12/23/2015

Final Report

Social Assessment – Sindh Agricultural Growth Project

Acronyms

CSOs	Civil Society Organizations
FGDs	Focus Group Discussions
HH	Household
KIIs	Key Informant Interviews
MDC	Management & Development Center
MFIs	Micro-finance Institutions
MIS	Management Information Systems
MPGs	Milk Producing Groups
NGOs	Non-governmental Organizations
P&D	Planning & Development
PCMU	Project Coordination and Management Unit
PIUs	Project Implementation Units
PMU	Project Management Unit
SAGP	Sindh Agricultural Growth Project
SPSS	Statistical Package for Social Sciences

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Executive Summary

The Sindh Agricultural Growth Project (SAGP) aims to improve the productivity and competitiveness of small and medium producers in selected commodity value chains. The project will focus on five key value chains, which are chilies, onions, dates, rice post-harvest loss management, and dairy.

SAGP has three components: (a) capacity building and institutional development, (b) investment for agriculture growth, and (c) project management and monitoring and evaluation. The component A will support (i) value chain development by building producer capacity building through farmer group mobilization and engaging the private sector in stakeholder forums, (ii) modernization of extension services and agricultural research, and (iii) strategic planning for the agricultural sector, including the development of the provincial agriculture sector strategy. The component B will support the development of the four key value chains by increasing productivity though technology transfer and extension services (including post-harvest processing) and providing marketing support. The component C will support the Departments of Agriculture and Livestock in managing the project.

The key objective of the study is to undertake social assessment that would inform SAGP implementation by enhancing beneficiary targeting, inclusiveness and participation (women and vulnerable households), outreach, social accountability, assess stakeholder relationship and social risk, and develop social risk management and mitigation plan and monitoring plan.

Social Assessment study was conducted in nine districts using quantitative and qualitative research techniques. The data was collected through household questionnaires, focus group discussions and key informant interviews with relevant stakeholders.

Findings of the study suggest that farmers in the study areas do not cultivate all of their lands. On average, about four acres of their land remain uncultivated because of salinity, waterlogging or shortage of water. About 60% of farmers are able to irrigate their lands with canal water only, whereas 40% use tube wells, along with canal water, for irrigation purposes.

Share cropping patterns vary with respect to crop type and district, but majority (55%) of the small farmers themselves cultivate lands and bear all the expenses. The most common share cropping pattern among medium and large farmers is equal distribution of costs and benefits among land owners and sharecroppers.

Average crop yield is lower in the lands which lie at the tail end of the distributary due to shortage of canal irrigation water or where ground water used through tube wells is brackish.

Prices of crops also vary with respect to variety of a crop, access to market and fluctuations in demand and supply.
Less than a quarter of farmers (24%) have access to agriculture extension services, whereas 60% have access to institutional loans from banks, but majority of farmers are unable to benefit from loans because of complicated procedures and mortgaging of land. This results in farmers being pushed into contractual bondage with input dealers who sell inputs at higher rates, and purchase produce at cheaper rates.

More than 90% farmers expressed need for capacity building through field-based hands-on training and exposure visits, and most of them are willing to purchase technology packages to reduce post-harvest losses and improve quality of their produce. However, they wanted to have practical demonstrations of use of such tools before purchasing.

Social assessment findings also show that majority of the animals raised by livestock owners are non-milk which they raise for various purposes. They can sell such animals to get cash to cope with an emergency, they can slaughter animals to fulfill their own nutritional needs and they can sell animals during religious events.

Average milk yield is lower in Tharparkar district because it has been continuously witnessing droughts since last couple of decades. Due to unavailability of water and fodder, cows and buffaloes produce less milk in district Tharparkar as compared to those in Mirpur Khas district.

About three quarters of dairy farmers sell milk to middlemen, retailers/wholesalers, and individual household clients, but almost half of them are not satisfied with price of milk. Due to unavailability of technology to preserve milk for longer hours, they are forced to sell milk at cheaper rates.

More than three quarters of dairy farmers have access to livestock extension services (vaccination and treatment) but artificial insemination is not widely practiced due to inaccessibility, lower success rate, and high mortality rate among cross-breeds.

About 25% women expressed willingness to become lady livestock vaccinators but on conditions that they will have to work in their own villages because mobility is restricted and they should be trained by women trainers.

Social assessment study also conducted a consultative workshop with relevant stakeholders to assess risk involved in implementation of SAGP. Risks with high severity and probability are 1) contractual bondage between growers and middlemen, 2) unskilled labour, 3) Women's restricted mobility, 4) sustainability of Chillers, 5) Sustainability of commodity groups/MPGs,

6) Natural disasters and 7) genetics of animals/crops, whereas the other risks of medium severity are 1) disengagement of large/commercial farmers, 2) inactive women's groups, 3) inappropriate timing of trainings, 4) inadequate technology, 5) inappropriate marketing of produce, and 6) diseases in crops/animals.

In order to create awareness among the farmers about new farming practices, market trends and technology, SAGP requires a good communication strategy that involves identification of types of information required to make decisions, search for sources of information, assessment of authenticity of sources of information, compilation of information in a meaningful form, development of sources of information disseminations, selection of means of communication, identification of end users of information and dissemination of information.

SAGP needs to carefully design trainings for farmers, workers and lead trainers. SAGP should design a clear training strategy to determine what type of training should be provided to what type of participants. Women are also involved in agriculture work and care of animals. Trainings for the practices that are done by women should be exclusively provided to women only, preferably by women trainers in Sindhi and Urdu languages.

1. BACKGROUND

Sindh Province has 23.8 percent of Pakistan's population, 18 percent of its land area, 16 percent of its total cropped area, and contributes about 23 percent to national agriculture value added—primarily through wheat, rice, cotton, sugarcane and milk. About 30-35 percent of Sindh's population lives below poverty line, and a majority of the poor are rural. Sindh's poverty is often attributed to inequality in land distribution which has increased over time. Production largely depends on sharecropping (42 percent of farms in Sindh), the extent of which has remained nearly twice as much as other provinces for the last 50 years.

Sindh's agriculture issues are complex with inter-related problems requiring action on several fronts. Sindh's agriculture productivity per acre is higher than Punjab, the other major contributor to Pakistan's agriculture output, and it has great productive potential. However problems persist and growth is sluggish. In broad terms, there is need for: intensifying the use of improved water management techniques; building on already comparatively high crop yield with knowledge and technology-driven higher crop productivity and cropping intensity, starting with areas where water supply is reliable; and strengthening of value chains through improved connection of the industrial base to agriculture and diversification towards high value crops, improvement in effective and efficient marketing system (local and international).

With regard to livestock, production has been growing steadily and it is a critical pro-poor sub-sector that can contribute to both poverty reduction and growth. However, producers require support to improve their livestock productivity and market opportunities. Focusing on productivity and the market requires coordinating support activities between cross cutting activities/areas such as research, extension, sanitary and phytosanitary systems, quality and availability of inputs, infrastructure, etc. For example, regarding support services, most producers in Sindh manage mixed crop-livestock systems and rely on the programs and staff from the Provincial Departments of Agriculture, Livestock and Fisheries, Food, Forests, Irrigation, Electric Power, Alternative Energy, and Cooperation, all of which lack the capacity and staff to reach all producers, particularly the poorest producers[1]. The large number of departments adds to the complexity of managing the sector. Sector support needs to be effective and efficient and it needs to be coordinated and involve the multiple stakeholders in the system.

[1]For example, with an animal herd of 32 million and only 358 veterinary officers in the province, the ratio of officers to animals is roughly 1 to 89,000.

2. ABOUT SINDH AGRICULTURAL GORWTH PROJECT

The Sindh Agricultural Growth Project (SAGP) aims to improve the productivity and competitiveness of small and medium producers in selected commodity value chains. The project will focus on five key value chains, which are chilies, onions, dates, rice post-harvest loss management, and dairy. These value chains have a small and medium farmer focus, with significant involvement of women in production and processing. Moreover, they are Sindh's greatest competitiveness advantage from the national perspective[2].

SAGP has three components: (a) capacity building and institutional development, (b) investment for agriculture growth, and (c) project management and monitoring and evaluation. The component A will support (i) value chain development by building producer capacity building through farmer group mobilization and engaging the private sector in stakeholder forums, (ii) modernization of extension services and agricultural research, and (iii) strategic planning for the agricultural sector, including the development of the provincial agriculture sector strategy. The component B will support the development of the four key value chains by increasing productivity though technology transfer and extension services (including post-harvest processing) and providing marketing support. The component C will support the Departments of Agriculture and Livestock in managing the project.

For the last decades, the Bank's engagement in Sindh in the agriculture and rural development sector has focused on water management and poverty reduction by local infrastructure investments and microfinance through the following projects: (a) Sindh Water Sector Improvement Project (WSIP) Phase I, (b) Sindh On-farm Water Management Project, (c) Sindh Skills Enhancement Project, and (d) Pakistan Poverty Alleviation Fund. The SAGP would, therefore, build on and complement these projects.

2.1 Key Objectives of the Study

The key objective of the study is to undertake social assessment that would inform SAGP implementation by enhancing beneficiary targeting, inclusiveness and participation (women and vulnerable households), outreach, and social accountability. The social assessment is also to improve training modules and delivery effectiveness. In addition the assignment is to conduct social baseline in the target districts and assess stakeholder relationship and social risk, and develop social risk management and mitigation plan and monitoring plan.

[2]In Pakistan, Sindh produces 92 percent of national production of chilies, 33 percent of that of onions, and 50 percent of that of dates.

2.2 Scope of the Services

The scope of services is:

a. to obtain social baseline in target districts;
b. to review national and provincial legislations and regulations pertinent to the project;
c. to undertake stakeholder analysis;
d. to develop social risk management and mitigation plan; and
e. to identify expected social development outcomes and monitoring mechanism.

(a) Social baseline. Focusing on five target value chains (chilies, onions, dates, rice post-harvest loss management, and dairy), MDC assessed project target districts in the socio-cultural as well as socioeconomic context, which included, but not limited to:

i. land ownership and tenure patterns (owner-cultivator, sharecropping, and tenancy), including decision making in agriculture investments;
ii. proportion of landless households (local and migratory) participating in target value chains and their labor opportunities on small and medium farms;
iii. land disputes;
iv. irrigation facilities;
v. crops and cropping pattern, including production of target crops;
vi. livelihoods (farm and non-farm);
vii. basic social information (literacy and education, language, average household size, health, etc.);
viii. assets;
ix. income and expenditure;
x. rural access (access road, market, input availability, formal and informal credit, media, mobile, schools, clinics, etc.). Special attention was given to:
    a. gender in both landholder and landless households, in terms of women's access to resources (land, assets, and credit) and division of labor in target value chains and
    b. ethnic/tribal culture in target districts, such as their formal and informal institutions, social hierarchy, decision making structure and processes.

(b) National legislation and regulations. MDC experts reviewed national legislations and regulations pertinent to the project, as well as the broader policy and reform context within which the project takes place. These included:

- Land Expropriation Law,
- Law on managing land affairs,
- Land policy,
- Agriculture and irrigation management, and other national or provincial relevant regulations and policies.

Also, attention was paid to laws and regulations governing the project's implementation, such as farmer organization or producer company registration, and the access of poor and excluded groups to land, goods, services, and opportunities provided by the project.

