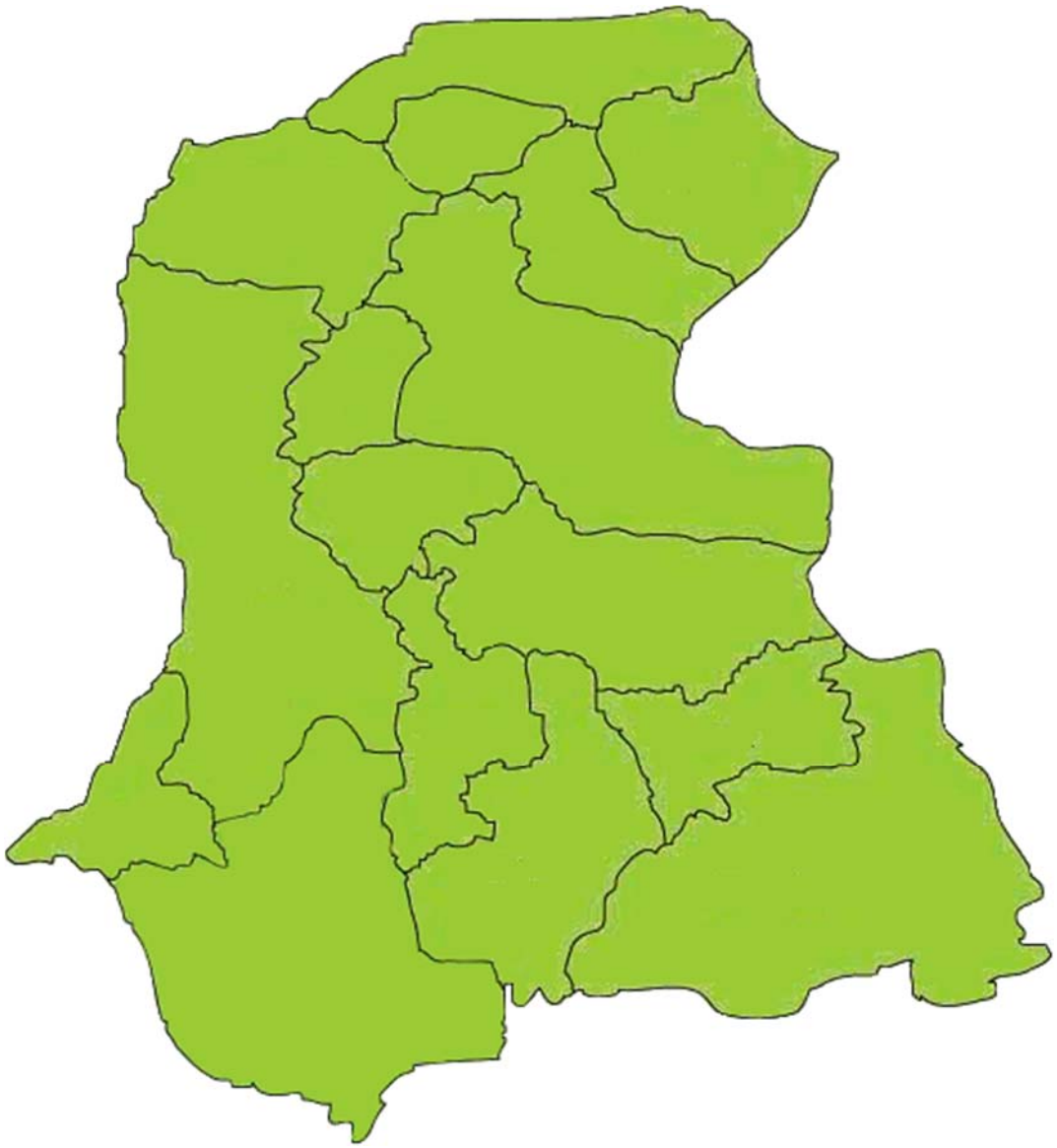
There are also research questions that remain to be answered about the target commodities in the project. To respond to this need, researchers, progressive farmers, government agencies, etc. can submit a research proposal for consideration to the Competitive Research Fund.

**Table 5 Which project stakeholders can benefit from the project**

| Project Stakeholder | Technology Transfer Program (Component B) | Demand Driven Innovation Fund (Component B) | Competitive Research Fund (Component A) |
|---|---|---|---|
| **Farmer/Milk Producer** | ✓ | ✓ | |
| **Entrepreneur** | | ✓ | |
| **Company** | | ✓ | ✓ |
| **Academic/Researcher** | | | ✓ |
| **Non-government organizations** | | ✓ | |
| **Government** | | | ✓ |

The combination of funds in the project serve to meet the broad needs of producers, while they allow for more specialized or unconsidered needs in the value chains.

# IMPLEMENTING SAGP: A COMPONENT-WISE OVERVIEW OF ACTIVITIES



# Preparing For Implementation

To prepare for implementation, each PMU will undertake a series of activities to ensure that staff are in place and trained, that critical contracts are ready to move forward so that implementation is not delayed.

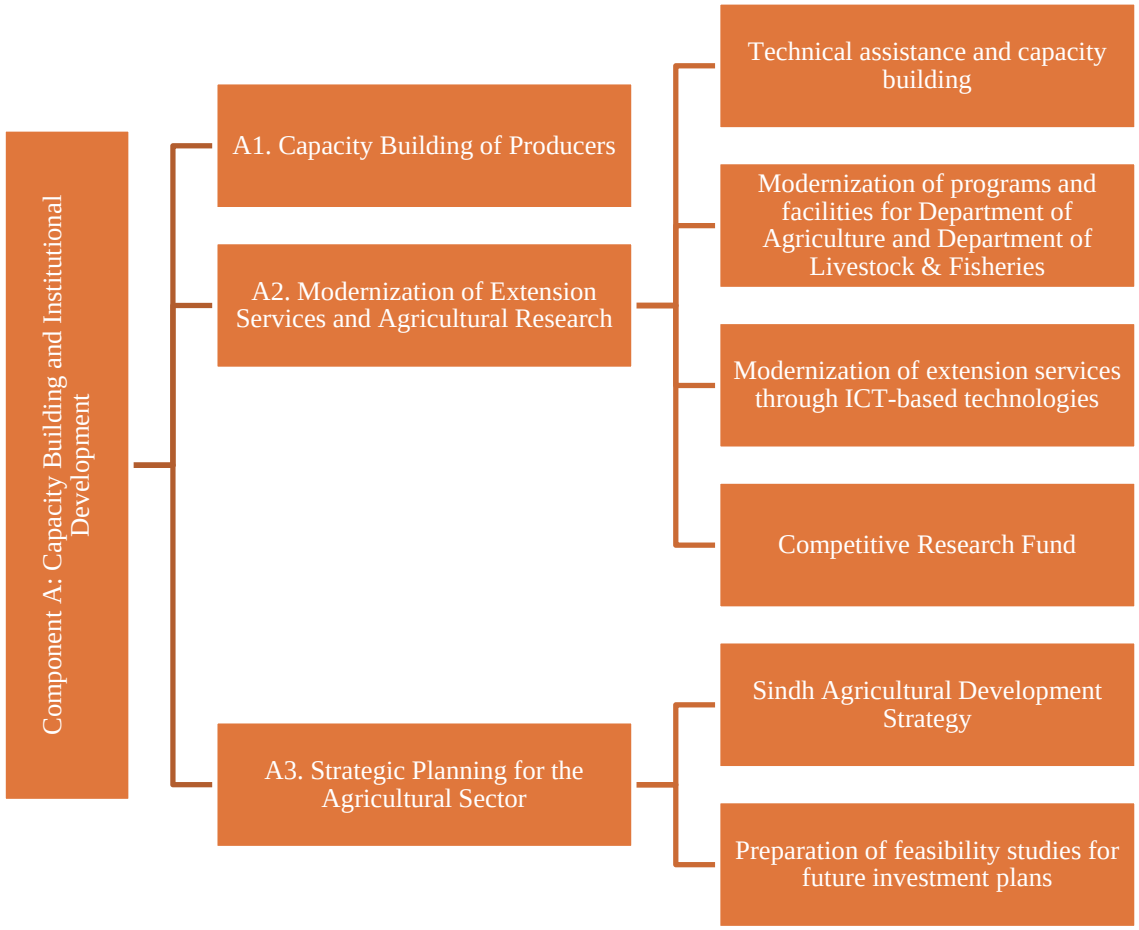
## OBJECTIVES

- ✓ Advance human resource and procurement activities to ensure that the project is ready to implement as soon as the IDA Credit is approved.

## ACTIVITIES

- ✓ PMU to prepare notification and job descriptions and duties of staff in PIU, particularly any additional duties related to the project.
- ✓ Agriculture Officer and Field Assistants or Veterinary Officer and Stock Assistants contact producers in the general target area and gather information about the farmers to help with targeting.
- ✓ Meet with relevant private sector companies and non-government organizations involved in the targeted value chains to determine how best to collaborate with the private sector throughout the project implementation.
- ✓ Develop TOR and begin contracting process of parties to mobilize producers
- ✓ Develop TOR and begin contracting process for technical assistance in each PMU

**Figure 4 Overview of Component A**



## Component A: Capacity Building and Institutional Development

This component will finance activities to develop institutions and build their capacity—both in the government and at the farm level (producers/producer groups). Activities include mobilization, training, studies, research, and investments to upgrade facilities. Figure 4 gives an overview of the sub-components and individual activities.

### SUB-COMPONENT A1. CAPACITY BUILDING OF PRODUCERS

The project will finance training and capacity building for farmers, which will be based on an assessment of producers' training needs. Training topics will include areas such as, good agricultural practices, agribusiness management, negotiating in the market, basic accounting, record keeping, etc. This will be done through a mixture of demonstration plots, public information campaigns, face-to-face training, and farmer-to-farmer study tours, and exposure visits to other production areas within province or elsewhere in the country as well as in other countries in the region as appropriate. For each value chain, the department will sponsor stakeholder forums to facilitate dialogue with and among value chain actors that will increase the market orientation of departmental activities. Under the project, these forums will focus on the targeted commodities, but the exercise will build the capacity of the department to carry out stakeholder engagement for other crops in the future. These activities will be mainly organized by the implementing agencies.

#### Capacity Building

The capacity building activities will focus on mobilization, assessing needs, and creating appropriate learning materials for producers and for departmental staff.

***Objectives***

- ✓ **Mobilize producers** into groups (e.g., farmer groups, commodity groups, milk producer groups) so they can benefit from collective action to access technology, information and training, and to engage with markets;
- ✓ **Create a dynamic training curriculum** for producers, focused on the targeted commodities that will:
    - Increase the adoption of good agriculture and livestock management practices among producers
    - Raise awareness of quality and quantity requirements to access markets and maximize profits
- ✓ **Increase knowledge base of departmental staff** to deliver curriculum to targeted producers;

***Activities***

- ✓ **Engage companies or agencies** to mobilize producers into groups and build their capacity for group management and enterprise management. This can happen through a variety of channels, including:
  - Hiring reputable NGOs with experience in farmer mobilization;
  - Entering into an agreement with a private sector stakeholder (e.g., processor, exporter, etc.) to mobilize producers for a direct market tie-up; or
  - Entering into an agreement with a producer association to mobilize producers.

  These are just three such examples of models to mobilize producers. The model or models selected may vary by geographic location and/or commodity. Each PMU should assess the ground conditions for each commodity and each area to determine the best mode for mobilization. Community mobilizers should be identified and engaged through a competitive process.
- ✓ **Assess knowledge gaps among producers** to inform the development of the training curriculum. This information can be collected by the farmer mobilizers or by PIU staff;
- ✓ **Create training curricula** for producers, including developing and refining messages, creating and printing materials (e.g., pamphlets, books, posters, etc.); preparing demonstration plots and model techniques of cropping and livestock practices; preparing and launching public information campaigns; identifying potential opportunities for study tours and farmer-to-farmer knowledge sharing/training.

The activities in this sub-component will feed directly into the technical packages that will be delivered under Component B.

**Stakeholder Forums**

The stakeholder forums are a series of regular meetings among value chain actors in each commodity group to exchange knowledge on developments in each value chain and to create a shared vision for the development of the value chain.

***Objectives***

- ✓ Increase public-private dialogue and cooperation in targeted value chains
- ✓ Identify areas for collaboration and/or partnership between government, producers, and companies to increase production quantity and quality and market size for the targeted commodities

***Activities***

- ✓ Develop a database of producers (starting with progressive producers), academics, and private companies, and producer representative associations active in each value chain. Records should include the name of the primary contact information.
- ✓ Provide information about SAGP and its goals to each member of the database.
- ✓ Identify any existing forums for knowledge exchange in the targeted value chains that already exist. If such forums exist, then approach the host to discuss opportunities for co-sponsorship of events during the project period.
- ✓ Where existing forums can be used:
    - o identify the major issues for the PMU to pursue at each forum;
    - o facilitate the participation of progressive small and medium farmers in the forum (e.g., cover transport costs, per diem).
- ✓ Where new forums must be created:
    - o reach out to relevant stakeholders (e.g., chili processors for the chili forum) to identify issues that can form the agenda;
    - o facilitate the participation of progressive small and medium farmers in the forum (e.g., cover transport costs, per diem).
    - o Manage the logistics for the meeting (e.g., venue, refreshment, speaker line-up, etc.).
- ✓ Disseminate messages from each forum to farmers and department staff active in the particular value chain. This could be done through memos, email, staff meetings, or by using multi-media.
- ✓ Regular Forums will be held or attended at least 3 times per year for each target commodity (onions, dates, chilies, rice, and milk).

**SUB-COMPONENT A2. MODERNIZATION OF EXTENSION SERVICES AND AGRICULTURE AND LIVESTOCK RESEARCH**

This subcomponent will finance: (a) technical assistance and capacity building to the implementing departments; (b) modernization of existing programs and facilities managed by the departments; and (c) supporting the continuation of a competitive fund for adaptive research that responds to the demands of the farmers and producers.

**Technical Assistance and Capacity Building for Implementing Departments**

The project will finance the extended presence of a technical assistance consultant/firm who will (a) assist with the design and implementation of investments in Component B, (b)

general strategic planning and management, and (c) designing and delivering effective capacity building components. The consultant/firm will have a results-based contract that will specify the delivery of the 3 activities listed above as well as building the capacity of staff in each Department to continue implementing new approaches and procedures after the project intervention. Additional technical assistance and training will be sought through twinning arrangements with international agencies (such as, the International Livestock Research Institute; Food and Environment Research Agency, FERA-UK; etc.) and national agricultural research systems. Training methods may include, off-site residential training programs, in-service training for departmental staff, and national/international study tours.

***Objectives***

- ✓ Support the management and implementation of SAGP
- ✓ Improve strategic planning and execution capability of the Department of Agriculture and the Department of Livestock & Fisheries

***Activities***

- ✓ **Assess knowledge gaps among departmental staff** required to implement the project, particularly to be able to impart training and/or technical assistance to producers;
- ✓ **Identify training sources and twinning arrangements to build the capacity of departmental staff.** The training required by departmental staff to implement and sustain the activities under SAGP may be sourced from universities, NGOs, World Bank training, international institute like the CGIAR, AVRDC, ILRI, etc.
- ✓ **Prepare procurement documentation** (terms of reference, expression of interest, request for bid, etc.) for competitive procurement of the technical assistance firm or firms. This action will commence during the retroactive financing period.

**Modernization of Programs and Facilities**

Both the Agriculture Department and the Livestock & Fisheries Department have facilities that were affected by the 2010 and 2011 floods, and the project will provide a modest amount of financing to facilitate their rehabilitation. In addition, it will provide support to establish and/or rehabilitate facilities critical to fulfilling the requirements of the project including, the agricultural research centres and artificial insemination training centre.

***Objectives***

- ✓ Upgrade critical physical infrastructure and facilities to support project sector objectives. The proposed civil works will be carried out under Component A and B through project consultants;

***Activities***

- ✓ Develop proper documentation for competitive procurement of rehabilitation and manage the procurement process according to World Bank guidelines;

**Table 6 Facilities to be established or rehabilitated**

| Agriculture Department | Livestock & Fisheries Department |
|---|---|
| ▪ Tando Jam agricultural research centre<br>▪ Mirpurkhas agricultural research centre<br>▪ Kunri chili research station<br>▪ Tando Jam onion research centre<br>▪ Date Palm Research Station Kotdiji | ▪ Establishing an artificial insemination training centre at Sindh Agriculture University at Tando Jam<br>▪ Rehabilitation of<br>o Karachi semen production unit for cattle<br>o Rohri semen production unit for buffalo<br>o 100 veterinary hospitals\dispensaries, centres\stockpiles in 23 districts[4]<br>o 6 Central Veterinary Diagnostic Laboratories (CVDL) sub-centres[5]<br>o 13 Offices of the Livestock Production District Officers[6] |

Funds for facilities upgrading will be released based on finalized construction plans and budgets approved by the relevant PMU and the World Bank. Both PMUs should actively engage the private sector for a public-private partnership in the management of centres.

**Modernization of Extension Services by Introducing ICT-based Technologies**

To reach remote farmers the project will contract based on competitive selection, a firm to design and provide ICT-based technologies and services suitable for delivery of agriculture extension and marketing services to farmers/producers. These would include information going out to small producers and other stakeholders through the use of mobile phone and other ICT tools including 24/7 call center and proactive websites and other communication tools. The program of ICT-based extension services will be focused on the targeted commodities and groups in Component B. Based on performance of the services, the ICT-based extension service may expand to additional commodities.

[4] In districts Jamshoro, Sanghar, Badin, Tando Allahyar, Khairpur, Hyderabad, Dadu, Kamber, Nausheroferoze, Jacobabad, Ghotki, TM Khan, Mirpurkhas, Sukkur, Shaheed Benazirabad, Thatta, Kashmore at Kandhkot, Umerkot, Larkana, Matiari, Karachi, Mithi, Shikarpur, Nara Canal Kotdigi

[5] In districts Larkana, Sukkur, Nausheroferoz, Dadu, Tharparkar, Karachi

[6] In district Karachi, Thatta, Mirpurkhas, Hyderabad, Sanghar, Qazi Ahmed, Dadu, Larkana, Shikarpur, Jacobabad, Sukkur, Khairpur, Qamber, Karachi, Rohri

***Objectives***

- ✓ Introduce new technology (ICT) to increase the efficiency and effectiveness of extension outreach to targeted farmers and milk producers.
- ✓ Facilitate adoption of ICT by staff in the Agriculture and the Livestock & Fisheries departments to increase the impact of research and extension activities.

***Activities***

- ✓ Prepare documentation for and manage the procurement process for a firm and/or agency to deliver a "turn-key" ICT extension system.
- ✓ Train department staff in the operation of the ICT extension system.
- ✓ Develop and deploy messages to producers about targeted commodities during the life of the project
- ✓ Based on the performance of the pilot outreach to producers, scale up the system to serve all commodities and/or activity areas managed by each department.

**Box 1 Possible activities for inclusion in technical specifications for ICT contract**

PMUs with assistance of a consultant will develop the bidding documents for the procurement of the ICT services that may include:

- ✓ Undertake analysis of targeted commodities to identify critical information needs and current information flows in supply chains;

  Establishing network infrastructure and partnership agreements to push mobile phone-based extension messages to target populations;
- ✓ Establishment of an e-Marketplace to provide a common web portal to link local producers to national and international markets via the Web, email, and SMS messaging so they can get pricing information and also notify markets of the type, quantity, and quality of products that they have for sale.
- ✓ Managing a 24/7 call center and interactive Web sites to respond to farmer requests for information;
- ✓ Providing training to Departmental staff on how to use the system;
- ✓ Marketing new services to target farmers; and
- ✓ If performance meets or exceeds expectations on the target commodities, expanding to additional commodities.

The modernization of extension services could also include: (i) undertaking a Supply Chain analysis; and (ii) establishment of E-Marketplace.

## Competitive Research Fund

The project will finance a program of competitive research grants supporting research on crop agriculture, livestock, and fisheries. The program would be managed by the Department of Agriculture and the Department of Livestock & Fisheries, in collaboration with Sindh Agriculture University at Tando Jam.

### *Objectives*

- ✓ Identify and finance innovative research from the community of stakeholders related to each of the targeted commodities under the project.
- ✓ Funds will be provided to the scientist, having good research ideas, who will submit good sound and field oriented research proposals.
- ✓ To provide opportunity for healthy competition in field of agricultural research for development of new technologies for enhancing agricultural productivity

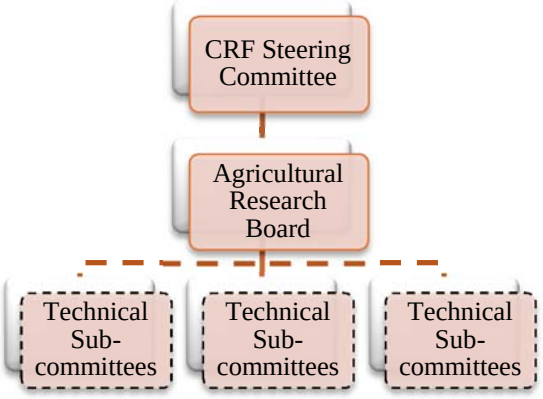
### *Governance*

The competitive research fund (CRF) will be jointly sponsored by the Secretaries of Agriculture and Livestock & Fisheries, Government of Sindh. Building on the successful experience of this CRF, administration of the fund will be done in collaboration with Sindh Agriculture University at Tando Jam. The project funds for the CRF will reside in agriculture budget and will be disbursed against successful research proposals.

The CRF will issue a call for proposals at least twice each year while funds last. The Steering Committee will set the maximum grant award per proposal for each call, but generally, proposals should not exceed PKR 5 million, to ensure maximum opportunity to stimulate research activities across crops and livestock sub-sectors.

The CRF will comprise a Steering Committee, an Agricultural Research Board, and Technical Sub-committees, which will be constituted as needed to review research proposals.

**Figure 5 Structure of the Competitive Research Fund**



The CRF Steering Committee will be co-chaired by the Secretaries of Agriculture and Livestock & Fisheries. It will be responsible for:

- Establishing priorities for calls for proposals (e.g., general call, focus on post-harvest technology, etc.)
- Setting the maximum grant amount for each call for proposals
- Issuing calls for proposals
- Determining the final grant awards based on feedback from the Agricultural Review Board
- To review the financial and physical progress of project on a quarterly basis.

**Table 7 Composition of CRF Steering Committee**

| | |
|---|---|
| Secretary, Agriculture Department, Government of Sindh | Co-chairman |
| Secretary, Livestock & Fisheries Department, Government of Sindh | Co-chairman |
| Director General, Agriculture Research Sindh | Member |
| Director, Nuclear Institute of Agriculture | Member |
| A Representative from the HEJ Institute, University, of Karachi | Member |
| Senior Chief Agriculture Planning & Development Department | Member |
| Chief Agriculture Planning &Development Department, GoSindh | Member |
| A Representative from Pakistan Agricultural Research Council | Member |
| A Representative of Growers | Member |
| Any other member to be co-opted as needed | Member |
| Director, Agriculture Research Institute, Tandojam | Member /Secretary |
| Vice Chancellor or Dean of Faculty (livestock university) | Member |

The Agricultural Research Board will be responsible for:

- Creating calls for proposals and setting technical specifications for calls based on policy priorities;
- Constituting Technical Sub-committees with the necessary expertise to review proposals;
- Short-listing submitted proposals for further review and assigning proposals to the appropriate sub-committees;
- Reviewing and taking final decision on recommendations of the Technical Review Sub-committees
- Preparing recommendations for the Steering Committee to endorse; and
- Monitoring and reviewing the progress of funded research projects.

The composition of Agricultural Research Board is elaborated in the table below.