(c) Stakeholder analysis, social impacts and risks. MDC identified and consultedstakeholders in five target value chains, including targeted farmers (male and female in small and medium landholding households), laborers (male and female), large landholders and supervisors, existing farmer organizations (such as WSIP-formed farmer organizations, chili grower associations, Sindh Abadgar Board, Chamber of Agriculture, etc.), middlemen/community-level traders, processors, whole sellers, district government, agriculture or livestock extension workers, private sector, NGOs, and donors. Through focus group discussions and interviews the consultant assessed stakeholder relations and potential social risks, including elite capture, cost sharing arrangement, etc. The stakeholder analysis, in particular, relationship between those who would be affected by the project positively and negatively, was also undertaken.

(d) Social risk management and mitigation plans. The MDC team has prepared a risk management plan, in view of addressing potential impacts and risks during project implementation.

(e) **Social development outcome and monitoring mechanism.** What are social development outcomes and actions proposed to achieve those outcomes? This included sound beneficiary targeting mechanism (for example, who should be trained, who should participate in producer groups), social accountability mechanisms, such as participatory monitoring, social audit, grievance redress mechanism.

2.3 Identifying Key Stakeholders

As per TORs, the stakeholders are those who will be positively and negatively affected by the project, including but not limited to:

i. producers[3];
ii. existing producer or farmer organizations;
iii. government;
iv. private sector; and
v. civil society organizations (CSOs).

2.4 Phase – II – Field Implementation

2.4.1 Quantitative Survey

The quantitative survey involved household survey in selected districts. After consultations with SAGP focal persons, the sample size for the quantitative survey was 100 households per

[3] The table describes the key stakeholder, horticulture / agriculture, dairy stakeholders and SAGP intervention is presented as **Annex – 1**

district for nine districts. Originally it was planned that household questionnaires will be filled from 8 villages of two union councils of a district. But since this survey involved interviews from land and livestock owners (small, medium and large), the field team faced some problems in several districts to find eligible respondents. Hence, extra efforts were made to ensure the target achievements. The SAGP district PIUs supported well to locate villages and respondents for smooth field operations. Some villages were made center-points and respondents were invited to those villages. The detailed breakup of quantitative survey is given below:

Table 1: Sample Size

S #	Commodity	District	Tehsil	UCs	Respondents from Villages	Households
1	**Chillies**	Umerkot	1	2	20	100
2	**Onion**	Hyderabad	1	5	21	100
3		TandoAllahyar	1	6	39	100
4		Tando Muhammad Khan	1	5	25	100
5	**Dates**	Khairpur	3	5	27	100
6	**Rice**	Larkana	2	4	22	100
7		Badin	1	3	38	100
8	**Dairy**	Tharparkar	1	2	3	100
9		Mirpurkhas	1	1	13	100
Total	**5**	**9**	**12**	**33**	**188**	**900**

2.4.2 Qualitative Survey

Qualitative data was collected through focus group discussions (FGDs), Key Informant Interviews (KIIs) and Case Studies (Field Instruments: House hold questionnaires, focus group discussions, key informant interviews and district profile checklists have been developed and presented as **Annex – III**).

2.4.3 Key Informant Interviews

Key informants provided comprehensive and in-depth information for the benefit of our study. The KIIs were conducted with the following 45 stakeholders, from district to provincial level:

- Agriculture and Dairy farmers
- Secretaries, Agriculture and Livestock Departments
- PDs, Agriculture and Livestock Departments
- Representatives of Agriculture and Livestock departments at district level
- Representatives of district project implementing Units
- Members of farmer organizations, milk producing groups
- Members of Abadgar Board, civil society organizations
- Mill Operators, Chiller operators, middlemen
- Representatives of micro-financing banks, milk processing company

2.4.4 Focus Group Discussion

The field teams conducted25 Focus Group Discussions (FGDs) in nine(09) districts. Though FGDs were conducted with homogenous groups, but in some cases, men and women workers participated together in the group discussions. The focus group interview guides were developed with attention to relevant questions to inform indicators, which are both within a logical sequence and that also generate rich conversation, as the goal was to get the group to talk more than the facilitator.

2.4.5 Consultative Workshop

Consultative workshop was held with representatives of agriculture and livestock departments, service providers and civil society organizations to identify and assess risks involved in SAGP and how these can be addressed. Farmers and other stakeholders of each value chain were tasked to identify and assess risks and suggest actions to be taken. This workshop helped develop a risk assessment and mitigation plan. Another objective of the workshop was to assess stakeholder relationships. This helped assess to what extent various stakeholders would influence SAGP intervention and how they would support implementation of the project. List of participants is attached as Annex II.

2.4.6 Training

A three-day training of field staff took place at MDC Hyderabad Office, from August 31 to September 2, 2015.The research team was briefed on the basics of the project and the goals of the project social assessment study, and then were introduced to the research instruments. A 'run through' of all survey questions, interview questions and focus group questions took place, allowing each member of the team to comment on strengths and weaknesses of certain questions in case they needed to be removed, rephrased or elaborated upon.

2.4.7 Coordination with SAGP

Throughout the assignment, MDC worked in close coordination with SAGP. From tool designing and training to data collection, MDC involved SAGP staff for clarification, and approval of instruments for data collection. In this regard, MDC held meetings with SAGP and the World Bank Mission at Hyderabad and Karachi Offices and also shared progress of the assignment.

2.5 Phase – III – Data Entry, Management and Analysis

Quantitative data was entered in SPSS and analysis was done using frequencies and cross-tabs to see variations and patterns in the data. Qualitative data was analysed thematically to provide in-depth explanations to emerging variations and dominant patterns.

3 Descriptions of Farmers

3.1 Large Farmers

Large farmers are those who possess more than 25 hectares of cultivable land. A small village, consisting of 50 households, usually has one or a couple of large farmers, and a few medium farmers. The rest are either small farmers, or sharecroppers or landless laborers. It is not necessary that the landless laborers living in the village should be involved in the agriculture farming. Large farmers normally enjoy higher social status and in most of the villages, the position of the Head of the village lies with the farmer who owns the highest numbers of acres of land. Moreover, the large farmers have also social affiliations with local parliamentarians and wield political power in their villages and over their workers.

Large farmers usually hire a kamdaar (manager), who takes care of land, manages financial records and supervises labor. Though they do keep themselves aware of price trends in the market, fluctuations in labor market, and availability of seeds, pesticides and fertilizers, they make decisions after consultations with their kamdaars. Mostly, large farmers keep some uncultivated land area for residential purpose of sharecroppers in order to ensure smooth work on agricultural farm.

Large farmers visit their lands either on daily basis or at their convenient times. All investment and buying-selling decisions are taken by large owners themselves on advice of his Farm Manager. They don't usually directly contact their sharecroppers, but all the matters are dealt with by the managers. Large farmers also have access to extension services and, with their political influence, can also get regular supply of irrigation water, or they can also install private tube wells to irrigate their lands. Many of them have their own tractors, threshers, and trolleys to transport agricultural produce to the market.

Majority of the large farmers hire sharecroppers on equal cost sharing basis. Under 50:50 sharing, the cost of ploughing is 100% responsibility of the sharecropper and Irrigation Charges and Tax is 100% responsibility of the land owner. All other costs of production are shared on 50:50 ratio among land owner and sharecropper. At the end, after deducting the cost share, the net benefit of the crop is shared 50:50 in between land owner and share cropper. This Type of share cropper is locally known as Adhiryo.

Since large farmers are comparatively financially well off, they also tend to cultivate through daily wage workers and take 100% crop revenue. This type of cropping is locally known as Seri system of land cultivation.

3.2 Medium Farmers

Medium Farmers are those who possess 5 to 25 hectares of cultivable land. Mostly, they don't hire services of Farm Manager (Kamdar) except in cases if the owner has any government job or any other business activity. Moreover, if the land is owned by a woman, and she cannot

manage her farm directly, she hires services of any male relative as Farm Manager to look after her farm irrespective of volume of her land ownership.

Majority of the medium farmers hire sharecroppers on 75:25 formula. In 75%:25% sharing formula, the landlord pays 100% Irrigation charges an Tax and all other expenses are shared 75% by the land owner and 25% by share cropper and at the end the crop revenue is shared 25% to share cropper and 75% to land owner. This type of share cropper is known as Siriryo Farmer. Mostly, the medium farmers are not financially well off so they cannot afford to purchase tractor or thresher and usually get these on rent.

3.3 Small Farmers

Small farmers are those who have one to five hectares of cultivable land. Most of the small farmers themselves cultivate lands and do not hire workers or engage in sharecropping system. However, in peak season such as transplantation and harvesting of different crops including rice, onion, dates, chilies, wheat, cotton, and sugarcane. There is no specific formula regarding number of acres of land for which farmers have to hire workers. Since people in rural areas live in joint and extended families, they have enough people to work on a few acres of lands. Mostly, they don't hire sharecropper except in some cases if the owner has any government job or any other business activity.

Small farmers face lots of problems. Majority of them do not have access to extension service and agricultural loans. Those whose lands lie at the tail end of the distributary suffer even more. They rarely get enough water to irrigate their lands, or if they are lucky enough to get water, they do not get it in time to grow crops at adequate time. A few never get water. All this, results in poor crop production and low income, due to which they remain indebted to input dealers or middlemen.

3.4 Workers

Agricultural workers are of three types i.e. locally settled share croppers, landless daily workers and migratory workers. A brief overview of these three is given below:

Sharecroppers: A sharecropper is one who cultivates the land which is property of another owner. Sharecropper cultivates land with almost all family members including male and females. The sharecropper family is responsible for land ploughing, weeding and harvesting of the crop on an agreed crop sharing i.e. 50%:50% or 75%:25%. Sharecroppers' have permanent houses in the villages adjacent to agricultural lands. They usually work in the lands of one or two large farmers. Since they are local and well known to the local community and local shop keepers, hence, they can also get financial support, in terms of credit from farmers and shop keepers during times of emergency or crisis.

Local laborers: Local laborers are those families who derive their livelihood from daily wage work. Mostly landless labor families live in small town where male members can get daily wage work easily. However, their women work on daily wages in agriculture in cotton, picking, chilly picking, rice and wheat harvesting, sugarcane cutting etc. one important thing to note that women from landless labor families normally don't do weeding work as this is done

by the sharecropper women family members, therefore, these tasks are not given to landless women.

Migratory laborers: Migratory workers, usually come from Tharparker area and keep moving to the areas where harvesting is to be initiated. Majority of them are Hindus, belonging to scheduled castes. During harvesting season, though they often come to the same landlord, for whom they have rendered their labor services for years, but they are not legally or formally bound to work for the same landlord each year. They migrate with all of their family members by leaving one or two old men/women to look after their houses. Mostly, migratory workers visit to the same areas they use to come each year. Normally, the migratory workers stay around one or two months in any area and then move to other area depending upon the harvesting days of the crop. All members of the migrant family (male & female) work on the farm.

Almost all of the workers including share croppers, landless labor and migratory workers, are uneducated and unskilled, employing old traditional practices. Many of them bring their women to work with them in lands and put their small babies on the side of the field, since there is no one in the house to take care of them. Mostly, these workers don't adopt any safety measures to protect themselves from harmful effects of pesticides.

3.5 Women

Though women can legally own lands, but their number is negligible. Even those who do own lands, matters related to their land are taken care of by their husbands, sons or any male relative in the village. The women possess little knowledge about agricultural practices. However, a considerable number of women from sharecroppers, daily wage labourers and migratory workers, work as agricultural labourers. They are usually involved in tasks that does not involve physical work such as loading/unloading of crop produce, date tree climbing and cutting etc. A woman does not work in the land as an individual. She usually works as a member of the family or helper of her husband or brother. It is her husband or brother who makes formal or informal contract with landlord. The landlord is not concerned with whether the male worker involves one woman or more in the lands. A woman worker does not get a separate share of income for her work. The income of the crops would go to that male worker who, then, manages his entire family.