**Table 8 Composition of the Agricultural Research Board**

| | |
|---|---|
| The Vice Chancellor, Sindh Agriculture University | Chairman |
| Director General, Agriculture Research Sindh | Sr. Member |
| Director General, Livestock Research, Sindh | Sr. Member |
| Director, Nuclear Institute of Agriculture | Member |
| Representative from the HEJ Institute, University of Karachi | Member |
| Representative from Pakistan Agricultural Research Council (PARC) | Member |
| Chief Agriculture, Planning & Development Department, Govt. of Sindh | Member |
| A Representative of Growers | Member |
| A Representative of Livestock Industry | Member |
| Director, Agriculture Research Institute, Tandojam | Member/Secretary |
| Other co-opted member(s) as needed | Members |

To ensure detailed review of research proposals, the Agricultural Research Board will constitute Technical Sub-committees as needed, comprising technical experts in the relevant field. The responsibilities of the Technical Sub-committees include:

- Providing detailed evaluation of the technical design and relevance of proposals;
- Recommending amendments or other changes to proposals to improve their technical quality and relevance; and
- Recommending successful proposals to the Agricultural Research Board for consideration.

***Activities***

- ✓ The Project Steering Committee, through the Co-chairs, will invite researchers from universities, private companies, farmers, government agencies, and NGOs through a publicly published request for expressions of interest;
- ✓ Interested parties will submit proposals to the Secretary to the Agricultural Review Board (ARB);
- ✓ The department / organization in which the scientist is working will sign a guaranty for work and physical assets.
- ✓ The ARB will short list proposal against clear criteria and pass successful proposal to the Technical Sub-committees for further review;

- ✓ The short listed proposal will be submitted to the project Steering Committee for finalization.
- ✓ The Project In-charge (PI) may be called on to defend his or her proposal before the Agricultural Research Board, if it is deemed necessary.
- ✓ Successful proposals will be funded on the recommendation and final decision of the CRF Steering Committee.
- ✓ The PI of successful proposal will submit a detailed budget and plan of work within 10 days of notification of the award.
- ✓ The funds will be provided after final approval of work plan and budget break up from the Steering Committee.
- ✓ The grant will be awarded to the lead scientist (Project In-charge or PI) of the project, and if the PI moves from one employer to another, the grant will move with them.
- ✓ The PI will carry work as per approved plan of work.
- ✓ The PI must submit financial and physical/technical progress to the Steering Committee and Agricultural Research Board every month;
- ✓ The PI will submit a report of the final findings from the research within 3 years of the grant award.
- ✓ The PI may be asked to present his or her findings to different audiences by the Steering Committee
- ✓ The research findings will be the property of Agriculture Department, Government of Sindh.
- ✓ The Government of Sindh retains the right to publish the paper on findings.
- ✓ All the physical assets procured with grant funds remain the property of Agriculture Research Sindh.
- ✓ Those physical assets must be returned to Agriculture Research Sindh, on completion of the project.

***Review Criteria***

- ✓ Research should be able to report results within 3 years of the grant award;
- ✓ The project cost should not exceed PKR 5 million;
- ✓ Proposals should align to the priority topics specified in the call for proposals;
- ✓ Proposals should completely describe the research methodology to be pursued;
- ✓ Proposals aligned to the target commodities under SAGP will be given preference;
- ✓ Proposals should identify how they will benefit small and medium, poorer producers.

The CRF will determine the focus of calls for proposals. Some ideas for priority research areas are listed below. These could be used to define criteria in the call for proposals:

- **Agriculture Department**
  - Biological/botanical control of insect pests specially the sucking pests
  - Organic/enriched organic/bio-fertilizer
  - Integrated nutrient management
  - Saline agriculture (management of salt affected soils)
  - Diagnosis of viral diseases, their control and precautionary measurement
  - Evaluation/screening of salt tolerant varieties of crops, bushes, or trees
  - Crop production technologies
  - Hybridization of crops specially cotton
  - Food technologies
  - Post-harvest technologies of fruits, vegetable, and flowers
- **Livestock & Fisheries**
  - Diagnosis of viral diseases, their control and precautionary measurement
  - Breed improvement
  - Breed productivity
  - Fodder and feeding

### SUB-COMPONENT A3. STRATEGIC PLANNING FOR THE AGRICULTURAL SECTOR

This component will finance the: (a) development of Sindh Agricultural Development Strategy; and (b) preparation of feasibility studies for future investments. The activities in this component will be managed by the Project Coordinator.

**Sindh Agricultural Development Strategy**

This will set a long-term development and growth vision for Sindh's agriculture agenda, broadly defined. The strategy will outline the holistic agenda to improve the efficiency and competiveness of Sindh's agriculture sector while promoting pro-poor rural development. To more accurately forecast needs of the sector relative to pricing, climate change impacts, shifts in consumer demand, etc. GoSindh will commission economic modeling of specific trends to develop models of potential impacts that must be considered. Strategy development will be managed by the office of the Project Coordinator (see Component C) and guided by the Project Steering Committee (PSC). The project will finance background studies and analysis

for the strategy, facilitation of the PSC interactions, and targeted exposure visits for senior officials to identify new information and directions in the strategy development. The facilitation, analysis, and exposure visits will be procured by the Agriculture Department.

***Objectives***

- ✓ Create a shared vision of the potential of and priority investments for Sindh's agricultural sector to poverty reduction, climate change mitigation and adaptation, water management and availability, economic growth, environmental health, and other areas.
- ✓ Communicate the importance of agriculture to the sector and outline the reforms and/or investments needed across the sectoral spectrum (e.g., roads, energy, governance, security, research, private sector development, etc.)
- ✓ Establish a sustainable inter-departmental forum for on-going planning dialogue about issues affecting the agricultural sector;

***Activities***

- ✓ Convene a meeting of the SAGP Project Steering Committee on a quarterly basis to:
    1. review project progress;
    2. discuss strategic issues relevant to the agriculture sector;
    3. develop a list of priority knowledge needs for strategy development; and
    4. review and approve the dissemination of background studies and strategy text.
- ✓ Two of the PSC meetings will coincide with formal World Bank implementation support missions. The other two will fall in between.
- ✓ Project Coordinator will develop terms of reference for background studies and surveys needed to underpin a holistic agricultural strategy;
- ✓ Establish a guest speaker series to introduce good practice from Sindh, Pakistan, and international experience in the strategy development process;
- ✓ Plan and execute target study tours for PSC members with clear objectives and deliverables related to new directions for the agriculture sector.

**Preparation of Feasibility Studies for Future Investment Plans**

This will finance the preparation of studies on additional crop and livestock value chains, in addition to sub-sectors included in the current project including, but not limited to, fisheries and aquaculture, meat production and marketing, seed production and food storage, etc. The studies will feed into discussions for future project preparation. The approval of topics to study will be accorded by the Project Steering Committee will as per pre-determined criteria

with which to appraise study proposals. The Office of the Project Coordinator will manage the implementation and dissemination feasibility studies.

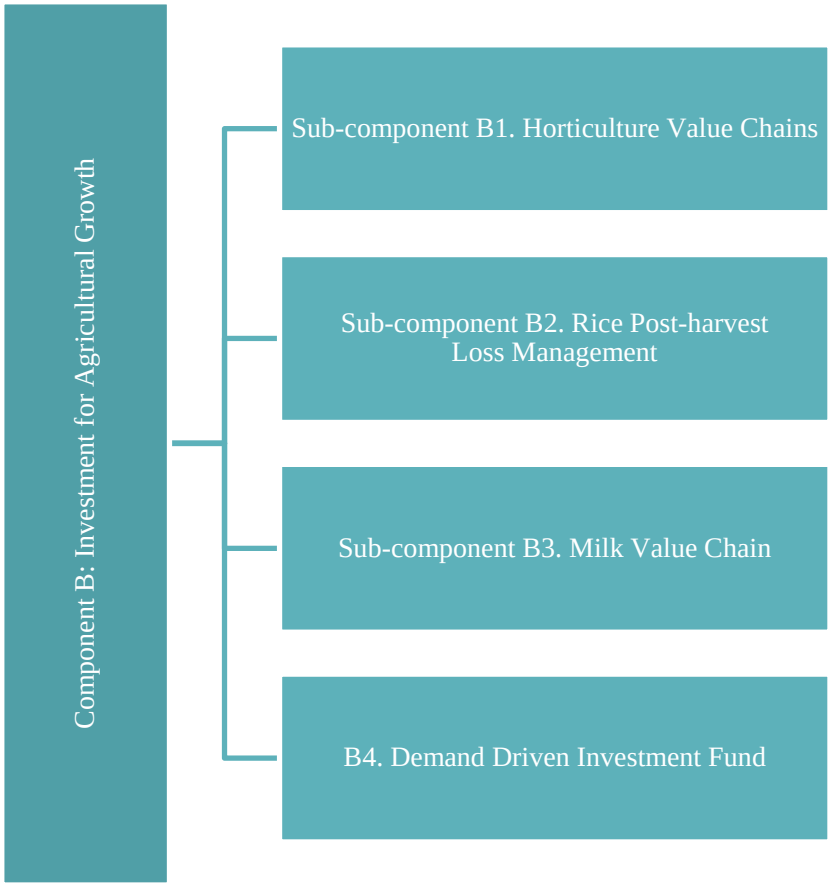
***Objectives***

- ✓ Build the analytical base for future planning and investment in the agricultural sector.

***Activities***

- ✓ With the PSC, identify the data, information, and knowledge needs to create a long-term investment plan for Sindh's agricultural sector;
- ✓ Promote discussion and planning around inter-department cooperative studies and public-private collaborative studies—e.g., on-farm aquaculture, food safety and public health, food safety and market access, renewable energy for on-farm irrigation and/or agricultural processing, etc.
- ✓ Develop terms of reference for PSC-commissioned studies and surveys and establish criteria for the review, approval, and funding of study proposals, surveys, etc. submitted by stakeholders in response to the Sindh Agricultural Development Strategy;
- ✓ Establish specifications (length, audience, etc.) for reports to support dissemination;
- ✓ Prepare and communicate a call for proposals to relevant stakeholders across the province;
- ✓ The approval of topics to study will be accorded by the Project Steering Committee as per pre-determined criteria with which to appraise study proposals:
    - o Directly respond to priorities outlined in the Sindh Agricultural Development Strategy.
    - o Introduce new technologies and practices related to production, processing, and marketing of priority agricultural commodities
- ✓ Preference will be given to proposals that:
    - o Feature inter-departmental and/or public-private collaboration
    - o Focus on opportunities for small and medium farmers—contributed to a Growth + Poverty Reduction agenda
- ✓ The Office of the Project Coordinator will manage the awarding and tracking of feasibility studies.

**Figure 6 Overview of Component B**



## Component B: Investment for Agricultural Growth

This component finances actual investments in selected value chains of horticulture, rice and dairy. The component would also finance a demand driven innovation fund to support farmers and producers with infrastructure and technology innovations support in the selected value chain.

The ultimate goal is to link producers to markets by engaging with companies in each value chain. The form of private sector engagement will vary across commodities and locations, and could include:

- Upstream agreements to mobilize producers, provide them training, and purchase their products;
- Formal agreements to manage public service provision centers – e.g., artificial insemination, laboratories, etc.;
- Facilitating direct contracts between producer groups and companies;
- Direct contracting of private sector to provide services to producers; and
- Other forms of engagement as deemed appropriate.

### SUB-COMPONENT B1. HORTICULTURE VALUE CHAINS

The project will finance investments in three (3) horticulture crops – dates, onions, and chilies. The focus will remain on adopting good agricultural practices for production and post-harvest handing of the selected crops. The financing provided in this component would include agricultural implements and equipment packages for the given value chain based on the needs assessment of the farmers/farmer groups.

### Objectives

- ✓ help small and medium sized farmers and farmer groups to access existing equipment that is critical to enhancing yields and improving the quality of their produce;
- ✓ provide the training and services to ensure the adoption and proper use of the equipment and management practices for optimal production;
- ✓ Provide effective training on technology, management methods, and good agricultural practices to increase the quantity and quality of commodity production.
- ✓ Disseminate information on market demand, varietal options, cultivation practices, etc. to targeted farmers.
- ✓ Foster the development and education of lead farmers;

- ✓ Provide alternative market outlets like an out grower/contract growing schemes. Such schemes may also include direct linkages to private companies.
- ✓ invest in longer-term research and technology needs of the targeted commodities through investments in the introduction of new varieties and improved breeds.
- ✓ Establish demonstration plots to exhibit new varieties, practices, and technologies to farmers;

**Eligibility Criteria**

- ✓ Must be growing at least one of the targeted crops—e.g., chilies, dates, onions[7]
- ✓ Ability to prove land ownership, leasing, or tenancy
- ✓ Provide a copy of their CNIC
- ✓ Must be in the small (1-12.5 acres) or medium (12.5-50 acres) farm size category
- ✓ Must be living below the poverty line (based on Poverty Score Card household survey)
- ✓ Must reside in the targeted areas of the project.

**Cost Sharing**

- ✓ **Project**: 70 per cent
- ✓ **Farmer or Farmer Group**: 30 per cent, in cash or kind.

**Maximum Grant Amount**

- ✓ The maximum grant amount from the project is US$15,000.

**Activities for Matching Grant**

- ✓ Standard pricing tables for all technologies on the positive list of the Technology Transfer Program;
- ✓ PIU and/or mobilizer informs the target farmers of technology options, pricing, program processes, and help develop proposals where necessary.
- ✓ The Farmer or Farmer Group develop proposal to purchase equipment and submits it to PMU;
- ✓ The Farmer or Farmer Group sends 30 per cent contribution to the PMU

[7] Some farmers grow two of the targeted crops in rotation. If they meet the eligibility criteria for participation, they can avail more than one technology transfer project.

- ✓ The PMU confirms the farmer or farmer group member meets eligibility criteria and that the equipment is on the positive list, approves or rejects proposal, confirms receipt of co-payment, submits order to vendors near the farmer group for the equipment
- ✓ Private sector vendors deliver goods to Farmer or Farmer Group
- ✓ The Farmer or Farmer Group confirms satisfactory receipt of goods with PIU.
- ✓ The PMU promotes producer linkage to private sector actors in the value chain to access more lucrative markets. This can happen at the beginning of the intervention, for instance, establishing a memorandum of understanding or other formal agreement with a processor to (a) operate the chiller unit; (b) purchase the MPG's milk at market prices; or (c) a combination of the two. This can also happen after the intervention through a direct contract between the MPG and the processor that is facilitated by the government.

The Technology Transfer Programme includes the matching grant to purchase equipment plus a package of services and training provided through the Department of Agriculture. These are detailed in the following tables.

## Technology Package for Dates

| Equipment (70/30 matching grant) | Services | Training |
|---|---|---|
| Establishment of demonstration farms-10 acres each (High Density Orchards-70% project, 30% farmers)<br><br>Solar dryer<br><br>Hand Carts (capacity 200kg)<br><br>Plastic crates<br><br>Tarpaulin sheets<br><br>Disease control kit<br><br>Moisture testing meter<br><br>Conductivity Meter (Potable)<br><br>Tree Pruners<br><br>Pollinators (gun)<br><br>Harvesting tools (belt, cutting equipment, pully, rope etc.) | Lead trainers for date farmers<br><br>Participatory technological development (PTD) Dates<br><br>Extension messages:<br>• Crop agronomy messages<br>• Updates on market and price information<br>• Platform for trading produce<br>• Alerts on developing weather conditions<br>• Alerts on levels of pest and disease infestations<br><br>Soil analysis | Market options for Chuhara and table dates (costs and benefits)<br><br>Good agricultural practices<br>• Off-shoot detachment<br>• orchard layout<br>• Transplanting offshoots<br>• nutrient management<br>• Irrigation management<br>• Integrated Pest and disease management (e.g., red spider moth, diplodia disease)<br>• Tree pruning techniques<br>• pollination techniques<br>• Fruit bunch protection techniques against monsoon rains<br><br>Inter-cropping options for date crops<br><br>Harvest & Post-harvest Management<br>• Maturity index determination in fresh fruit<br>• Hygiene management during harvesting, drying, grading and packing<br>• Moisture content measurement in dried fruits<br>• Grading fruits<br>• Boiling techniques for Chuhara making<br><br>Training in the use of equipment newly introduced<br><br>Business Groups and Association Management<br><br>Enterprise Management<br><br>Exposure visits as needed |

**Technology Package for Onions**

| Equipment | Services | Training |
|---|---|---|
| Moisture testing meter<br>Conductivity meter (potable)<br>Diggers<br>Curing and storage facility<br>Mechanical dryers<br>Graders | Crop agronomy messages<br>Updates on market and price information<br>Platform for trading produce<br>Alerts on developing weather conditions<br>Alerts on levels of pest and disease infestations<br>Soil analyses | Good agricultural practices<br>Crop production<br>• Quality seedlings (variety, health)<br>• Field selection and preparation<br>• Transplanting (timing and depth)<br>• nutrient management (soil tests, nutrient mix, timing and application techniques)<br>• Integrated weeds, pests and diseases management including biological controls<br>• Irrigation (timing, frequency and techniques) management<br>Crop rotations<br>Inter-cropping options for onion crop<br>Harvest & Post-harvest Management<br>• Timing and technique for harvesting<br>• Curing<br>• Storage (ventilated)<br>• Moisture measurement<br>• Grading<br>• Bagging (gunny and mesh bags)<br>Nursery production<br>• Seed (variety, purity, health)<br>• Site selection and preparation<br>• Seed sowing (timing and depth)<br>• Care in up-rooting and transportation<br>Training in the use of equipment newly introduced<br>Business groups and Association Management<br>Enterprise Management<br>Exposure visits (as needed) |

**Technology Package for Chilies**

| Equipment | Services | Training |
|---|---|---|
| Drying Mats<br><br>Cover sheet<br><br>Conductivity Meter (Potable)<br><br>Moisture testing meter<br><br>Mechanical Dryers (Capacity 5 ton/day)<br><br>Water Storage Tanks<br><br>Dust Cleaner | Crop agronomy messages<br><br>Updates on market and price information<br><br>Platform for trading produce<br><br>Alerts on developing weather conditions<br><br>Alerts on levels of pest and disease infestations<br><br>Soil analyses | Good agricultural practices<br><br>Crop production<br>• Quality seedlings (variety, health)<br>• Field selection and preparation<br>• Transplanting (timing and depth)<br>• nutrient management (soil tests, nutrient mix, timing and application techniques)<br>• Integrated weeds, pests and diseases (e.g. aflatoxin) management including biological controls<br>• Irrigation (timing, frequency and techniques) management<br><br>Crop rotations<br><br>Harvest & Post-harvest Management<br>• Timing and technique for harvesting<br>• Drying on geotextile sheets<br>• Storage (ventilated)<br>• Moisture measurement<br>• Grading<br>• packing<br><br>Nursery production<br>• Seed (variety, purity, health)<br>• Site selection and preparation<br>• Seed sowing (timing and depth)<br>• Care in up-rooting and transportation<br><br>Training in the use of equipment newly introduced<br><br>Business groups and Association Management<br><br>Enterprise Management<br><br>Exposure visits as needed |

## SUB-COMPONENT B2. RICE POST-HARVEST LOSS MANAGEMENT

To stem the significant losses of rice paddy and losses in crop value due to poor processing practices, this subcomponent will finance threshers for farmers and paddy dryers for small mill operators. In addition, the project will provide soil and moisture testing kits, conductivity meters, etc. The project would also promote knowledge sharing and learning from other rice producing countries for potential modernization in Sindh's rice production management. Financing for the threshers and dryers would be provided on 50 percent cost sharing basis (in accordance with current government practice) to groups of farmers, small mill operators, and individual medium-scale farmers. The remaining smaller technology inputs would be provided on a 70-30 cost sharing basis.

### Objectives

- ✓ introduce technology for efficient post-harvest processing of paddy rice by small and medium sized farmers and farmer groups;
- ✓ provide the training and services to ensure the adoption and proper use of the equipment and management practices for optimal post-harvest management;

### Eligibility Criteria

- ✓ Must be growing paddy in the target area
- ✓ Ability to prove land ownership, leasing, or tenancy
- ✓ Provide a copy of their CNIC
- ✓ Must be in the small (1-12.5 acres) or medium (12.5-50 acres) farm size category
- ✓ Must be living below the poverty line (based on Poverty Score Card household survey)
- ✓ Must reside in the targeted areas of the project.

### Cost Sharing

**For standard technology**

- ✓ Project: 70 per cent
- ✓ Farmer or Farmer Group: 30 per cent

**For threshers and dryers**

- ✓ Project: 50 per cent
- ✓ Farmer, Farmer Group, Enterprise: 50 per cent

**Maximum Grant Amount**

- ✓ The maximum grant amount from the project is US$15,000.

**Activities for Purchase of Equipment**

- ✓ Standard pricing tables for all technologies on the positive list of the Technology Transfer Program;
- ✓ PIU and/or mobilizer informs the target farmers of technology options, pricing, program processes, and help develop proposals where necessary.
- ✓ The Farmer or Farmer Group develop proposal to purchase equipment and submits it to PMU;
- ✓ The Farmer or Farmer Group sends 30 per cent contribution to the PMU
- ✓ The PMU confirms the farmer or farmer group member meets eligibility criteria and that the equipment is on the positive list, approves or rejects proposal, confirms receipt of co-payment, submits order to vendors near the farmer group for the equipment
- ✓ Private sector vendors deliver goods to Farmer or Farmer Group
- ✓ The Farmer or Farmer Group confirms satisfactory receipt of goods with PIU.
- ✓ The PMU promotes producer linkage to private sector actors in the value chain to access more lucrative markets. This can happen at the beginning of the intervention, for instance, establishing a memorandum of understanding or other formal agreement with a processor, exporter, or other actor to (a) provide post-harvest services to the farmers; (b) purchase the farmers' produce at market prices; or (c) a combination of the two. This can also happen after the intervention through a direct contract between the farmer or farmer group and the processor that is facilitated by the government.

The Technology Transfer Programme includes the matching grant to purchase equipment plus a package of services and training provided through the Department of Agriculture. These are detailed in the following tables.

**Technology Package for Post-harvest Rice**

| Equipment (matching grant) | Services | Training |
|---|---|---|
| **70/30 Matching Grant**<br>• Conductivity Meter<br>• Soil & Moisture testing kit<br>**50/50 Matching Grant**<br>• Flat bed driers<br>• Thresher | Crop agronomy messages<br>Updates on market and price information<br>Platform for trading produce<br>Alerts on developing weather conditions<br>Alerts on levels of pest and disease<br>Soil analyses | Good agricultural practices<br>Crop production<br>• Quality seedlings (variety, health)<br>• Field selection and preparation<br>• Transplanting (timing and depth)<br>• nutrient management<br>• Integrated weed, pest, & disease mgmt., including biological control<br>• Irrigation (timing, frequency and techniques) management<br>Crop rotation options<br>Harvest & Post-harvest Management<br>• Timing and technique for harvesting<br>• Sun drying<br>• Moisture measurement<br>Nursery production<br>• Seed (variety, purity, health)<br>• Site selection and preparation<br>• Seed sowing (timing and depth)<br>• Care in up-rooting and transportation<br>Training in the use of equipment newly introduced<br>Group Management<br>Enterprise Management<br>Exposure visits (as needed) |

## SUB-COMPONENT B3. MILK VALUE CHAIN

The project will finance formation of approximately 153 milk producers groups (MPGs) in 8 districts. It will target small and medium milk-producing households, but since women are involved in at least 80 percent of production management, the project will provide services exclusively targeting women (e.g., extension messages, female extension agents, etc.). The number of MPGs per district will vary according to the animal population and market linkage. Essentially, each MPG would have a production capacity of 1,000 liters each day. Initial targeting will focus on identified "milk pockets" in the 8 districts. Through meetings in these targeted areas, producers will be informed of the project and given the rules for forming an MPG. Criteria for acceptance into the project will be outlined in the operational manual. The mobilization of MPGs will be done by the private sector milk processors, the district project management unit, and the Department PMU at the provincial level. Arrangements for producers to access markets will vary based on the existence of a competitive field of private sector actors. They could include, direct tie-ups with traders or processors, or community chilling units that allow the MPG to negotiate with different actors on a competitive basis.

### Objectives

- ✓ introduce technology for efficient production of quality milk;
- ✓ provide the training and services to ensure the adoption and proper use of the equipment and management practices for optimal production;
- ✓ Foster the development and education of lead producers;
- ✓ Provide market outlets through direct linkages to private companies.
- ✓ invest in longer-term research and technology needs of milk producers through investments in the introduction of new knowledge, technology, and improved breeds.
- ✓ Demonstrate optimal varieties, practices, and technologies to producers;

### Eligibility Criteria

- ✓ At least 1 milk animal and not exceeding maximum 25
- ✓ Income category (to be set from Poverty Score Card)
- ✓ Willingness to sell milk
    - o Small: 1 liter/day to MPG
    - o Medium: @20% yield to MPG

**Cost Sharing**

- ✓ Project: 70 per cent
- ✓ Milk Producer Group: 30 per cent

**Maximum Grant Amount**

- ✓ The maximum grant amount from the project is US$15,000.