Women are the most deprived community members in rural areas. In Sindh women play major role in agriculture & livestock production but never get properly paid, yet her position is never recognized in the society. They also work at home and are actively involved in agriculture and livestock operations. On an average, the women work around 16 hours[4] per day in rural Sindh. Women are involved in weeding and picking/harvesting of the crop.

[4]FarzanaPanhwar 2014. Culturally Neglected Role of rural women in Sindh. http://www.pkhope.com/culturally-neglected-role-of-rural-women-in-sindh/

3.6 Livestock Farmers

Large Farmers: The large farmers are those who possess more than 16 animals for selling milk. Their farms are mostly managed on commercial basis and hence involve salaried monthly wage workers. Women are also not involved in those farms. The large farmer is directly involved in the entire livestock farm management activities. They have easy access to extension services and relatively permanent clientele in the surrounding areas. They also employ modern farming practices like housing, drenching, scientific feeding etc.

Medium Farmers: The medium farmers possess 6 to 15 animals. Their farms are mostly managed at household level but these farm owners need services of at least one salaried monthly worker to look after animals in addition to work by women on the farm. They rely completely on their farm and work full time to manage and improve it.

Small Farmers: Those who possess 3 to 5 cattle are considered small farmers. Small dairy farms are usually managed by women. Almost all inside house tasks of dairy farm are done by women and outside tasks are responsibility of male family member. Due to small holding, the male members of this family also tend to work somewhere else either as sharecropper, daily wage worker etc. in order to earn more income to support family.

4 Findings

4.1 Respondent Profiles

The survey was conducted in nine target districts and majority of the respondents for household survey were men. Since the target group for the quantitative survey were the owners of lands or livestock, very few women (5%) happened to be owners of such property in the surveyed villages. It should not, however, mean that women do not possess land or livestock in Sindh. Government of Sindh has distributed land among many women in different districts. Low percentage of women respondents in present study only suggests sampling effect, in which unit of data collection was an owner of land or livestock in a randomly selected village.

About 87% of the respondents were married, 11% unmarried and the rest were either widowed or lived separately. Majority of the respondents was Sindhi speaking (85%), and a quarter were Siraiki speaking. Marwari speaking people were mainly found in Mirpur Khas district. Though Marwari is their mother tongue, but they are bilingual and communicate with other people in Sindhi language. Almost all (96%) of the respondents were Muslims.

Table 2: Language and Religion of Respondent

District	Language				Religion	
	Sindhi	Seraiki	Marwari	Other	Muslim	Hindu
Badin	76	19	5	0	92	8
Hyderabad	51	28		21	100	
Khairpur	85	3		12	100	
Larkana	76	23		1	100	
Mirpurkhas	16	3	79	2	79	21
T Allahyar	48	44		8	100	
T M Khan	37	54		9	100	
Tharparkar	63	32	5		96	4
UmerKot	71	16	9	4	95	5
Grand Total	58%	25%	11%	6%	96%	4%

4.2 Family Size and Type of House

Average family size in surveyed villages of target districts is 8.24, which is more than the provincial average family size of 6.55. A family size is defined as the number of persons living in the same household who pool their income and share the same kitchen. The surveyed families lived in different types of houses that were made of baked and mud bricks. However, comparatively more families lived in houses which were made of baked bricks. The number of such houses was highest in Tando Allah Yar, followed by Hyderabad and Tando Mohammad Khan districts and lowest in Tharparkar district.

Table 3: Average Family Size and House Structure of Respondent

District	Average Family Size	Type of House		
		Katcha (%)	Semi Pakka (%)	Pakka (%)
Badin	8.87	46	11	43
Hyderabad	8.31	11	13	76
Khairpur	9.42	42	17	41
Larkana	8.51	30	36	34
Mirpurkhas	8.19	71	11	18
TandoAllahyar	8.28	4	15	81
TandoM.Khan	8	5	19	76
Tharparkar	6.7	64	20	16
UmerKot	7.88	47	19	34
Grand Total	8.24	36%	18%	47%

5 Agriculture

Majority of the respondents surveyed in the target villages were small farmers (65%). Since, in rural areas, a village usually contains only a few large land owners and some medium ones, most of the farmers are small ones, this is why major portion of respondents in the survey were also small farmers.

Table 4: Farmer by Category

District	Large (%)	Medium (%)	Small (%)	Grand Total
Badin	8	33	59	100
Hyderabad	5	32	63	100
Khairpur	7	13	80	100
Larkana	1	7	92	100
TandoAllahyar	6	40	54	100
TandoM.Khan	9	44	47	100
UmerKot	4	35	61	100
Grand Total	40 (6%)	204 (29%)	456 (65%)	700

Almost all of the surveyed respondents are landowners (96%) and a few (4%) have also taken some land on lease. In Khairpur and Larkana districts, farmers (or landlords, as they are locally called) cultivated only their own land, whereas in other districts, farmers had also taken some land on lease for cultivation.

Table 5: Ownership of Land

District	Land Owner	Land Owner + Land Leasee
Badin	96%	4%
Hyderabad	97%	3%
Khairpur	100%	
Larkana	100%	
Tando Allahyar	94%	6%
Tando M.Khan	88%	12%
UmerKot	98%	2%
Grand Average	96%	4%

However, not all the land possessed by the farmers is cultivable. As the table below shows, the average number of land cultivated is lower than the average number of acres of land possessed by farmers. The highest difference between land possessed and cultivated is in District Umerkot because it is mainly an arid area with few portions of agricultural land having access to canal water. The lowest difference is in Larkana district because it lies on the bank of river Indus and two canals (Dadu and Rice Canals) provide irrigation water to the lands of various seasonal crops, and farmers also use tube wells to irrigate their lands.

Table 6: Average Land Possessed and Average Cultivated (Acres)

	Badin	Hyderabad	Khairpur	Larkana	TandoAllahyar	Tando M.Khan	UmerKot
Land Possessed	35.4	19.2	8.2	7.1	23.6	31.7	16.9
Land cultivated last year	30.1	15.5	6.1	6.4	21.9	26.4	6.6

Table 7: Uncultivated Some Land By Farmer

District	% of farmers whose some land remains uncultivated
Badin	21
Hyderabad	35
Khairpur	53
Larkana	18
Tando Allahyar	30
Tando M.Khan	42
UmerKot	85
Grand Total	41

Further analysis shows that there are about 40% farmers whose some portion of land remains uncultivated and majority of such farmers is in Umerkot (85%), and in Khairpur (53%).

It is interesting to note that it is usually the large and medium farmers whose some acres of land remains uncultivated. There are 68% large farmers whose, on average, about 26% land remains cultivated, and 54% medium farmers with, on average, 19% uncultivated land.

Table 8: Uncultivated some Land by Farmers Category

Farmer Categories	% of farmers whose some land remains uncultivated
Large	68
Medium	54
Small	32
Grand Total	41

There is no quantitative data to inform us about the reasons for not cultivating all the land. However, qualitative data suggests that some land remains uncultivated due to various reasons like salinity, water logging or unavailability of irrigation water; whereas some large farmers follow crop rotation practices, and leave some land uncultivated for this purpose.

Table 9: Land Cultivated VS Uncultivated (in Acres)

	Land possessed	Land Cultivated	Land uncultivated
Large Farmers	124.7	92.9 (64%)	31.8 (26%)
Medium Farmers	28.8	23.4 (81%)	5.4 (19%)
Small Farmers	7.1	6.1 (84%)	1.0 (14%)
Grand Average	**20.3**	**16.1 (80%)**	4.2 (20%)

Since due to climate change, rains have become irregular and unpredictable, farmers cultivate only those lands which receive irrigation water mainly from canals or tube wells. The farmers in Badin and Umerkot mainly depend on canal water, whereas in Tando Allah Yar, Tando Mohammad Khan Hyderabad, a considerable number of farmers also use tube wells, along with canal water, to irrigate their lands. In Khairpur, lands of most of the farmers were at the tail end of the distributary, but majority of them still could manage to irrigate their lands with canal water. However, majority of the farmers in Tando Mohammad Khan and Tando Allahyar, whose lands also lied on tail end, had to use tube wells, along with canal water, for irrigation.

Table 10: Source of Irrigation and Position of Land Along Distributary

District	Position of land on Distributary			Source of Irrigation		
	Head	Middle	Tail	Canal Water	Tube Well	Canal + Tube well
Badin	19	54	27	100	0	0
Hyderabad	40	39	21	40	2	58
Khairpur	14	29	57	82	1	17
Larkana	18	42	40	76		24
TandoAllahyar	19	23	58	12	5	83
TandoM.Khan	9	35	56	33	10	57
UmerKot	35	19	46	98	1	1
Grand Average	22%	34%	44%	63%	3%	34%

Large farmers do not seem to occupy lands at the head of distributaries to get more irrigation water, as lands of majority of large farmers were at the tail end. Distribution of land large, medium and small farmers along the distributaries remains, more or less, the same with very slight variation.

Table 11: Land Distribution of Farmers Along Distributary

Farmer Categories	Head (%)	Middle (%)	Tail (%)
Large Farmers	20%	28%	53%
Medium Farmers	21%	33%	47%
Small Farmers	23%	36%	41%
Grand Total	22%	34%	44%

5.1 Crop-Sharing Pattern

Crop sharing pattern varies among farmers in the target districts. More than half of the farmers (55%) are owner operators and do not hire sharecroppers i.e. they bear all the costs of cultivation and take all the profit. Majority of farmers in Hyderabad and Tando Mohammad Khan share crops on fifty-fifty basis (i.e. they equally share the cost and benefit of crop cultivation), whereas majority of farmers in Khairpur, Larkana and Umerkot cultivate land by themselves (i.e. they don't employ tenants or workers in land cultivation). Some farmers also bear 75% cost of land cultivation and share 25% of cost and profit with tenants or workers.

Table 12: Share Copping Patterns

District	50 - 50 %	75% Land Owner 25% Farmer	100%Owner Operator
Badin	26%	28%	46%
Hyderabad	59%	4%	37%
Khairpur	12%		88%
Larkana	18%		82%
Tando Allahyar	58%	6%	36%
Tando M.Khan	60%	9%	31%
Umer Kot	38%		62%
Grand Total	39%	6%	55%

It is also interesting to know that majority of large and medium farmers equally share cost of cultivation and income of produce, whereas majority of small farmers are owner operators.

Table 13: Share Copping Patterns by Farmer Category

Farmer Categories	50-50	75-25	100
Large Farmers	83%	5%	13%
Medium Farmers	62%	13%	25%
Small Farmers	24%	4%	71%
Grand Total	39%	7%	55%

Crop sharing pattern does not seem to be affected by the size of the family or number of income earners in the family. Farmers engaged in fifty-fifty sharecropping pattern have fewer income earners than those engaged in other forms of sharecropping. It is usually the small farmers who bear all the costs of cultivation and earn all the income from produce, but, as the table below shows, they also have larger family size and more income earners. If a family has more earners from different sources of income, it means, it has fewer members available for land work. Hence, having many income earners does not mean the family can cultivate land all by itself.

Table 14: Share Copping by Average Family Size and Average Earing Members

Share-croppers	Average Family Size	Average number of income earners
50%:50%	8	1.9
75%:25%	9	2.4
100%	9	2.1

Equal cost sharing system is more prevalent among large farmers because they cannot cultivate lands single-handedly or bear even 75% of the cost. The table below shows that the farmers engaged in equal cost sharing system have, on average, 36.3 acres of lands, whereas the farmers who bear 75% of cost of cultivation have average 22.9 acres of land. Hence, size of land affects share cropping pattern. The more lands a farmer has, more likely he is to hire sharecroppers.