**Activities for Purchase of Equipment**

- ✓ Standard pricing tables for all technologies on the positive list of the Technology Transfer Program;
- ✓ PIU and/or mobilizer informs the target producers of technology options, pricing, program processes, and help develop proposals where necessary.
- ✓ The Milk Producer Groups develop proposal to purchase equipment and submits it to PMU;
- ✓ The Milk Producer Groups sends 30 per cent contribution to the PMU or sends documentation of their in-kind contribution.
- ✓ The PMU confirms the Milk Producer Group member meets eligibility criteria and that the equipment is on the positive list, approves or rejects proposal, confirms receipt of co-payment, submits order to vendors near the farmer group for the equipment
- ✓ Private sector vendors deliver goods to Milk Producer Group
- ✓ The Milk Producer Group confirms satisfactory receipt of goods with PIU.
- ✓ The PMU promotes producer linkage to private sector actors in the value chain to access more lucrative markets. This can happen at the beginning of the intervention, for instance, establishing a memorandum of understanding or other formal agreement with a processor to (a) operate the chiller unit; (b) purchase the MPG's milk at market prices; or (c) a combination of the two. This can also happen after the intervention through a direct contract between the MPG and the processor that is facilitated by the government.

The Technology Transfer Programme includes the matching grant to purchase equipment plus a package of services and training provided through the Department of Livestock and Fisheries. These are detailed in the following tables.

**Technology Package for Milk**

| Technology | Service | Training |
|---|---|---|
| Chiller package (land, building, chiller, power source, etc.) | Artificial Insemination<br>Health Screening<br>Preventative treatments<br>Support community based model fodder development / preservation demonstration farms | Animal health management<br>Nutrition management<br>Feed formulation<br>Advisory Services<br>Exposure visits<br>Cut and carry demonstration plots |

### SUB-COMPONENT B4. DEMAND DRIVEN INVESTMENT AND INNOVATION FUND

The project will establish a Demand Driven Investment and Innovation Fund (the "Fund") to: (a) respond to the needs for equipment and other inputs that will help producers meet their production and market access goals (e.g., water storage, farm to market road, cold storage, etc.); and (b) facilitate the creation of enterprises that will help producers of the targeted commodities access equipment and services and to access profitable output markets.

The idea behind the fund is that there are equipment/technologies that are needed by select individuals or groups, but not all; that there are innovative ideas that the project designers have not thought of; and that there are local enterprise opportunities that can provide services to farmers on a sustainable basis if they are helped in meeting the capital costs of setting up their business.

The Fund will focus on co-financing technologies that are not suitable for all producers, but rather could be used by a group of producers or by an entrepreneur who can use the technology to provide services to the local producer population.

**Objectives**

- ✓ Finance pilot innovations that will enhance productivity and market access beyond the equipment and services provided in the Technology Transfer Program.
- ✓ Foster innovation among producers and entrepreneurs to meet production and market access needs.

**Eligibility Criteria**

The demand driven investment fund is open to individual producers, producer groups, and enterprises. The eligibility criteria include:

- ✓ Proposal must be submitted only by those residing in immediate project area
- ✓ Proposals should focus on the project targeted commodities and how to increase the production quantity and quality of those commodities and access to markets by the producers
- ✓ For proposals to co-finance enterprise development, the enterprise (and the equipment acquired) must remain the local area
- ✓ For milk sector proposals, the proposer must get the endorsement of the local MPGs

**Maximum Grant Amount**

- ✓ Individual Farmers/Entrepreneurs: US$25,000 (70/30)
- ✓ Associations/Milk Producer Groups: US$100,000 (70/30)

- ✓ Private companies: US$100,000 (50/50)

**Activities**

- ✓ Raise awareness among project beneficiaries and stakeholders of the rules of the Fund and the rules for participation.
- ✓ Groups will submit proposals to the PIU first for pre-screening to determine if:
    - o the applicant(s) meet the eligibility criteria for participation, and
    - o the proposed sub-project meets the eligibility criteria for matching grant funding.
- ✓ Proposals for enterprise development should include a business plan for appraisal.
- ✓ Each PMU will appraise proposals and notify successful grantees.
- ✓ Grantees will transfer their contribution to the PMU
- ✓ Upon verification of the transfer, the PMU will provide their matching amount and order the equipment from the appropriate supplier for delivery.
- ✓ Project staff will provide assistance to proposers (as needed) to develop full proposals in an approved format.
- ✓ Implementation support will be given based on expressed need of the proposers. All funded proposals will be monitored for progress on agreed criteria.

**Table 9 Ideas for the Demand Driven Innovation Fund**

| Infrastructure/Equipment | Enterprises |
|---|---|
| **DATES** | |
| • Hydraulic lifts<br>• Bituminized Bags<br>• Good quality saplings<br>• Sorting and grading tables<br>• Cascading aluminum ladders<br>• Mechanical dryers | • Cold storages for processors<br>• Pollinator puffer guns + pollen dryer + storage |
| • Grading and sorting equipment<br>• Beads drying boxes for seeds drying and safe storage | • Sheds for nursery protection<br>• Mechanical dryers<br>• Commercial high quality seed production enterprises<br>• Chili nursery transplanters |
| **ONIONS** | |
| • Perforated trays for seedlings production<br>• Collection baskets<br>• Good quality seed or seedlings | • Commercial high quality seed production enterprises<br>• Drying boxes for seeds drying and safe storage |

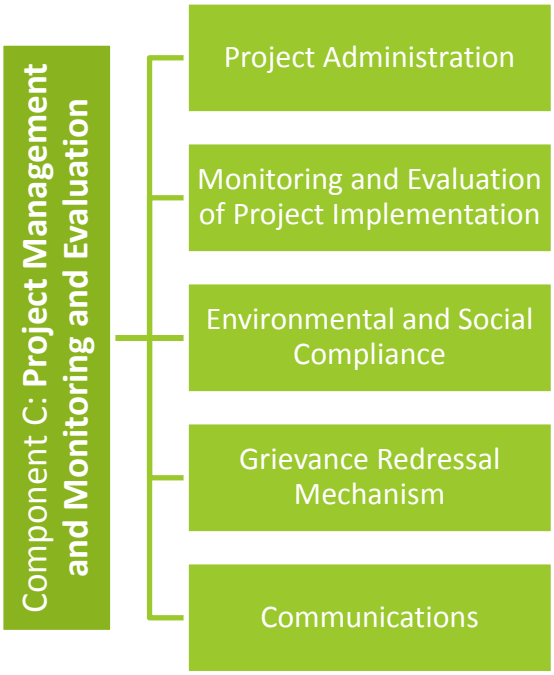
| Infrastructure/Equipment | Enterprises |
|---|---|
| • Mesh bags (5kg bags for 1 acre produce)<br>• Perforated trays for seedling production<br>• Shed for nursery protection<br>• Neck and bottom cutters<br>• Commercial high quality seed production enterprises<br>• Beads drying boxes for seeds drying and safe storage | |
| **CHILIES** | |
| • Perforated trays for seedlings production<br>• Sheds for nursery protection<br>• Collection baskets<br>• Good quality seed or seedlings (enough for 1 acre)<br>• Beads drying boxes for seeds drying and safe storage | • Commercial high quality seed production enterprises<br>• Drying boxes for seeds drying and safe storage<br>• Chili nursery transplanters |
| **RICE** | |
| • Hybrid seeds (for 1 acre)<br>• Combined harvesters for rice<br>• 50 Model demonstration plots (1 acre each) | • Combined harvesters for rice |
| **MILK** | |
| • Dairy sheds<br>• Water containers<br>• Milk utensils<br>• Food grade containers<br>• Milk testing kits, e.g.,<br>o CMT<br>o Brucellosis<br>o Pregnancy<br>o Milk quality | • High quality buffalo bulls breeding services<br>• Animal health kits and grants ($500 us) to establish local service and inputs provider enterprise<br>• Fattening of dry/culled animals<br>• Collection centres |
| **GENERAL** | |
| • Water storage tank<br>• Farm to market road<br>• Storage facilities | • Farm equipment rental outlets |

## Component C: Project Management and Monitoring and Evaluation

This component would finance the costs for Project Management Units (PMUs) and the Project Coordinator's office. Financing would be provided for impact evaluation,

communications strategy, grievance redressal mechanism (GRM), independent third party monitoring, establishment of a management information system (MIS), and overall monitoring of the implementation of Environment and Social Management Framework (ESMF). The Impact Evaluation, MIS and third party monitoring will be implemented by the Project Coordinator whereas overall monitoring and evaluation, GRM and communication strategy will be implemented by the respective PMUs and the PIUs.

**Figure 7 Overview of Component C**




## PROJECT ADMINISTRATION

### Procurement

Procurement for the proposed Project would be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated January 2011; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011, as well as the provisions stipulated in the Credit Agreement.

All procurements should be directed to the Procurement Officer in the respective PMU to ensure compliance to World Bank standards.

### Financial Management

**Budgeting.** Government's existing budget preparation and execution system would be used for the project. Districts would provide their annual requirements in respect of project activities along with the targets to be achieved. Respective Project Directors would review

and consolidate for review by the Project Coordinator who would submit the overall budget through the two Secretaries to the Planning & Development Department (P&DD) for the approval by PSC.

At the two Departments, as per current practice statements showing budget and actual expenditure are submitted by the districts to the respective DGs. P&DD conducts a quarterly review of expenditure incurred and targets achieved. This practice may be continued for both participating Departments.

**Funds Flow Arrangements.** A segregated Designated Account would be opened for each of the departments (PMUs) into which Bank funds would flow. Funds would be disbursed by the Bank on the basis of forecasts for six months and account thereof would be submitted on a quarterly basis in the form of agreed Interim Financial Reports (IFRs). Funds would be transferred on the basis of monthly forecast from the DA to the Departmental (PIU) bank accounts to be opened for the purposes of the project on the basis of approved forecasts. PIUs would render account of the funds received and spent to the PMUs within fifteen days of the month end. Expenditure in respect of the Project Coordinator's office would be incurred from the Agriculture Department's Designated Account. Expenditure would be reported by component to facilitate preparation of IFRs by the respective PMUs. Bank accounts would be operated jointly by two signatories. Major procurements would be made at the PMU level for which designated procurement staff would be in place.

Procedure for operating of designated accounts issued by the Ministry of Finance has been shared with the participating Departments. Farmers' contribution, if any, would be deposited up front into the bank accounts at the district level. Contributions in kind would be evaluated and accounted for.

**Accounting.** Government's existing cash basis of accounting would be used for the project. However, currently the financial management staff does not have a copy of the manuals developed under PIFRA's New Accounting Model. Accounts would be maintained manually. Expenditure is reconciled with the District Accounts Offices on a monthly basis.

**Internal Controls.** The implementing agencies will ensure that Bank's guidelines (dated January, 2011) on Prevention and Combating Fraud and Corruption in Bank Financed Projects are followed in the project. Internal audit function would be out sourced to a firm of chartered accountants that would carry out internal audit and report back periodically.

**Financial reporting.** IFRs showing sources and uses of funds, expenditure by activity, DA activity statement and forecast for the next six months would be submitted to the Bank within forty five days of the end of each quarter.

**Audit.** *Project audited financial statements* would be provided to the Bank within six months of the close of each financial year—i.e. by 31 December every year. As per Bank's Access to Information Policy, audited financial statements would be displayed on Bank's website. Implementing agencies would also be encouraged to display these on their respective

websites. Project's *annual financial statements audited by the Auditor General of Pakistan* would be provided to the Bank within six months of the close of each financial year.

### ENVIRONMENTAL AND SOCIAL COMPLIANCE

SAGP investments will be guided by the Environment and Social Management Framework (ESMF), which will be made available to all staff and other entities participating in the implementation of the project. This section includes some summary information from that ESMF.

During the project implementation, when the exact nature, type, size, and location of individual subprojects are known, a site-specific environmental and social screening will need to be carried out for each subproject to be considered under the SAGP. The project will not finance subprojects with potentially significant negative environmental and or social impacts (e.g. inside any environmentally and or social critical areas or protected areas; involving large quantities of waste disposal; large scale or linear infrastructural works; substantial health and safety risks; potential impacts likely to extend beyond the immediate vicinity of the site). The following criteria can be used to determine the nature and extent of the subproject-specific environmental and social assessment needed:

- Simple subprojects with minimal environmental and or social impacts (typically without involving any construction and waste disposal; subprojects such as Herd Disease Reporting System). See **Annex E of the ESMF document** for a checklist to aid the Environmental Assessment.
- Subprojects with some potentially negative environmental and or social impacts (outside any environmentally and or social critical areas or protected areas; involving some construction and waste disposal activities; impacts likely to be confined to the immediate vicinity; subprojects such as Herd Health Screening; Efficient Utilization of Excess Animals; Processing and Packaging Facility). See **Annex F of the ESMF document** for a suggested methodology for the Environmental Assessment and preparation of an ESMP.

A specific ESMP has been prepared for the proposed Artificial Insemination Training Center to be established in the Agriculture University at Tando Jam (see **Annex G of ESMF document**). This ESMP, though having some gaps thus needing to be completed during the project implementation, will be used as a sample and template for such Plans to be prepared for various interventions under Component B.

### MITIGATION PLANS

A generic mitigation plan prepared on the basis of impact assessment discussed in the ESMF document in addition to mitigation plans for the types of subprojects known at this stage are available in the ESMF document and provided below. Subproject-specific mitigation plans

will be implemented in combination with the generic mitigation plan. These mitigation plans will be expanded if needed and finalized once the subproject location is known. These plans will also be included in the subproject ESMPs.

The relevant mitigation plans and also the site-specific ESMP will be included in the design of each subproject, and included in the bidding documents in case contracting is involved.

Appropriate environmental and social aspects will also be incorporated in the feasibility studies to be conducted under project component A3 (see **Section 3.2 of the ESMF document**).

***Generic Mitigation Plan***

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 1 | Subproject Siting (Land Use, Landform, and Land Take);<br><br>Ecological Disturbances and Loss of Precious Ecological Values | ■ The subprojects will be established on the land owned by the beneficiary. It will be ensured that no involuntary resettlement takes place for these subprojects. Checklist and agreement deed format in **Annex H** and **Annex I** will be used for this purpose.<br>■ Community consultations will be carried out before establishing the facility.<br>■ It will be ensured that the local routes are not blocked by such schemes.<br>■ It will be ensured that natural drainage paths are not blocked by the establishment of subprojects.<br>■ If trees are to be cut for any subprojects, the farmer/beneficiary will carry out compensatory plantation of appropriate indigenous tree species. Trees thus planted will be at least five times the number of trees felled for establishing the subproject.<br>■ No schemes will be located inside or in immediate vicinity of any protected areas listed in **Tables 4.9** and **4.10**.<br>■ The subprojects will not be located in graveyards or shrines.<br>■ The 'chance find'[8] procedures will be included in the scheme agreements.<br>■ Use checklist in **Annex J** for scheme location. | PIU and subproject design team | EFPs | During design stage of subproject |
| 2 | Soil and Water Contamination, and Degradation of Water Bodies | ■ The subprojects will be designed employing technologies that are least polluting<br>■ Fuel, oil and other chemicals will be handled and stored at the subproject | PIU and subproject design | EFPs | During design and O&M stages of |

[8] 'Chance find' procedure: In case any artifact or site of archeological, cultural, historical, or religious significance are discovered during activities such as excavation of water ponds, the works will be stopped, and the Archeological Department will be informed.

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | caused by Discharge of Wastes | facilities following the standard operating procedures, avoiding any leakage and spillage, and minimizing contamination of soil and water.<br>■ Appropriate effluent treatment arrangements will be included in the design of the subprojects.<br>■ Settling/retaining tanks will be constructed at the site as appropriate to minimize contaminants leaving the subproject facilities.<br>■ Recycling of waste effluents will be carried out as far as possible and practical.<br>■ It will be ensured that the waste effluents leaving the facility comply with the NEQS (see Section 2.1.3).<br>■ It will be ensured that the wastes are not released into any drinking water source, cultivation fields, or critical habitat.<br>■ Waste effluents will be released in irrigation channels only if they do not negatively affect the irrigation water quality. | team | | subproject |
| 3 | Aggravation of Solid Waste Problems | ■ The subprojects will be designed employing technologies that minimize generation of solid wastes<br>■ Use of non-biodegradable substances (e.g. for packaging) will be minimized.<br>■ Recycling of solid waste will be carried out as far as possible and practical.<br>■ Technologies such as biogas will be promoted to gainfully dispose animal dung.<br>■ Composting of biodegradable waste will be considered and adopted if practicable.<br>■ Disposal of solid waste will be carried out in a manner that does not negatively affect the drinking water sources, cultivation fields, irrigation | PIU and subproject design team; Sub-project owners | EFPs | During design and O&M stages of subproject |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | channels, natural drainage paths, wetlands and critical habitat, the existing waste management system in the area, local routes, and general aesthetic value of the area. | | | |
| 4 | Public Health Issues | ■ It will be ensured that the emissions and noise from the subproject facilities comply with NEQS and other relevant standards (e.g. WHO guidelines where NEQS do not prescribe standards).<br>■ Community consultations will be carried out as part of the subproject design activities.<br>■ Grievance redress mechanism will be established in the area to address the public complaints regarding issues such as noise and odor from the subproject facilities. | Sub-project design team; Sub-project owners | EFPs | During design and O&M stages of subproject |
| 5 | Construction related Issues | ■ The design of the facility and appropriate construction planning will ensure that construction activities do not cause any soil erosion or degradation.<br>■ Spoils and excess soil if generated will be disposed appropriately.<br>■ Borrow areas will be dressed to minimize safety hazards and soil erosion.<br>■ Untreated waste effluents from the construction sites will not be released to drinking water sources, cultivation fields, irrigation channels, and critical habitats. Appropriate effluent treatment arrangements such as settling tanks will be made at the site. It will be ensured that the effluents comply with NEQS.<br>■ Construction machinery, generators, and vehicles will be kept in good working condition, minimizing exhaust emissions. It will be ensured that exhausts from these equipment and vehicles comply with relevant NEQS.<br>■ It will be ensured that noise generated from the construction activities comply with relevant NEQS. | Contractor | PIUs and EFPs | Construction phase |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | ■ All safety precautions will be taken to address safety hazards for the nearby community. These precautions may include safety/warning signage, safety barrier around the construction site, and safe driving practices.<br>■ Community consultations will be carried out before commencing the construction activities, informing the nearby population regarding the construction activities and possible impacts such as noise and additional vehicular traffic.<br>■ Grievance redress mechanism (GRM) will be established in the area to address the public complaints regarding issues such as noise from the construction sites.<br>■ WB Group's Environment, Health and Safety (EHS) Guidelines (attached at the end of this document) will be implemented<br>■ The construction contracts will include appropriate clauses to protect environment and public health. The present ESMF will be included in the bidding document.<br>■ The generic safeguards requirements for construction works are presented in **Annex K**. | | | |
| 6 | Environmental Degradation from Intensification of Agricultural Land Use | ■ Judicious use of the irrigation water, chemical inputs and use of alternate techniques (such as integrated pest management, using disease-resistant seeds, and mulching) will be promoted through awareness raising and capacity building initiatives which are included in the Component A of the proposed project.<br>■ Adoption of IPM techniques will be promoted through capacity building programs.<br>■ Crop rotation practices will be promoted to avoid soil fertility degradation. | Sub-project owners | PIUs and EFPs | O&M phase |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | ■ The capacity building program will also include safe handling of hazardous substances such as pesticides.<br>■ High efficiency irrigation technologies (e.g., drip irrigation, tunnel farming) will be promoted to conserve already scarce irrigation water. | | | |
| 7 | Health and Safety Hazards for the Community | ■ The design of the facilities will comply with all relevant and applicable technical standards and safety codes.<br>■ Standard operating procedures will be developed and implemented at each facility.<br>■ Containment arrangements will be made for fuels and oils stored at the facility.<br>■ Material Safety Data Sheet (MSDS) for each hazardous substance will be made available at each facility.<br>■ Emergency response plans will be prepared for each facility as appropriate.<br>■ The facility workers will be appropriately trained to operate the facility and handle emergency situation.<br>■ WB Group's EHS Guidelines will be implemented as appropriate. | Sub-project design team; Sub-project owners | EFPs | During design and O&M stages of subproject |
| 8 | Occupational Health and Safety Hazards | ■ The design of the facilities will comply with all relevant and applicable technical standards and safety codes to minimize occupational health and safety risks.<br>■ Standard operating procedures will be developed and implemented at each facility. These procedures will address the OHS aspects as well.<br>■ Fire alarm and firefighting arrangements will be provided, as appropriate<br>■ The facility workers will be appropriately trained in OHS aspects.<br>■ Use of appropriate personal protective equipment (PPE) will be mandatory | Sub-project design team; Sub-project owners | EFPs | During design and O&M stages of subproject |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | at the facility.<br>■ WB Group's EHS Guidelines will be implemented as appropriate. | | | |
| 9 | Vehicular Traffic | ■ Depending upon the traffic volume and the condition/nature of local routes, a traffic management plan may need to be prepared.<br>■ Community consultations will be carried out before the facility establishment.<br>■ Community liaison will be maintained.<br>■ Safety signage will be erected at appropriate places.<br>■ Safe driving practices will be promoted among the drivers.<br>■ GRM will be put in place. | Contractor<br><br>Sub-project owners | EFPs | During construction and O&M stages of subproject |
| 10 | Impacts on Women, Children, and Vulnerable Groups | ■ No discrimination with respect to religion, caste, gender, or association with any social group will be practiced during construction and operation of the facilities.<br>■ It will be ensured that the subprojects do not have any negative impacts on women, children and vulnerable groups. | Contractor<br><br>Sub-project owners | EFPs | During construction and O&M stages of subproject |
| 11 | Influx of Workers and Employment | ■ Preference will be given to the local contractors, workers, and laborers.<br>■ The capacity building component of the project will include trainings for operation and maintenance of the subproject facilities for supply chains and post-harvest loss control.<br>■ GRM will be put in place to amicably resolve any disputes or conflicts related to employment and service provision. | Contractor<br><br>Sub-project owners | EFPs | During construction and O&M stages of subproject |

***Mitigation Plan for Water Tanks and Ponds***

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 1 | Land requirement | Land if required for the subproject will be donated by the community on voluntary basis. Checklist and agreement deed format in **Annex H** and **Annex I** will be used for this purpose. | PIU and subproject design team | EFPs | During design stage of subproject |
| 2 | Water quality and availability | Carrying out laboratory analysis to ensure that that water complies with the NEQS for drinking water – if the water is to be used for drinking purposes. | PIU, subproject design team and contractor | EFPs | During design and construction stages of subproject |
| | | Protecting the water tanks and ponds from contaminants | | | |
| | | Protective fencing for tanks and ponds to minimize safety hazards | | | |
| 3 | Location and design of the subproject | Ensuring no blocked access, avoiding damage to crops, cultivation fields, graveyards and cultural heritage sites | PIU, subproject design team and contractor | EFPs | During design and construction stages of subproject |
| | | Ensuring no effect on the water rights of others | | | |
| | | Use checkilist in **Annex J** for subproject location | | | |
| | | Ensuring equitable distribution of subproject benefits through community participation | | | |
| | | Avoiding blockage of natural drainage. Provide alternates as appropriate | | | |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | after carrying out consultation with the beneficiary community | | | |
| | | Carrying out consultation with the beneficiary community, including women - ensuring that the subproject is socially acceptable/suitable to women. | | | |
| | | Minimizing tree felling requirements to the extent possible. If unavoidable, maintain documentary and photographic record of each tree felled, and carry out compensatory tree plantation (five plants for every tree felled). | | | |
| | | No subproject will be located inside or in immediate vicinity of any protected areas listed in **Tables 4.9** and **4.10**. | | | |
| 4 | Construction phase | Employing good engineering/construction practices and due diligence during construction activities to avoid/minimize: soil erosion and contamination; release of polluted water/effluents; excessive noise generation near the communities; damage to crops and cultivated fields; tree cutting, damage to public infrastructure (damaged infrastructure to be restored/repaired); damage to graveyards and other cultural heritage sites; and safety/health hazards for the community. The site will be restored and cleared of all debris/scrap/left over construction material after completion of construction works. The generic safeguards requirements for construction works are presented in **Annex K**. | Contractor | EFPs | During construction stage of subproject |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | Appropriately disposing the surplus soil and left-over construction materials, in consultation with community (e.g., in existing ditches/depressions, proper contouring) | | | |
| 5 | O&M phase | Taking appropriate steps against mosquito breeding and educating the communities in preventive & curative measures against malaria/dengue. | Subproject owner / community | EFPs | During O&M stage of subproject |
| | | Educating the community regarding the importance and methods of cleaning the ponds and tanks. | | | |
| | | Educating farmers on modern irrigation and cultivation (e.g., bed and furrow) practices, water conservation, safe use of farm inputs, integrated pest management, disease control, and other related aspects. | | | |