Table 15: Share Cropping VS Landholding

Share cropping pattern	Average Landholding
50%:50%	36.3
75%:25%	22.9
100%	7.2

If analysed crop-wise, data in the following table shows that sharecropping on equal cost sharing basis is mostly common among onion growers and to considerable extent among chilli growers. Overwhelming majority of date growers themselves bear the cost of cultivation and get income of the produce. They only hire labour during harvesting, drying and packing of dates.

Table 16: Share Copping by Crop

Sharing	**Chilies** (%)	**Dates** (%)	**Onion** (%)	**Rice** (%)
50-50	43	12	59	26
75-25	2	0	6	12
100	55	88	34	62

The above table provide important information for project implementation when SAGP will design trainings for capacity building of growers/workers involved in agriculture. Trainings should focus on farmers where they themselves are involved in land cultivation, whereas in areas where farmers employ tenants/workers, the trainings should also target the later for capacity building.

Data also shows that except rice, no other crop is cultivated on the entire agricultural land during a single season. Farmers in Hyderabad, Tando Allah Yar and Tand M Khan grown onion only on 25% of their total agricultural lands, whereas those in Khairpur and Umerkot grow dates and chillies on 51% and 44% of their lands respectively.

Table 17: Land Cultivated for Specific Crops

District	**land cultivated**	**Land Cultivated For Specific Crops**			
		Chilies	**Dates**	**Onion**	**Rice**
Badin	3038				2873 (95%)
Larkana	637				634 (100%)
Khairpur	610		310 (51%)		
Hyderabad	1545			369 (24%)	
Tando Allahyar	2217			600 (27%)	
Tando M.Khan	2641			593 (22%)	
UmerKot	656	285 (44%)			

5.2 Average Crop Yield

Data for Chilies and Dates was collected from only one district for each crop, the analysis does not show whether average yield of these crops is lower or higher. The data about Onions and rice does however provide overview about average crop yield per acre. The figures are comparable and show that the data is reliable. However, average onion yield per acre is higher in TandoAllahyar, whereas rice yield is higher in Badin compared to other districts for selected value chains.

However, prices vary in contrast to crop yield per acre. TandoAllahyar has highest onion yield per acre, but has lowest price per 40 kg. Similarly, Rice yield is higher in Badin, but prices are lower than in Larkana. The major reason for low prices on onion is fluctuations in demand and supply in the main markets. Hyderabad is the main market for onions, and the farmers can easily transport crop to the main market and meet demands of the consumers. Tando Mohammad Khan has lowest yield per acre, but the farmers said the district once produced more onion than the current average yield. The major cause of decrease onion yield is said to be scarcity of irrigation water.

> *A decade ago, our lands produced more onions than the current yield. We are not getting enough water for our lands since last ten years. Even if we use tube wells, but ground water is brackish and is not suitable for onion crops.*
>
> Altaf, Medium Farmer, Tando Mohammad Khan

Another problem farmers in Tando Mohammad Khan face is irregular water schedule and water theft. Farmers get usually water after 8 days, but not at the right time when the crop really needs it. Big landlords, whose lands lie at the head of the distributary or watercourse, take more water for their lands.

> *Big landlords are very powerful, and they have links with political leaders. They control water. They decided who will get how much water. Some farmers, who do not have that much influence, secretly steal water at night and direct course of water to their lands. Such practices badly affect small farmers whose land lie at the tail end of the watercourse.*
>
> Hassan, Small farmer, Tando Mohammad Khan

The reason for higher prices of rice in Larkana is a better quality of rice than in Badin. According to Agriculture Extension Officer, Larkana, "This district produces rice of export quality and the farmers receive premium prices."

Table 18: Crop Yield (in 40 Kgs) and Prices (in PKR)

Crops		Badin	Hyderabad	Khairpur	Larkana	TandoAllahyar	TandoM.Khan	UmerKot
Chillies	Yield/Acre							175
	Price/40 kg							5,780
Dates	Yield/Acre			77				
	Price/40 kg			2,311				
Onion	Yield/Acre		127			157	111	
	Price/40 kg		582			447	510	
Rice	Yield/Acre	70			62			
	Price/40 kg	819			880			

Average crop yield per acre for onion in Hyderabad is less than that in Tando Allah Yar, but farmers in Hyderabad sell the produce at higher prices as compared to other districts for the same commodity. This is because Hyderabad is a big market where there is a very high demand for onions. Besides, onions from Hyderabad are also sold in the markets of Karachi and adjacent districts.

5.3 Crop Sale

Market for selling of crops varies with respect to crop and availability of transportation facilities. More than 80% of rice is sold in local markets, whereas more than 70% of Chillies and Dates are sold in the main markets, which are relatively bigger than local markets. About 59% of onions in Hyderabad and 48% in Tando Mohammad Khan are sold in the main market, whereas 45% in Tando Allahyar is sold in the local markets. Selling onions in the main market is the major reason why farmers in Hyderabad and Tando Mohammad Khan sell produce at higher prices than those in Tando Allah Yar. Larkana and Badin are also the big consumers of rice. That's why majority of the farmers in these districts sell rice in the local markets, but farmers in Larkana get higher prices only because they produce rice of a better quality.

Table 19: Crop Selling

District	Sell Standing Crop	Sell in Local Market	Sell in Main Market	Any Other Market
Badin		80	12	8
Larkana	1	89	9	1
Umerkot		27	72	1
Khairpur	20	9	71	
Hyderabad	22	5	59	14
TandoAllahyar	19	45	9	27
TandoM.Khan	21	22	48	9

[5] This figure is about dried chilies. Wet chilies often weigh 35 to 40 monds.

5.4 Access to Services

Almost all of the farmers have easy access to agriculture inputs like seeds, fertilizers, pesticides etc. but hardly a quarter have access to agriculture extension services like advisory services for land preparation, irrigation, use of pesticides, quality of seeds etc. On average, more than 60% farmers said they have access to agriculture credit.

Table 20: Access to Services

Services	Badin	Hyderabad	Khairpur	Larkana	TandoAllahyar	Tando M.Khan	UmerKot
Agriculture Extension Services	28	28	25	16	25	36	8
Agriculture Inputs	95	94	98	99	96	99	97
Agriculture Credit	57	53	76	73	68	55	65

During group discussions, individual interviews, farmers complained that the agriculture department does not play the role it should.

> *If you visit any agriculture office, you'll feel that you have come to an old, deserted building, which was build centuries ago, and now nobody stays there. Their staff does not come to our villages. But when we visit their office, we hardly find any person there.*
>
> Shahmeer, Small farmer, Umerkot

Agriculture Extension Department also acknowledged deficiency of funds and resources to provide advisory services to farmers in the area of their jurisdiction.

> *Agriculture is the backbone of the country. It feeds you. It provides livelihood to millions of people. But agriculture department does not get that much support from the provincial government, as other departments do. We do not have adequate transportation facilities to reach to the farmers of far off villages.*
>
> Agriculture Extension Officer, Larkana

Though majority of the farmers said they have access to institutional loans, and every district has an agriculture development bank, but farmers rarely approach these banks to get loans. They said the procedure for getting loans is very complicated, and they cannot afford to mortgage their lands or portions of their lands to get credit.

> *Since last ten years, we are witnessing lots of problems like water shortage, floods, heavy rains, droughts. In these circumstances, we do not get that much profit. Many times, we have to suffer big losses. We can't pay back loans, along with interest. We might have to lose our lands. This is why we do not get loans from banks.*
>
> Arif, Medium farmer, Umerkot

As a result, overwhelming majority of the farmers purchases farm inputs on credit from local dealers. Though these dealers also charge higher interest rates than banks, but they are easily accessible. Farmers are then bound to sell all the produce to these dealers. Inaccessibility to institutional loans keeps farmers on permanent bondage to these dealers, who not only provide farm inputs at higher rates, but also purchases produce at lower rates. Hence, prices of crops, as mentioned in the above table on crop yield and price per 40 KGs, should not be considered premium prices. Almost all the farmers of key value chains expressed dissatisfaction with price rates as majority of them were forced to purchase farm inputs and sell produce to the same middlemen or input dealers.

5.5 Willingness to purchase technology

About 90% respondents said they are willing to purchase technology packages to be introduced by the project. However, their preferences varied with respect to tools to be offered and used in agriculture. Among onion growers, there is high demand for tools in Tando Allah Yar as compared to other districts i.e Hyderabad and Tando Mohammad Khan.

Table 21: Onion Growers Willing to Purchase Technology

Technology	Hyderabad	TandoAllahyar	TandoM.Khan	Grand Total
Moisture testing meter	70%	77%	60%	69%
Conductivity meter (potable)	59%	68%	76%	68%
Diggers Curing and storage facility	70%	88%	80%	79%
Mechanical dryers	54%	60%	58%	57%
Graders	67%	91%	65%	74%

Similarly, about 98% rice growers in Larkana and Badin districts expressed willingness to purchase technology, but their preferences varied with respect to tools. Demand for thresher was more than other tools in Larkana districts, whereas the most demanded tools in Badin district were conductivity meter and thresher.

Table 22: Rice Growers Willing to Purchase Technology

District	Badin	Larkana
Farmers willing to purchase technology	99%	97%
Technology Offered		
Conductivity Meter	86%	61%
Soil & Moisture testing kit	68%	55%
Flat-bed driers	51%	59%
Thresher	82%	80%

All the chilli growers (100%) in Umerkot are ready to purchase technology offered by SAGP, but highly demanded tools were drying mats, cover sheets and mechanical dryers.

Table 23: Chili Growers Willing to Purchase Technology

Technology	Umerkot(%)
Drying Mats	91
Cover sheet	93
Conductivity Meter (Potable)	71
Moisture testing meter	71
Mechanical Dryers (Capacity 5 ton/day)	82
Water Storage Tanks	68
Dust Cleaner	76

Dust and moisture are the major concern of chilli growers because these affect the quality of chillis and raise level of Aflatoxin, which is highly toxic and carcinogenic.

> *A decade ago, we did not know about aflatoxin. We had sent a big consignment of chillies to Europe. But it was sent bank to us because it contained 80% aflatoxin. We suffered a huge loss. We were discouraged from growing chillies. But we tried to know how what it is and how to reduce it. We need good quality dryers that protect chillies from dust and reduce moisture.*
>
> Rehan, Large Farmer, Umerkot

Date growers also expressed willingness to purchase technology to reduce date losses, and the most demanded tools were hand carts, plastic crates, tarpaulin sheets and disease control kits.

Table 24: Date Growers Willing to Purchase Technology

Technology	Khairpur
Establishment of demonstration farms-10 acres each (High Density Orchards-70% project, 30% farmers) Solar dryer	45%
Hand Carts (capacity 200kg)	91%
Plastic crates	84%
Tarpaulin sheets	81%
Disease control kit	79%
Moisture testing meter	70%
Conductivity Meter (Potable)	70%
Tree Pruners	76%
Pollinators (gun)	85%

However, less than the half of date growers were ready to purchase solar dryers. Majority of date growers said that solar dryers were not enough to meet their demands. One of the date growers said, "I have seen a solar dryer. Its capacity is not enough to dry as many dates as we

produce. A solar dryer that occupies 1000 sqft area, is too short for the volume of dates we grow and eventually dry."

Though many farmers in quantitative survey expressed willingness to purchase technology, but during group discussions and in-depth interviews, it was observed that except large farmers, most of the medium and small farmers did not have a clear idea about these technology packages and how they will get from these. Many large farmers already use some modern tools like drying mats for chillies and laboratory testing for aflatoxin, threshers for rice etc, but medium and small farmers, it seemed, just assumed that the technology would benefit them. When asked, how they will get benefit from such technology, they could not describe it.