***Mitigation Plan for Land Development and Leveling Schemes***

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 1 | Land requirement | Land if required for the subproject will be donated by the community on voluntary basis. Checklist and agreement deed format in **Annex H** and **Annex I** will be used for this purpose. | PIU and subproject design team | EFPs | During design stage of subproject |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 2 | Location and design of the subproject | Ensuring no blocked access, avoiding damage to crops, cultivation fields, graveyards and cultural heritage sites | PIU, subproject design team and contractor | EFPs | During design and construction stages of subproject |
| | | Minimize the possibility of soil erosion by employing appropriate techniques such as check-dams, embankments, and turfing. | | | |
| | | Use checkilist in **Annex J** for scheme location | | | |
| | | Ensuring equitable distribution of subproject benefits through community participation | | | |
| | | Avoiding blockage of natural drainage. Provide alternates as appropriate | | | |
| | | After carrying out consultation with the beneficiary community, including women - ensuring that the scheme is socially acceptable and suitable to women. | | | |
| | | Ensuring no damage to cultural heritage sites and graveyards. | | | |
| | | Minimizing tree felling requirements to the extent possible. If unavoidable, maintain documentary and photographic record of each tree felled, and carry out compensatory tree plantation (five plants for every tree felled). | | | |
| | | Avoid damage to public infrastructure. Repair/restore damaged caused | | | |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | by the scheme. | | | |
| | | Minimize noise generation near the communities. | | | |
| | | No subproject will be located inside or in immediate vicinity of any protected areas listed in **Tables 4.9** and **4.10**. | | | |
| 3 | O&M phase | Educating farmers on modern irrigation (e.g., sprinkler system) and cultivation (e.g., bed and furrow) practices, water conservation, safe use of farm inputs, integrated pest management, disease control, and other related aspects. | Subproject owner / community | EFPs | During O&M phase |

***Mitigation Plan for Storage, and Packing/Processing Facilities***

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 1 | Land requirement | Land if required for the subproject will be donated by the community on voluntary basis. Checklist and agreement deed format in **Annex H** and **Annex I** will be used for this purpose. | PIU and subproject design team | EFPs | During design stage of subproject |
| 2 | Location and design of the subproject | Ensuring no blocked access, avoiding damage to crops, cultivation fields, graveyards and cultural heritage sites | PIU and Design team; contractor | EFPs | During design and construction stages of subproject |
| | | Minimize the possibility of soil erosion by employing appropriate | | | |

| Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|
| | | Execution | Monitoring | |
| | techniques such as check-dams, embankments, and turfing. | | | |
| | Use checkilist in **Annex J** for scheme location | | | |
| | Ensuring equitable distribution of subproject benefits through community participation | | | |
| | Avoiding blockage of natural drainage. Provide alternates as appropriate | | | |
| | After carrying out consultation with the beneficiary community, including women - ensuring that the scheme is socially acceptable and suitable to women. | | | |
| | Ensuring no damage to cultural heritage sites and graveyards. | | | |
| | Minimizing tree felling requirements to the extent possible. If unavoidable, maintain documentary and photographic record of each tree felled, and carry out compensatory tree plantation (five plants for every tree felled). | | | |
| | Avoid damage to public infrastructure. Repair/restore damaged caused by the scheme. | | | |
| | Minimize noise generation near the communities. | | | |
| | No subproject will be located inside or in immediate vicinity of any | | | |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | protected areas listed in **Tables 4.9** and **4.10**. | | | |
| 3 | Construction phase | Employing good engineering/construction practices and due diligence during construction activities to avoid/minimize: soil erosion and contamination; release of polluted water/effluents; excessive noise generation near the communities; damage to crops and cultivated fields; tree cutting, damage to public infrastructure (damaged infrastructure to be restored/repaired); damage to graveyards and other cultural heritage sites; and safety/health hazards for the community. The site will be restored and cleared of all debris/scrap/left over construction material after completion of construction works. The generic safeguards requirements for construction works are presented in **Annex K**. Appropriately disposing the surplus soil and left-over construction materials, in consultation with community (e.g., in existing ditches/depressions, proper contouring) | Contractor | EFPs | During construction stage of subproject |
| | | Appropriately disposing the surplus soil, in consultation with community (e.g., in existing ditches/depressions, proper contouring) | | | |
| 4 | O&M Phase | Educating the subproject owners about safe waste management and disposal. | subproject owners / managers | EFPs | During O&M phase |
| | | Educating the subproject owners about safe and efficient operation of the facility | | | |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | Educating the subproject owners about standard HSE procedures and precautions. | | | |

***Mitigation Plan for Rural Roads, Culverts and Bridges***

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 1 | Land requirement | Land if required for the subproject will be donated by the community on voluntary basis. Checklist and agreement deed format in **Annex H** and **Annex I** will be used for this purpose. | PIU and subproject design team | EFPs | During design stage of subproject |
| 2 | Road alignment | Ensuring no blocked access, avoiding damage to crops, cultivation fields, cultivation fields, graveyards and cultural heritage sites | PIU and Design team; contractor | EFPs | During design and construction stages of subproject |
| | | Use checkilist in **Annex J** for scheme location | | | |
| | | Ensuring equitable distribution of scheme benefits through community participation | | | |
| | | Avoiding blockage of natural drainage. Provide alternates as appropriate | | | |
| | | After carrying out consultation with the beneficiary community, including women - ensuring that the scheme is socially acceptable and | | | |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | suitable for women. | | | |
| | | Minimizing tree felling requirements to the extent possible. If unavoidable, maintain documentary and photographic record of each tree felled, and carry out compensatory tree plantation (five plants for every tree felled). | | | |
| | | No subproject will be located inside or in immediate vicinity of any protected areas listed in **Tables 4.9** and **4.10**. | | | |
| 3 | Construction phase | Employing good engineering/construction practices and due diligence during construction activities to avoid/minimize: soil erosion and contamination; release of polluted water/effluents; excessive noise generation near the communities; damage to crops and cultivated fields; tree cutting, damage to public infrastructure (damaged infrastructure to be restored/repaired); damage to graveyards and other cultural heritage sites; and safety/health hazards for the community. The site will be restored and cleared of all debris/scrap/left over construction material after completion of construction works. The generic safeguards requirements for construction works are presented in **Annex K**. | Contractor | EFPs | During construction stage of subproject |
| | | Appropriately disposing the surplus soil and left-over construction materials, in consultation with community (e.g., in existing ditches/depressions, proper contouring) | | | |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 4 | O&M Phase | Installing warning signs along the road. | subproject owners / community | EFPs | During O&M phase |
| | | Educating the community for appropriate precautionary measures against safety hazards associated with vehicular traffic. | | | |

***Mitigation Plan for Livestock Schemes***

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 1 | Land requirement | Land if required for the subproject will be donated by the community on voluntary basis. Checklist and agreement deed format in **Annex H** and **Annex I** will be used for this purpose. | PIU and subproject design team | EFPs | During design stage of subproject |
| 2 | Location of subproject | Ensuring no blocked access, avoiding damage to crops, cultivation fields, cultivation fields, graveyards and cultural heritage sites | PIU and Design team; contractor | EFPs | During design and construction stages of subproject |
| | | Use checkilist in **Annex J** for scheme location | | | |
| | | Ensuring equitable distribution of scheme benefits through community participation | | | |
| | | Avoiding blockage of natural drainage. Provide alternates as appropriate | | | |
| | | After carrying out consultation with the beneficiary community, | | | |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | including women - ensuring that the scheme is socially acceptable and suitable for women. | | | |
| | | Minimizing tree felling requirements to the extent possible. If unavoidable, maintain documentary and photographic record of each tree felled, and carry out compensatory tree plantation (five plants for every tree felled). | | | |
| | | No subproject will be located inside or in immediate vicinity of any protected areas listed in **Tables 4.9** and **4.10**. | | | |
| 3 | Construction phase | Employing good engineering/construction practices and due diligence during construction activities to avoid/minimize: soil erosion and contamination; release of polluted water/effluents; excessive noise generation near the communities; damage to crops and cultivated fields; tree cutting, damage to public infrastructure (damaged infrastructure to be restored/repaired); damage to graveyards and other cultural heritage sites; and safety/health hazards for the community. The site will be restored and cleared of all debris/scrap/left over construction material after completion of construction works. The generic safeguards requirements for construction works are presented in **Annex K**.<br>Appropriately disposing the surplus soil and left-over construction materials, in consultation with community (e.g., in existing ditches/depressions, proper contouring) | Contractor | EFPs | During construction stage of subproject |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 4 | O&M Phase | Educating the subproject owner/community for proper O&M of the facility, safe hygiene practices, and safe waste disposal. | subproject owners / managers | EFPs | During O&M phase |
| | | Educating the farm workers on bio-security issues and safe vaccination practices. | | | |

***Mitigation Plan for Establishing Training Centers***

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 1 | Land requirement | Land if required for the subproject will be donated by the community on voluntary basis. Checklist and agreement deed format in **Annex H** and **Annex I** will be used for this purpose. | PIU and subproject design team | EFPs | During design stage of subproject |
| 2 | Location of subproject | Ensuring no blocked access, avoiding damage to crops, cultivation fields, cultivation fields, graveyards and cultural heritage sites | PIU and Design team; contractor | EFPs | During design and construction stages of subproject |
| | | Use checkilist in **Annex J** for scheme location | | | |
| | | Ensuring equitable distribution of scheme benefits through community participation | | | |
| | | Avoiding blockage of natural drainage. Provide alternates as appropriate | | | |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | After carrying out consultation with the beneficiary community, including women - ensuring that the scheme is socially acceptable and suitable for women. | | | |
| | | Minimizing tree felling requirements to the extent possible. If unavoidable, maintain documentary and photographic record of each tree felled, and carry out compensatory tree plantation (five plants for every tree felled). | | | |
| | | No subproject will be located inside or in immediate vicinity of any protected areas listed in **Tables 4.9** and **4.10**. | | | |
| 3 | Construction phase | Employing good engineering/construction practices and due diligence during construction activities to avoid/minimize: soil erosion and contamination; release of polluted water/effluents; excessive noise generation near the communities; damage to crops and cultivated fields; tree cutting, damage to public infrastructure (damaged infrastructure to be restored/repaired); damage to graveyards and other cultural heritage sites; and safety/health hazards for the community. The site will be restored and cleared of all debris/scrap/left over construction material after completion of construction works. The generic safeguards requirements for construction works are presented in **Annex K**.<br>Appropriately disposing the surplus soil and left-over construction materials , in consultation with community (e.g., in existing | Contractor | EFPs | During construction stage of subproject |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | ditches/depressions, proper contouring) | | | |
| 4 | O&M Phase | Provision of toilets with appropriate sewage disposal (such as septic tank and soaking pit); Provision of safe drinking water | Facility owners / managers | EFPs | During O&M phase |
| | | Awareness raising for environmental care, personal hygiene and cleanliness. | | | |