Moreover, they also wanted to see demonstrations of these tools before purchasing them. They said they would like to see how this technology works and whether they will get enough benefit from it.

5.6 Training Needs

All of the respondents said they need trainings for better agriculture farming, and the majority preferred trainings on good agricultural practices, crop production, crop rotations, harvest & post-harvest management, nursery production, and use of modern technology.

Table 25: Farmers Requiring Trainings for Capacity Building (%)

Trainings	Hyderabad	Tando Allahyar	TandoM. Khan	Badin	Larkana	Umerkot	Khairpur
Farmers requiring trainings	99	99	100	99	97	100	99
Types of trainings required							
Good agricultural practices	80	97	94	97	95	99	98
Crop production	96	92	96	97	94	98	99
Crop rotations Inter-cropping options	79	91	94	93	91	93	99
Harvest & Post-harvest Management	85	92	88	98	93	94	95
Nursery production	80	88	85	87	73	88	85
Training in the use of equipment newly introduced	80	85	80	73	63	92	83
Business groups and Association Management	65	80	68	75	65	80	84
Enterprise Management	57	79	67	87	81	82	95
Exposure visits (as needed)	76	94	93			96	98

The above table provides data about land owners, not about landless farmers or settled/migratory workers. Since the target group of household survey was land owners and

livestock owners, there is no quantitative data to describe training needs of landless farmers or workers. However, qualitative data collected through group discussions and interviews, suggests that they also need capacity building trainings of best farming practices, use of technology, post-harvest loss management, and adopting health safety measures during process of crop cultivation.

Though it is easier for SAGP to arrange trainings for farmers and settled workers, it would be a challenging task to arrange the same for migratory workers. Since they keep moving from district to district according to harvesting seasons, SAGP needs to develop strategy to build their capacity while they stay in a particular district. It has been suggested in the chapter on Communication Strategy below that SAGP needs to develop a migration calendar of migratory workers and get contact details of landlords in whose lands they work or they intend to work in particular district and season. These details should be shared with all the district PIUs so that they could know where they can arrange trainings of such migratory workers.

However, there would again be another challenge which needs to be addressed. Since such trainings should ideally contain a practical demonstration session on any particular activity related to post-harvest losses, it would not be possible for SAGP to hold such demonstrations before harvesting seasons, when no such activity can be practically demonstrated. But if they organize such trainings during harvesting season, migratory workers won't be able to participate because they would be engaged harvesting or post-harvesting activities.

Even if SAGP pays incentives in form of financial remuneration equal to their daily wages in order to ensure their participation in trainings, this would then affect landlords who would not be able to get workers for harvesting, because they would be engaged in trainings. Therefore, SAGP needs to be careful when designing schedule for trainings of migratory workers.

Another problem would be illiteracy of migratory workers. Since they cannot read and write, they won't benefit from training literature if it is only in a written form. SAGP should develop training modules which mainly contain videos or pictures to deliver information to them.

There is also strict social hierarchy among migratory workers, who usually belong to Hindu Scheduled castes. Workers of different castes and sub-castes do not usually make contacts with each other and share foods. SAGP would therefore need to be careful in selecting participants for a particular training. If possible, separate trainings should be arranged for separate caste groups.

6 Livestock

This section focuses on dairy farmers of Mirpur Khas and Tharparkar districts only. The data collected from these districts related only to livestock and dairy farming, and they were not asked questions about agriculture and landholding.

The number of livestock is more in Tharparkar because it is the only major source of livelihood for the people. However, more than half of animals in both the districts do not produce milk. It is because not all animals are raised for milking purposes. Farmers raise non-milking animals for various reasons: they can sell animals to get cash to cope with any emergency, they can slaughter animals to fulfil their own nutrition needs or they can raise animals to be sold in livestock market before Eid-ul-Uzha, the religious event when Muslims sacrifice animals as a religious ritual.

Table 26: livestock population

Animals	Mirpurkhas			Tharparkar		
	Milking	non-milking	Total	Milking	non-milking	Total
Cow	126	248	374	224	339	563
Buffalo	77	90	167	22	36	58
Goat	180	459	639	339	860	1199
Sheep		92	92	77	374	451
Camel				12	70	82
Total	383	889	1272	674	1679	2353

6.1 Average Milk Yield

Average milk per cow or buffalo is slightly lower in Tharparkar District because it is a drought prone area, where the major source of water and fodder is rain. Due to shortage of water and fodder, large animals produce less milk compared to their counterparts in MirpurKhas.

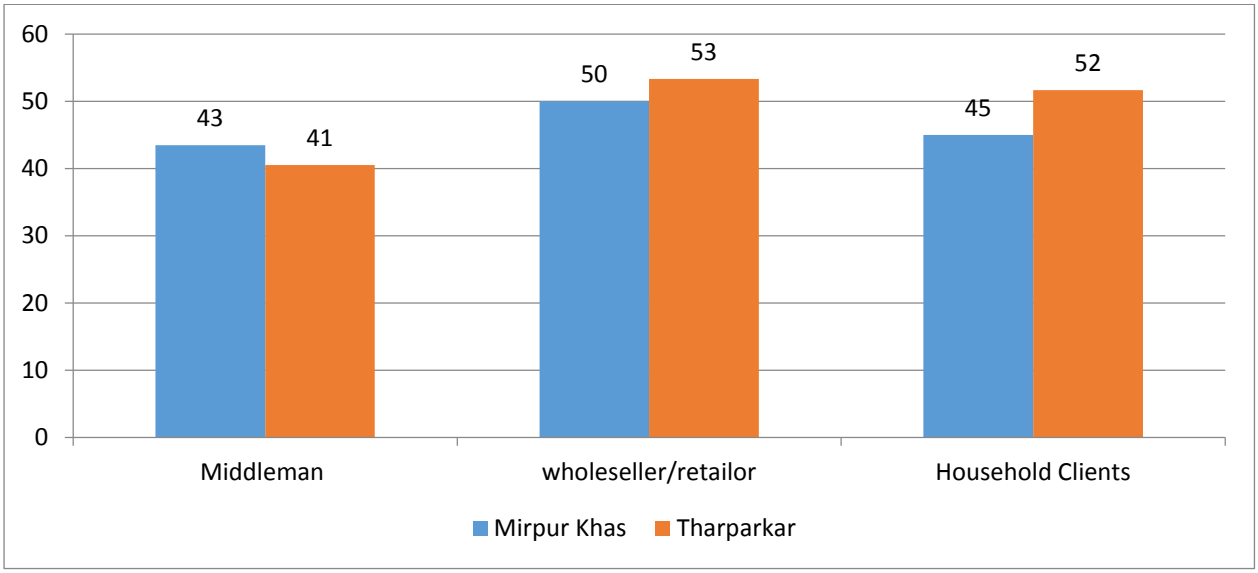
Table 27: Average milk yield per animal

Animal	MirpurKhas (in KGs)	Tharparkar (in KGs)	Grand Average
Cow	5.0	4.3	4.6
Buffalo	6.8	5.6	6.5
Goat	0.8	0.8	0.8
Sheep		0.6	0.6
Camel		4.0	4.0

However, milk yield does not remain the same all the year. After monsoon rains, when there is enough water and fodder, animals produce more milk than the average.

6.2 Sale of Milk

About 74% dairy farmers (79% in MirpurKhas and 69% in Tharparkar) said they sell milk because they get more milk than can be consumed at household level. They sell milk to middlemen and clients that include retailers, whole sellers and individual households in neighbouring towns. Middlemen collect milk at dairy farm and then sell in the nearby towns, whereas farmers themselves have to take milk to retailors/wholesalers or household clients.



Graph 1: Milk Sale

However, only about 40% farmers in both the districts were satisfied with price of milk. Majority of them said they do not get premium prices.

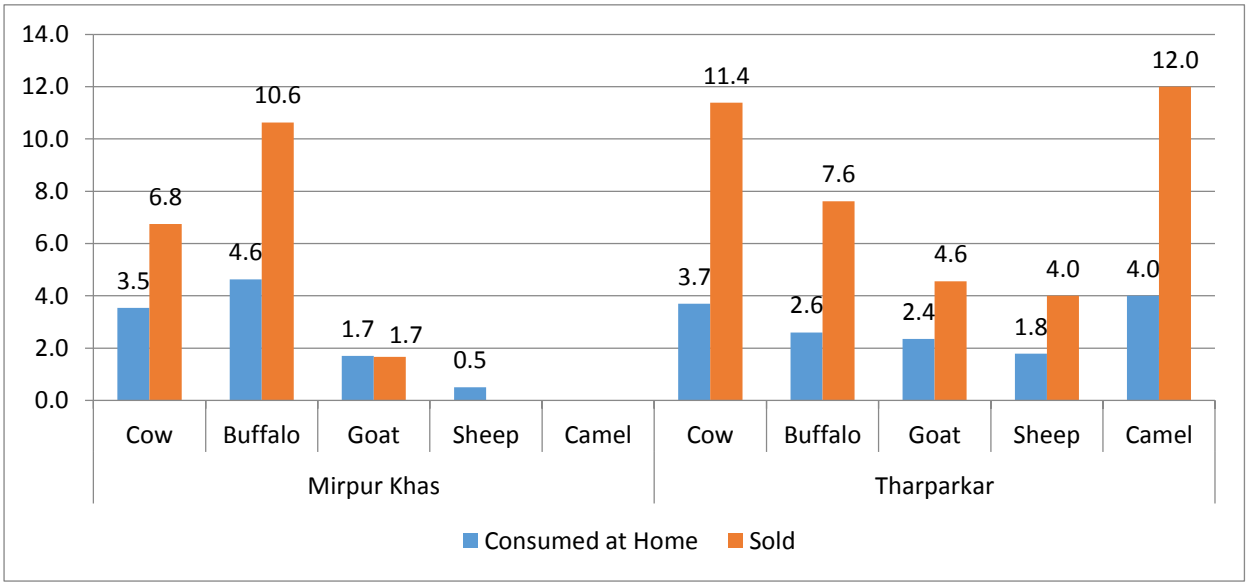
The major reason for dissatisfaction with milk selling price is dairy farmer's inaccessibility to market. They cannot afford to buy motor bikes or other vehicles to transport milk directly to the household clients or retailers/wholesalers in nearby towns. It's usually a middleman, who collects milk from dairy farmers at cheaper rates (from Rs 30 to Rs 50 per litre) and sells in the market at Rs 60 to Rs 80. Another major reason for selling milk to middleman at cheaper rates is unavailability of chillers or milk cooling technology. Dairy farmers cannot store milk for more than three hours. Since they don't have a proper transportation facility, they just sell milk to middleman at latter's proposed prices.

> *We have no other option. We can't keep our milk for long. If we don't sell it to the middleman, our milk will be spoiled. We cannot set our own prices for milk, because if we increase prices, middleman will purchase milk from other producers. So, we are helpless.*
>
> Irshad, small dairy farmer, Mithi

In far flung areas of Tharparkar, where it takes many hours to take milk to nearby towns, farmers usually consume milk at household level and make other dairy products like butter, lassi or yoghurt.

6.3 Milk consumed and sold in the market

The figure below shows average number of kilograms of milk consumed at house hold level and sold out. As the number of livestock is higher in Tharparkar, average number of kilograms of milk consumed at household level and sold out is also higher in the district. The major source of milk consumption and sale in Tharparkar district is camel, cow and buffalo, though milk of goats and sheep also contributes to nutrition and income of the farmers. In MirpurKhas district, they consume and sell milk produced mainly from cows and buffalos.



Graph 2: Milk Sold and Consumed

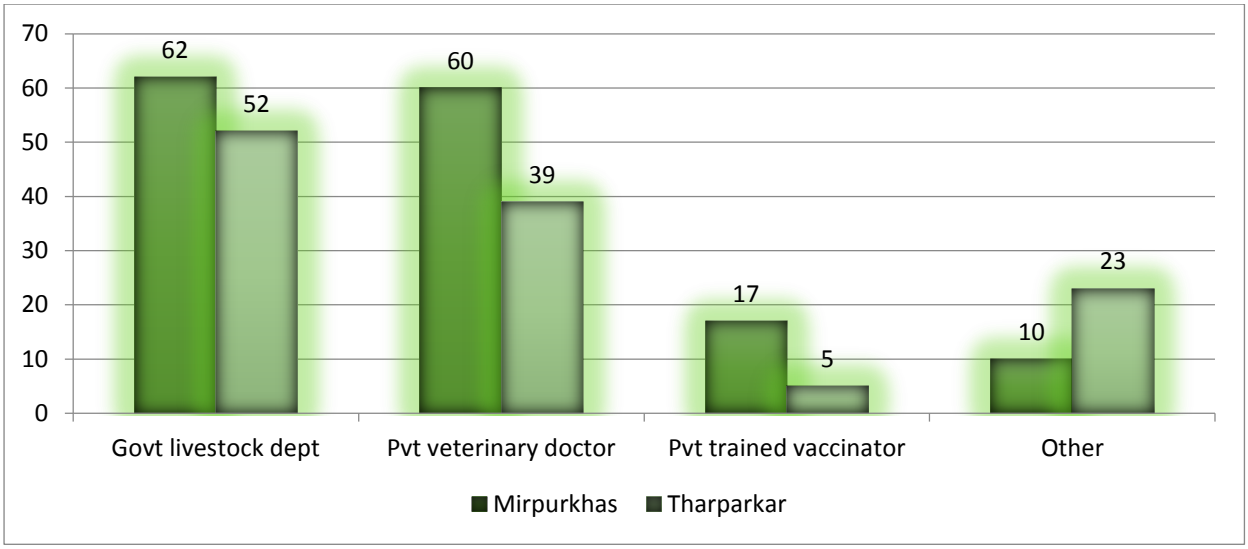
Some social activists, however, pointed to another unintended negative consequence if dairy farmers start selling all milk, if chillers are provided to milk producing groups. They said population of Tharparkar is the most malnourished in the country. Because of continuous droughts and irregular rains, there has been severe shortage of food and children have been dying because of lack of food.

> *In such a situation, milk and other dairy products like butter, yoghurt, ghee etc. are a major source of nutrition. Farmers, who get extra milk from their animals, and are unable to sell in the market, usually share that extra milk with other families in the village which do not have animals. This way, some nutrition needs of the communities are met through milk and milk products. But if chillers are provided in the villages, dairy farmers will certainly sell that extra milk to chillers, and that milk will no longer be shared with other villagers. So, those who do not have animals, will not get milk and they will suffer more from malnutrition.*
>
> Dr Arjun, Medical Officer, Mithi

6.4 Animal Vaccination

Around 85% households (98% in MirpurKhas and 72% in Tharparkar) said their animals have received vaccinations, and majority of them had received vaccination services from government livestock department and private veterinary doctors. However, during group

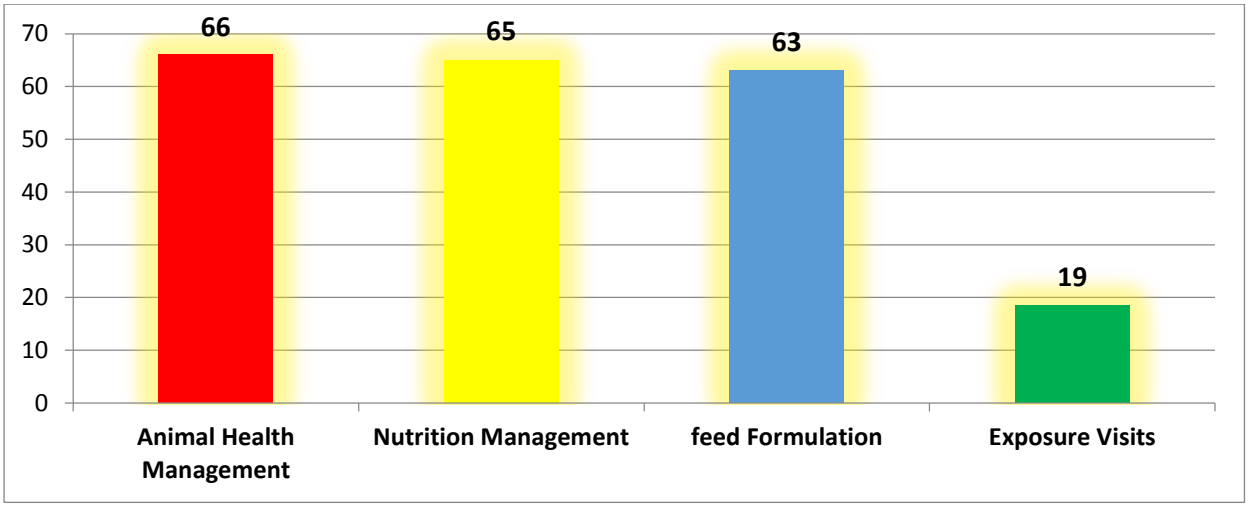
discussions, dairy farmers informed that animal vaccination was done only recently, during last six months, and they did not get that much routine vaccination in previous years



Graph 3: Source of Vaccination

6.5 Training Needs

Almost all of the dairy farmers (98% in MirpurKhas and 96% in Tharparkar) said they are interested to get trainings for better dairy farming. When they were asked to prioritize training needs, majority of them prioritized training on Animal Health Management, followed by Nutrition Management and Feed Formulation.



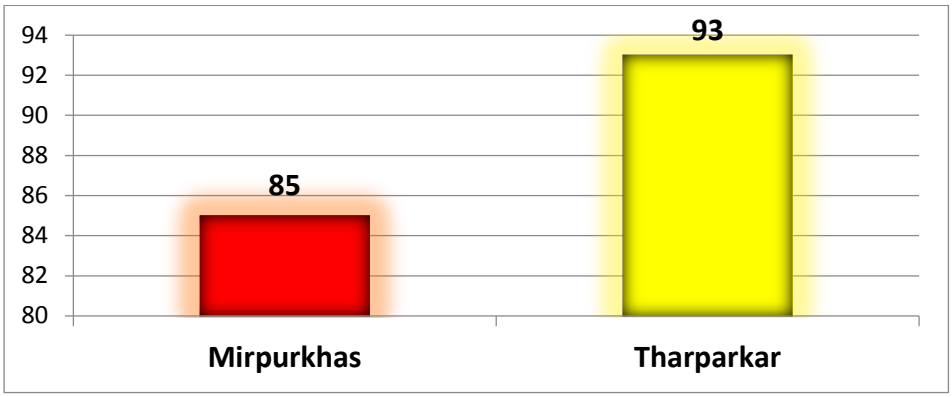
Graph 4: Ranking of Training Needs

Livestock owners said they have been raising animals since generations and they know how to take better care of animals, but since last couple of decades, climate change has severely affected them and their areas do not receive as much rain as they need for livestockraising and fodder production. Tharparparkar has witnessed many droughts during last decade and sudden disease outbreaks have killed scores of animals. This is the main reason majority of them opted to get trainings on animal health management and nutrition management as well as feed formulation for livestock. In case when there is no rain, cost of raising animals becomes very high because farmers have to purchase fodder from the market. Situation gets worse when

there is a disease outbreak. During drought season, when they face shortage of income, it becomes very difficult for small and medium farmers to seek medical treatment for animals.

6.6 Milk Producing Groups

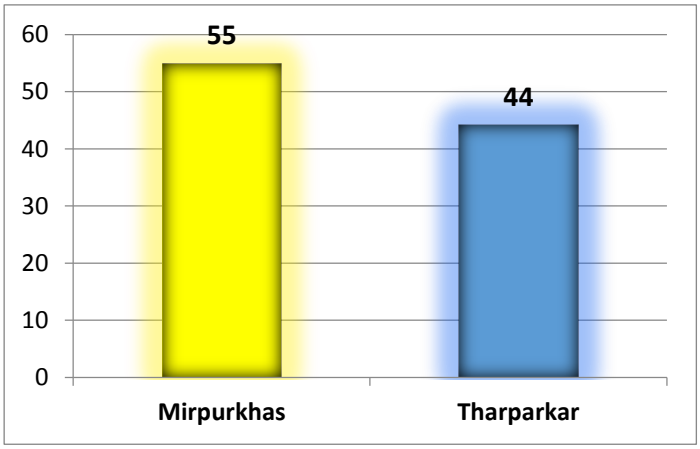
There is no milk producing group in surveyed villages of either of districts. However, during focus group discussions, the community from both districts informed that officials from Livestock Department have already visited their villages and briefed the community about formation of milk producing groups. Due to this mobilization, the majority (about 90%) of the surveyed respondents expressed willingness to participate in the group.



Graph 5: Respondent's Willingness to be a Member of MPG

6.7 Knowledge about Chiller Technology

Chiller technology is not so widespread in the target districts. Only half of the respondents, who sell milk, know about this technology. The percentage of such respondents is slightly more in MirpurKhas than Tharparkar.



Graph 6: Respondents aware of Chiller Technology

Since, MPGs will be provided with chillers, SAGP should carefully select the areas, particularly in Tharparkar district, because of migration of livestock owners during drought periods. When there are not enough rains, livestock owners move to barrage areas so that their animals could drink water. This is not a new practice, however.

> *After monsoon rains, water gets stored in natural land depressions, and we get enough fodder for animals. However, water is used both by humans and animals. It does not last*

long. In certain areas, natural depressions are deep, water stands for the whole year, but in most of the areas, such depressions get dry after two to five months. Once all water has been consumed, people take their animals to barrage areas. And we have been doing this for many generations.

Jumo, Medium Farmer, Mithi

6.8 Animal Tagging

Over 70% dairy farmers in both the districts expressed willingness to have their animals tagged. Though it is still not widely practiced in the area, but farmers are aware of tagging. A local NGO, Thardeep, has started a project of animal insurance. The insurance company registers those animals which have been tagged. Since, scores of animals die due to droughts and disease outbreaks, farmers think it is better to have their animals tagged and insured. As SAGP staff has initiated their activities in the area, and farmers are aware of the benefits they will get once their animals are tagged, majority of them did not disapprove of tagging.

About 30% farmers did not approve idea of tagging. One of the major reasons was that they said they can identify their animals and they do not need such kinds of tags. The other main reason for not having animals tagged was related to sale of animals before Eid-ul-Uzha, when animals are purchased by Muslims for sacrificial purposes. According to local beliefs, animal to be slaughtered for sacrifice should not have any bodily fault. Since ear tagging makes a permanent hole in the ear of animals, it is considered a fault in the animals. And animals with such faults do not get premium prices. Dairy farmers, especially in Tharparkar, said their survival mainly depends on livestock. Whenever they need cash for an emergency, they sell animals to get amount. So, if they do not get premium prices for their animals, they will have to suffer financial losses.

A buffalo is like a bank for a farmer. It is a source of income for him. In case of emergency, he can sell it. No farmer raises the same buffalo forever. After the buffalo ceases to produce milk or when the farmer faces critical emergency, the buffalo will be sold out. No farmer would like to sell his buffalo at lower prices. If tagging reduces the value of the animal, no farmer will allow it.