***Mitigation Plan for Facility Rehabilitation***

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| 1 | Rehabilitation works | Employing good engineering/construction practices and due diligence during construction/rehabilitation activities to avoid/minimize: soil erosion and contamination; release of polluted water/effluents; excessive noise generation near the communities; damage to crops and cultivated fields; tree cutting, damage to public infrastructure (damaged infrastructure to be restored/repaired); damage to graveyards and other | Contractor | EFPs | During rehabilitation phase |

| | Environmental /Social Impact/Issue | Mitigation Actions | Responsibility | | Timing |
|---|---|---|---|---|---|
| | | | Execution | Monitoring | |
| | | cultural heritage sites; and safety/health hazards for the community. The site will be restored and cleared of all debris/scrap/left over construction material after completion of construction works. The generic safeguards requirements for construction works are presented in **Annex K**.<br>Appropriately disposing the surplus soil and debris, in consultation with community (e.g., in existing ditches/depressions, proper contouring) | | | |
| 2 | O&M Phase | Provision of toilets with appropriate sewage disposal (such as septic tank and soaking pit); Provision of safe drinking water | Facility owners / managers | EFPs | During O&M phase |
| | | Awareness raising for environmental care, personal hygiene and cleanliness. | | | |

## GRIEVANCE REDRESSAL MECHANISM

To promote transparency and accountability of SAGP and to ensure adequate learning from implementation, a Grievance Redressal Mechanism (GRM) will be maintained by the PCU and PMUs for the duration of the project. The principles underpinning this system are:

- ✓ **Fairness.** Beneficiaries and other relevant stakeholders shall be treated fairly at all times.
- ✓ **Availability.** Complaints can be made at any time and without hindrance.
- ✓ **Responsiveness.** Complaints raised by beneficiaries/relevant members shall be dealt with courtesy and on time.
- ✓ **Trust.** The PMT will work in good faith and without prejudice to the interests of the beneficiaries of the project.
- ✓ **Transparency.** Complainants will be fully informed of avenues to escalate their complaints/grievances within the project and their rights to alternative remedy, if they are not fully satisfied with the response of the project to their complaints.
- ✓ **Anonymity.** The complainant, if requested, will remain anonymous and proper action will follow to any members of the project who violates this provision.

The GRM section outlines procedures for fair, timely and appropriate handling of complaints from beneficiaries and other stakeholders (project staff, suppliers, contractors, consultants, private sector companies, etc.). The project will assure that the complaints are acknowledged, promptly addressed and complainants are replied within an acceptable timeframe.

Each Project Director and the Project Coordinator will designate staff members to serve as Project Compliance Officers (PCO) at the PCU, PMU, and PIU levels. This role would be in addition to other duties of the staff member.[9]

To accommodate the different levels of literacy and the access to technology, complaints and suggestions can be lodged in several ways:

- Website
- Email
- Phone (toll-free and mobile)
- In person (complaint book)
- By standard mail

The complaint book will be available at all times in the project and regional offices in the most visible and accessible place. In case of any grievances regarding the operation of the project—for example, the behaviour or actions of project officials, problems in producer

[9] Some projects have assigned these duties to monitoring and evaluation staff, others have assigned them to the managers of the project offices.

group leadership, management of the project funds—any person may lodge a complaint. The Project Director of the relevant department will be ultimately responsible for the open and transparent investigation of all complaints.

***Redressal Process***

- ✓ Complaints received will be acknowledged immediately by the project by confirming receipt to the complainant. Nodal Officer will return a copy of the complaint to the complainant with acknowledgement of receipt.
- ✓ The PIU/PMU will properly record and analyse grievances/suggestions once a week, and characterize them as follows;
  - o Possibility of Corruption Case
  - o Delay/Late action (gaps in standards of services expected and actual services rendered, delay in decision making)
  - o Behavior of employees
  - o Non-compliance of the code of conduct
  - o Grievances against merits of the decision taken by the decision makers
  - o Any irregularities in transparency, payments and reporting
  - o Miscellaneous/Any other
- ✓ Having characterized the complaints, the PCO will submit the complaints to the Project Director, who will advise on necessary action in order to ensure speedy disposal of the complaints.
- ✓ PCO will take necessary actions, as determined by the PD, for the resolution of complaints/grievances lodged in the project, including investigating the facts of the case (truthfulness and reliability).
- ✓ The results and/or actions undertaken to redress complaints will be informed to the complainants through written correspondence (letter or email).

Majority of complaints would be resolved at the district level, but all complaints should be reported (along with a description of how they were addressed and closed) to the PMU. If the staff in the PIUs are not able to resolve the complaint, then the case should be referred to the Project Director for his/her guidance or handling. If the PD is not able to address the complaint, they should pass the information onto the Provincial Ombudsman and also notify the Bank.

### *Contact with the Press*

When complaints are related to the public interest and/or emerge in the media, the PD should liaise with the official communications/press offices of the Department to coordinate a response. The World Bank should be notified of such issues.

## MONITORING AND EVALUATION OF PROJECT IMPLEMENTATION

Guidance on project monitoring and evaluation will be provided once the results framework for SAGP is finalized and agreed.

## PROJECT COMMUNICATIONS

Today, we are living in the age of information and communication and are experiencing instant changes. But at the project level, we are still witnessing ineffective communication at all levels contributing to our miseries and failures. The objective of information, communications and education (ICE) is:

- ✓ Awareness and motivation
- ✓ Aiding technology dissemination and learning
- ✓ Developing the information system
- ✓ Improving access to project information
- ✓ Educating the stakeholders

### Challenges in Communication

There are a number of challenges to communications in an agriculture project, including:

- ✓ the beneficiaries will be small and marginal farmers with relatively low levels of literacy.
- ✓ Overcoming gender barriers to communicate to women who play a large role in production, harvesting, and processing for the target commodities;
- ✓ Timing communications to coincide with the cropping cycle; and
- ✓ Breaking the inhibitions and long-held habits of project stakeholders.

### Design Principle

Information, communications, and education (ICE) contributes to the goals of SAGP project by creating a strategic framework for the creation, processing/synthesis, and dissemination of information to a variety of stakeholders in a useful manner. The role of information, communications, and education in the project can be divided into three categories:

- Administrative
- Operational
- Strategic

Each category feeds into the other and all are functionally linked to the different components of the project.

**Administrative Communications**

Administrative communication refers to the norms for moving critical information through the SAGP system: within and between departments, with the Project Steering Committee, other parties contributing to project implementation (e.g., private sector, NGOs, universities).

For effective information and communications with all the associated stakeholders, information should be exchanged during PSC meetings in addition to regular meetings between the PMUs and PIUs for providing staff with new information necessary for effective project implementation. For effective communication and implementation at the PIU level, staff should meeting weekly to review implementation progress and address emerging issues. Quarterly meetings would also be held in the PMU offices with PIU staff to review progress on implementation, raise emerging issues, and plan for remedial action.

**Operational Communications**

Operational communications encompasses all process and products targeted to project beneficiaries that aid in the successful achievement of project goals. This includes initial communication to identify, inform, and mobilize with information such as project objectives, criteria/rules, roles and responsibilities to potential beneficiaries through various awareness campaign programs will run at different stages. This activity will continue in regular intervals throughout the project, not just at the beginning. A continuous flow of the “rules of the game” from multiple channels helps prevent interference from non-beneficiary stakeholders who may try to capture project benefits or create political capital for themselves.

For awareness generation, the mobilizers would hold individual discussions with local people and after some time would arrange small group meetings in the villages to discuss about the project and its various activities including the project support to be received and contribution to be made by the beneficiaries. The roles and responsibilities to be shared by the beneficiaries would also be explained and discussed in these meetings.

The work of motivation and awareness generation would be carried out by the support organizations working with PIU. Officers from the PMUs would also visit beneficiaries to assist PIU staff and monitor progress.

For development of communication system under the project, SAGP should use all tools of communication:

- ✓ **Wall Painting/murals/signs in project area**. These can be used to project messages to all producers on a continuing basis. Producer groups may choose to create such installations, which can usually be done by group members or a local artisan at low cost.
- ✓ Extension Literature (keeping in mind literacy levels)
  - ✓ **Posters/Pamphlets**- Initially for motivation and publicity purposes, different sets of posters, pamphlets and booklets can be published, used by mobilization teams, and distributed to farmers.
  - ✓ **Literature for farmers**-For participating farmers, separate literature in easy-to-understand language with plenty of graphics should be prepared.
  - ✓ **For Project Functionaries** – Technical bulletins, good practice documents, etc. should be circulated on a quarterly basis.
  - ✓ **For Training**- Training Manuals, Project Operational Manual, and other manuals as needed, can be created.
  - ✓ **On Participation**- On participatory approach of project implementation, literature on awareness, group formation and management will be prepared.
  - ✓ **For Women**- Since women were very important part of the project, appropriate literature for their skill improvement, drudgery reduction will be published. These include literature on animal husbandry and dairying, organic farming, etc.
  - ✓ **Project newsletter** - This quarterly magazine will serve the purpose of awareness and motivation along with technology dissemination.
- ✓ **Traditional Cultural Media for Awareness**: Cultural media is the outcome of the basic cultural instinct of the mankind and traditional media is the specialty of the specific area and hence it is most effective and a very powerful tool of communication.
- ✓ **Communication on wheels**: For speedy coverage of maximum villages for communication, a mobile publicity van will be procured which will equipped with film shows, exhibition and other facilities.
- ✓ **Farmer Meetings**: Will be held on fortnightly basis and will be used as a strong forum for communication, wherein the literatures would be read out and different activities related with the communication and training will be performed.
- ✓ **Exposure Visits**: A system of exposure visits will be introduced, wherein there will be a provision of exposure visits for different level of participating farmers and staff, which will include inter-village, inter-district and outside the project area visits.
- ✓ **Field Days**: Field days will be organized at the time of harvest of every crop. It will be a strong medium of communication and technology dissemination.

- ✓ **Farmer-led Extension**: Under the project, a new system of farmer-led extension will be introduced in the shape of “Farmers Field School", wherein the responsibility of extension in their area will be borne by the farmers themselves. These schools will be self-developed with some external assistance. They will be the most important component of the exit policy of the project and would be developed as the apex participatory body of the farmer-led extension system after the exit of the project.
- ✓ **Electronic Media**: Electronic Media, has acquired a great importance in communication and both of these powerful media will be utilized in the project to the maximum extent.
- ✓ **Audio-Visual**: Audio-Visual aids are most important and to some extent inevitable tools of communication especially in rural development project. This supporting tool will be also utilized in the form of spots, talks, documentaries etc.
- ✓ **One-to-one communication:** Direct communication with the end users always helps in building up the confidence and transparency. Keeping this in view, a chain of letters from the Department Secretaries to local administration, village heads, etc. will be undertaken on periodic basis to update them on progress of the program in their area. In this, there will be arrangement for receiving feedback from the grassroots level, which will make this process a two-way traffic.
- ✓ **Exhibition**: Exhibition is a very strong tool of communication and this tool will be used in the project on Field Days, Market Days, and festivals.

**Strategic Communications**

Politicians, private sector, and other government departments would be the primary audiences for the purpose of building support for the project, especially in terms of continued financing and commercial engagement after implementation is complete. To fulfill above objectives, a strategy would be formulated at the provincial level which will include regular briefing and updating them through meetings, a newsletter, brochures, fact files and communication materials which they can distribute to the visitors at their respective offices. Materials should be clear and concise and most able to convey messages that can be understood by a largely non-specialist audience. Some important modes and tools are as follows:

- ✓ **Face to Face meetings.** Project Steering Committee meetings will be periodically organized to maintain ties with policymakers to build a positive sense of ownership. In addition, regular meetings of PIU staff, PMUs, and other stakeholders can be held for strategic communication and effective implementation and review of the project.
- ✓ **Brochures**. Concise, understandable and attractive brochures will be prepared to provide an overview of the project, summarize project progress, tell the success stories of the project beneficiaries and explain various issues relevant to SAGP.

- ✓ **Fact File.** A fact file containing data on the targeted horticulture crops will be prepared and circulated to politicians, policymakers and visitors to the project area.
- ✓ **Documentaries, TV/Radio interviews.** As the SAGP starts yielding results, documentaries on project impacts showing how government funds are changing the lives of poor farmer's family will be filmed and shown to all concerned.
- ✓ **Newspaper Articles and Editorials.** A wide spread newspaper coverage of project can raise public awareness of the potential that small and medium farmers to Sindh's agriculture development.
- ✓ **Case Studies.** The case study based on MIS/monitoring data will be incredibly powerful ways to communicate non-specialist audience.