District Field Officer, SAGP, MirpurKhas

6.9 Willingness to become Lady Livestock Vaccinator

Due to cultural norms and restricted mobility, majority of the women respondents did not express willingness to become Lady Livestock Vaccinators (LLVs). The findings of the Social Assessment show that only 25% of women (5% in MirpurKhas and 20% in Tharparkar), said they will become LLVs, but with conditions that they will have to work only in their own villages, not in others, and they will be trained only by women trainers.

6.10 Access to Extension Services

Though majority of the dairy farmers have access to vaccination and treatment services, percentage of such farmers is lower in Tharparkar district. Due to inaccessibility and lack of transportation facilities, some farmers cannot benefit from these services.

Table 28: Access to extension services

Services	Mirpurkhas	Tharparkar
Vaccination	98%	69%
Treatment	99%	85%
Artificial Insemination	14%	3%

Artificial Insemination (AI), however, is not very common. The major reasons for this are inaccessibility to AI services, and cultural beliefs which do not approve of this practice. To artificially inseminate their animals, farmers have to bring their animals at livestock department, which becomes costlier for them. Moreover, AI has not been as successful in buffalos as in cows.

> *Buffalo does not show signs of heat i.e. a period in which an animal can get pregnant if inseminated. Since this heat period is very limited, AI services are not easily accessible, people usually do not get their buffalos artificially inseminated. In cows, success rate is up to 60%, but again when cows show signs of heat, it becomes difficult for farmers to reach AI centre in time.*
>
> Veterinary Officer, Mithi

Some farmers believe that AI is unethical, and animals should not be bred with semen inseminated artificially. They think it is unnatural and milk as well as meat of the animal thus inseminated cannot be consumed.

Artificial insemination is usually done in order to introduce new breeds. Another reason for not getting AI services is that new breeds or cross-breeds do not survive in this area.

> *Be it MirpurKhas or Tharparkar, the climate is very hard. Only local breeds can survive here. I have conducted many experiments with AI, but no foreign breed survived here. So, if one wants to done something for livestock, one should promote local breeds and ensure full coverage of extension services.*
>
> GhulamAsghar, Large Dairy farmer, MirpurKhas

7. Crop Management Roles and Responsibilities

On an average, sharecropper cultivates around three to five acres of land with his family members. This practice is followed by all types of land owners, including small, medium and large. However, large farmers mostly hire services of farm managers to look after their agricultural farm. Roles and responsibilities described in the tables below apply to groups of all land owners irrespective of their landholding. The matrixes below describe roles and responsibilities of persons engaged in different value chains.

7.1 Chilli

In chilli crop production, decision making power lies with the landowner whereas services from land preparation to harvesting and transporting are done by sharecroppers and workers. Women from sharecropping families and migratory workers also work in lands, along with their husbands. The migratory workers come to Kunri town from its adjoining areas and different parts of district Tharparkar. Majority of the workers belong to Hindu minority communities of Bheel, Kolhi and Meghwar castes. Crop sharing pattern is 50%:50%, and each tenant family works on one acre.

Table 29: Chilli

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
1	**Land Preparation**					
	a. Land Selection	Man	100%	Owner	- Lack of knowledge	Better Land Management Training should be provided for a) to land owner and b) to sharecropper by agriculture extension officer
	b. Ploughing	Men	100%	Share cropper	- Traditional practices	
	c. Levelling	Men	100%	Share cropper		
	d. Furrow Making	Men	100%	Share cropper		
	e. Ridges Making	Men	100%	Share cropper		
2	**Nursery Preparation**					
	a. Land Selection	Man	100%	Owner	- Traditional practices	Training needed for better nursery preparation, for example, bed for nursery, seed selection etc
	b. Land Preparation	Men	100%	Share cropper		

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
	c. Seedbed preparation	Men	100%	Share cropper		
	d. Sowing	Men	100%	Share cropper		
	e. Fertilizer	Men	100%	Share cropper		
	f. Irrigation	Men & Women	50:50	Share cropper		
	g. Uprooting	Men & Women	50:50	Share cropper		
	h. Shifting to field	Men & Women	50:50	Share cropper		
3	**Transplantation**	Men & Women	50:50	Share cropper (80%), local landless labour 10% and migratory workers 10%	Sometime shortage of water	Efficient transplantation training to owners, and special trainings to migratory workers
4	**Irrigation**	Men	100%	Share Cropper	Shortage of water	Training on efficient use of scarce water
5	**Pesticide**					
	a. Pest Scouting / Disease Identification	Man	100%	Owner	Due to lack of knowledge these operations are done without following proper practices	Training should be given on IPM
	b. Pesticide Selection	Man	100%	Owner	Problem of low standard pesticides in the marketing	Government should ensure the availability of good quality of pesticides in the market.
	c. Pesticide Purchase	Man	100%	Owner	Due to lack of funds majority purchase on credit from input dealer	Transparency in Institutional credit availability should be ensured and access may be improved

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
	d. Pesticide Application	Men	100%	Share Cropper	Lack of knowledge	Effective pesticide application training should be provided
6	**Fertilizer**					
	a. Decision on Fertilizer	Man	100%	Owner	Due to lack of funds majority purchase on credit from input dealer	Transparency in Institutional credit availability should be ensured
	b. Selection of Fertilizer	Man	100%	Owner	Majority has no idea what are actual soil needs of fertilizer	Training on soil sampling, testing and fertilizer needs
	c. Fertilizer Application	Man	100%	Share Cropper	Lack of knowledge	Effective pesticide application training should be provided
7	**Weeding**	Women	100%	Share Cropper (70%) & Local Landless Labour (30%)	Traditional equipment and knowledge	Better equipments should be provided along with training on weeding practices
8	**Harvesting**					
	a. Picking	Men & Women	10%M, 90%W	Share cropper (20%), local landless labour (20% and migratory workers (60%)	Hand Burning, wastage	Hand gloves should be provide to the women workers and better techniques training should be given on efficient picking of the chillies
	b. Drying	Men & Women	20% M, 80% W	Share Cropper	Almost 20% wastage during this stage	Efficient technology should be introduced to reduce drying losses, which has to be introduced through geo-tech sheet, tarpaulin sheets, crates etc. Farmers/tenants need to be mobilized and trained to use these items.
	c. Packing	Men & Women	50:50	Share Cropper		
	d. Transporting	Men	100%	Share Cropper		
9	**Selling**					

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
	a. Market Selection	Man	100%	Owner	Lack of choice and knowledge on these important tasks	Training should be provided on efficient marketing practices, market price information, information about trading platforms which has been established in Kunri
	b. Middlemen Selection	Man	100%	Owner		
	c. Crop Rate Negotiation	Man	100%	Owner		
	c. Loading/Unloading	Men	100%	Share Cropper	Wastage due to traditional practices	Better management training

7.2 Dates

The Dates production is either managed by owner himself or given on annual contract to contractor. Most of the owners give some part of their land on lease to generate funds for maintenance of orchard. The Dates cultivation is managed totally on daily wage workers or by some monthly-salaried employees. This does not involve any share cropper. Moreover, women are involved only in dates separation process, which may be even less than 5% of total work involved in date crop production.

Table 30: Dates

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
1	**Land Preparation**					
	a. Land Selection	Man	100%	Owner	Traditional Practices	Better Land Management Training should be provided for a) to land owner and b) to sharecropper, by agriculture extension officer
	b. Ploughing	Tractor	100%	Rental		
	c. Levelling	Tractor	100%	Rental		
2	**Spacing**	Men	100%	Daily Wage Local Labour	No Issue	-
3	**Planting**	Men	100%	Daily Wage Local Labour	No Issue	-
4	**Irrigation**	Men	100%	Monthly Salaried Employee	Shortage of water	Training on efficient use of available water resources
5	**Weeding**	Men	100%	Monthly Salaried Employee	Traditional equipments	Introduction of new equipments
6	**Pruning**	Men	100%	Daily Wage Local Labour		
7	**Fruit thinning**	Men	100%	Daily Wage Local Labour		
8	**Fertilizer**					
	a. Decision on Fertilizer	Man	100%	Owner/Contractor	Due to lack of funds majority purchase on credit from input dealer	Transparency in Institutional credit availability should be ensured

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
	b. Selection of Fertilizer	Man	100%	Owner/Contractor	Majority has no idea what are actual soil needs of fertilizer	Training on soil sampling, testing and fertilizer needs
	c. Fertilizer Application	Men	100%	Monthly Salaried Employee	Lack of knowledge	Effective pesticide application training should be provided
9	**Disease Control**					
	a. Disease Identification	Man	100%	Owner/Contractor	Due to lack of knowledge these operations are done without following proper practices	Training should be given on IPM
	b. Pesticide Selection	Man	100%	Owner/Contractor	Problem of low standard pesticides in the marketing	Government should ensure the availability of good quality of pesticides in the market.
	c. Pesticide Purchase	Man	100%	Owner/Contractor	Due to lack of funds majority purchase on credit from input dealer	Transparency in Institutional credit availability should be ensured and access may be improved
	d. Pesticide Application	Men	100%	Daily Wage Local Labour	Lack of knowledge	Training on pesticide application
10	**Harvesting**					
	a. Cutting	Men	100%	Migratory Workers	Traditional practices and loss of crop	New implements should be introduced with training
	b. Shifting to field	Men	100%	Local and migratory workers		
	c. Dates Separation	Men & Women	95%M, 5%W	Local Females (5%), Migratory workers Females (95%)		

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
	d. Grading	Men	100%	Local and migratory workers		
	e. Dates Boiling	Men	100%	Migratory workers		
	f. Dates Drying	Men	100%	Migratory Workers		
	g. Packing	Men	100%	Local and migratory workers		
	h. Loading/Unloading	Men	100%	Local and migratory workers		
15	**Selling**					
	a. Market Selection	Man	100%	Owner/Contractor	Lack of choice and knowledge on these important tasks	Training should be provided on efficient marketing practices
	b. Middlemen Selection	Man	100%	Owner/Contractor		
	c. Crop Rate Negotiation	Man	100%	Owner/Contractor		
	d. Loading/Unloading	Men	100%	Daily Wage Worker	Wastage due to traditional practices	Better management training

7.3 Rice

Badin District: About 46% of the farmers in Badin are owner operators i.e. they bear all the costs of cultivation; whereas more than fifty percent of the farmers hired sharecroppers for rice production. Local landless workers and migratory workers are involved in rice crop harvesting. Migratory workers mostly come from Tharparkar (Hindu Minority of Kolhi caste) and they come during the month of September each year and stay in the area for around two months and then migrate to other areas for sugarcane cutting. The women are involved in rice transplantation, nursery preparation and crop harvesting.

Larkana District: Majority of the rice growers in Larkana are small farmers and do not hire sharecroppers. The involvement of women is limited to harvesting activity only and they work only when their family is involved as a sharecropper. Migratory workers are not involved at any stage of crop production in district Larkana.

Table 31: Rice

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
RICE						
•						
1	**Land Preparation**					
	a. Land Selection	Man	100%	Owner	Lack of knowledge	Better Land Management Training should be provided for a) to land owner and b) to sharecropper by agriculture extension officer
	b. Ploughing	Men	100%	Share cropper	Traditional practices	
	c. Levelling	Men	100%	Share cropper		
2	**Nursery Preparation**					
	a. Land Selection	Man	100%	Owner	Traditional practices	Training needed for better nursery preparation, for example, bed for nursery, seed selection etc
	b. Land Preparation	Men	100%	Share cropper		
	c. Seedbed preparation	Men	100%	Share cropper		

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
			RICE			
	d. Sowing	Men	100%	Share cropper		
	e. Fertilizer application	Men	100%	Share cropper		
	f. Irrigation	Men & Women	50:50	Share cropper		
	g. Uprooting	Men & Women	50:50	Share cropper		
	h. Shifting to field	Men & Women	50:50	Share cropper		
3	**Transplantation**	Men & Women	50:50	Share cropper, local landless labour	Sometime shortage of water	Efficient transplantation training to owners, and special trainings to migratory workers
4	**Irrigation**	Men	100%	Share Cropper	Shortage of water	Training on efficient use of scarce water
5	**Pesticide**					
	e. Pest Scouting / Disease Identification	Man	100%	Owner	Due to lack of knowledge these operations are done without following proper practices	Training should be given on IPM
	f. Pesticide Selection	Man	100%	Owner	Problem of low standard pesticides in the marketing	Government should ensure the availability of good quality of pesticides in the market.
	g. Pesticide Purchase	Man	100%	Owner	Due to lack of funds majority purchase on credit from input dealer	Transparency in Institutional credit availability should be ensured and access may be improved

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
			RICE			
	h. Pesticide Application	Men	100%	Share Cropper	Lack of knowledge	Effective pesticide application training should be provided
6	**Fertilizer**					
	d. Decision on Fertilizer	Man	100%	Owner	Due to lack of funds majority purchase on credit from input dealer	Transparency in Institutional credit availability should be ensured
	e. Selection of Fertilizer	Man	100%	Owner	Majority has no idea what are actual soil needs of fertilizer	Training on soil sampling, testing and fertilizer needs
	f. Fertilizer Application	Men	100%	Share Cropper	Lack of knowledge	Effective pesticide application training should be provided
6	**Harvesting**					
	a. Crop harvesting	Men & Women	50:50	Share cropper (20%), local landless labour (10%) and migratory workers (70%)	Traditional practices	Training on better harvesting practices
	b. Drying	Men & Women	50:50	Share cropper (20%), local landless labour (10%) and migratory workers (70%)		
	c. Shifting from field to threshing place	Men	100%	Share cropper (20%), local		

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
RICE						
				landless labour (10%) and migratory workers (70%)		
6	**Threshing**					
	a. Threshing	Men	100%	Share cropper	Traditional Practices	Training on better post-harvest management practices
	b. Packing bags	Men	100%			
	c. Loading/unloading	Men	100%			
6	**Selling**					
	a. Market Selection	Man	100%	Owner	Lack of choice and knowledge on these important tasks	Training should be provided on efficient marketing practices
	b. Middlemen Selection	Man	100%	Owner		
	c. Crop Rate Negotiation	Man	100%	Owner		
	c. Loading/Unloading	Men	100%	Share Cropper	Wastage due to traditional practices	Better management training

7.4 Onion

Onion crop is mostly managed by land owners with share cropper on 50%:50% In medium and large sized farms, farming activities are done by sharecroppers, local settled workers and a small percentage of migratory workers on wages. Women also work in lands along with their husbands. Due to better skills, migratory workers (Kolhi) from Tharparkar are preferred in district Hyderabad and TandoAllahyar for transplantation on fixed per-acre rate. The migratory workers are also involved in onion crop harvesting and packing.

Table 32: Onion

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
1	**Land Preparation**					
	a. Land Selection	Man	100%	Owner	Lack of knowledge	Better Land Management Training should be provided for a) to land owner and b) to sharecropper by agriculture extension officer
	b. Ploughing	Men	100%	Share cropper	Traditional practices	
	c. Levelling	Men	100%	Share cropper		
	d. Furrow Making	Men	100%	Share cropper		
	e. Ridges Making	Men	100%	Share cropper		
2	**Nursery Preparation**					
	a. Land Selection	Man	100%	Owner	Traditional practices	Training needed for better nursery preparation, for example, bed for nursery, seed selection etc
	b. Land Preparation	Men	100%	Share cropper		
	c. Seedbed preparation	Men	100%	Share cropper		
	d. Sowing	Men	100%	Share cropper		
	e. Fertilizer	Men	100%	Share cropper		
	f. Irrigation	Men & Women	50:50	Share cropper		

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
	g. Uprooting	Men & Women	50:50	Share cropper		
	h. Shifting to field	Men & Women	50:50	Share cropper		
3	**Transplantation**	Men & Women	50:50	Migratory workers	Sometime shortage of water	Efficient transplantation training to owners, and special trainings to migratory workers
4	**Irrigation**	Men	100%	Share Cropper	Shortage of water	Training on efficient use of scarce water
5	**Pesticide**					
	a. Disease Identification	Man	100%	Owner	Due to lack of knowledge these operations are done without following proper practices	Training should be given on IPM
	b. Pesticide Selection	Man	100%	Owner	Problem of low standard pesticides in the marketing	Government should ensure the availability of good quality of pesticides in the market.
	c. Pesticide Purchase	Man	100%	Owner	Due to lack of funds majority purchase on credit from input dealer	Transparency in Institutional credit availability should be ensured and access may be improved
	d. Pesticide Application	Men	100%	Share Cropper	Lack of knowledge	Effective pesticide application training should be provided
6	**Fertilizer**					
	a. Decision on Fertilizer	Man	100%	Owner	Due to lack of funds majority purchase on credit from input dealer	Transparency in Institutional credit availability should be ensured

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
	b. Selection of Fertilizer	Man	100%	Owner	Majority has no idea what are actual soil needs of fertilizer	Training on soil sampling, testing and fertilizer needs
	c. Fertilizer Application	Men	100%	Share Cropper	Lack of knowledge	Effective pesticide application training should be provided
7	**Weeding**	Women	100%	Share Cropper & Local Landless Labour	Traditional equipment and knowledge	Better equipments should be provided along with training on weeding practices
8	**Harvesting**					
	b. Grading	Men & Women	50:50	Share cropper (20%), local landless labour (10%) and migratory workers (70%)	Traditional practices	Training on better harvesting practices
	c. Packing& netting	Men & Women	50:50	Share cropper (20%), local landless labour (10%) and migratory workers (70%)		
	d. Drying	Men & Women	50:50	Share cropper (20%), local landless labour (10%) and migratory workers		

S. No.	Crop Stage	Actor	%age of Involvement	Category	Issues	Proposed Action
				(70%)		
	e. Storage	Men	100%	Share cropper & local landless labour		
	f. Loading / Unloading	Men	100%	Share cropper & local landless labour		
9	**Selling**					
	a. Market Selection	Man	100%	Owner	Lack of choice and knowledge on these important tasks	Training should be provided on efficient marketing practices
	b. Middlemen Selection	Man	100%	Owner		
	c. Crop Rate Negotiation	Man	100%	Owner		
	c. Loading/Unloading	Men	100%	Share Cropper	Wastage due to traditional practices	Better management training

7.5 Dairy Farming

Table 33: Dairy

S. No.	Task	Actor	%age of Involvement	Issues	Proposed Action
1	Milking	Owner	Woman 80% Man 20%	Insufficient knowledge on modern practices	Training on how to increase milk production
2	Grass Cutting	Owner	Man 80% Woman 20%	Unavailability of grass	Access to financial services to get funds for better feed
3	Grass mixing	Owner	Women 70% Man 30%	Unhygienic conditions	Awareness on hygienic conditions
4	Fodder cutting through Machine *(Kutar)*	Owner	Women 50% Man 50%	Unhygienic conditions	Awareness on hygienic conditions
5	Watering to animal	Owner	Women 80% Man 20%	Unhygienic conditions	Awareness on hygienic conditions
6	Grazing	Owner	Man 90% Woman 10%	Unavailability of grass	Access to financial services to get funds for better feed
7	Feed purchase	Owner	Man 100%	Lack of funds	Access to financial services to get funds for better feed
8	Animal sale/purchase	Owner	Man 100%	Imperfect market conditions	Ensure better market practices and prices
9	Milk sale	Owner	Man 80% Woman 20%	Low price of milk	Create new market and buyers of milk through MPGs
10	Treatment	Owner	Man 90% Woman 10%	Lack of proper treatment knowledge and facilities	Training on basic treatments

7.6 Daily Family Activity Roster

Table 34: Daily Family Activity Roster

Time	Share Cropper Family		Landless Labour Family		Migrant Family	
	Women	Men	Women	Men	Women	Men
5.00 am	Wake up in morning	-	Wake up in morning	-	Wake up in morning	-
6.00 am	House cleaning	Wake up in the morning	House cleaning	Wake up in the morning	House cleaning	Wake up in the morning
7.00 am	Break Fast Preparation	Break Fast	Break Fast Preparation	Break Fast	Break Fast Preparation	Break Fast
8.00 am	Go to Agrifield	Go to agri field	Go to Agrifield	Go to daily wage work (mostly other than agri farm)	Go to Agrifield	Go to agri field
9.00 am	Farm Work	Farm Work	Farm Work	At work (mostly they are involved in non-agricultural work such as tailoring, daily wage construction worker, daily wage worker or salaried worker	Farm Work	Farm Work
10.00 am						
11.00 am						
12.00 pm	Back To who for lunch preparation	Back to home for rest				
1.00 pm	Lunch	Lunch				
2.00 pm	House work	Local market/hotel for some work or leisure				
3.00 pm		Go back to farm field				
4.00 pm						
5.00 pm						
6.00 pm		Local market/hotel	Back to home	Back to home	Back to home	Local market/hotel
7.00 pm	Dinner Preparation	Back to home	Dinner Preparation	-	Dinner Preparation	Back to home
8.00 pm	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner
9.00 pm	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep

Notes:

1. The above matrix does not present routine activity of medium and large farmers. Women of large and medium farmers usually do not work in lands.
2. Sharecropper men stay full day at farm field in crop harvesting season and in other days he goes in the morning and stays there upto 11 am and again go to farm field afternoon.
3. These activities are more or less same in district Mirpurkhas, Umerkot, Badin, TandoAllahyar, Hyderabad and TandoMuhammed Khan.
4. The women in district Khairpur and Larkana are less involved in agriculture activities as compared to other districts, however, they work at home for daily household tasks from morning to night.
5. The sharecropper family work together at the agriculture farm with all family members including small children aging from 8 years.
6. However, the men of local labour work on daily wage work or salaried work other than agriculture like construction, tailor master etc. and their women go for agricultural work on daily wage basis such as cotton picking, rice harvesting, chilly picking, onion cutting, and wheat harvesting. The women from Kunri told that they leave behind their daughter in law to look after the home and old age people at home.
7. Since migratory workers come with all those family workers who can work, so they move to the agriculture farm with all their family members including the children with them as well.
8. House work includes childcare, clothes washing and other routine work.

7.7 Livestock Women Daily Activity Roster

Table 35: Livestock Women Daily Activity Roster

	Woman	Man
1.00 am	Wake up in morning	-
2.00 am	First milking of the day	-
5.00 am	Break Fast Preparation	Wakes up
6.00 am	House Cleaning	Take milk to middleman
7.00 am	Cleaning of dairy farm	- If non-milking animal, then men take the animal for outside home grazing and come back in the evening. - If milking animals, then men go in the morning to cut grass from the field and bring back before lunch time.
7.30 am	Milk sell on retail in village	
8.00 am	Giving feed to animal	
9.00 am	Watering to animal	
10.00 am	House work	
12.00 noon	Lunch Preparation	Lunch and rest
1.00 pm	Second milking of the day	Take milk to middleman
2.00 pm	Milk sell on retail in village	Local market/hotel for leisure
2.30 pm	Grass cutting in field	
4.00 pm	Grass cutting through machine at home	
5.00 pm	Watering to animal	
6.00 pm	Feed preparation	
6.30 pm	Feeding to animal	
7.00 pm	Dinner Preparation	Back to home
8.00 pm	House cleaning	Dinner
9.00 pm	Sleep	Sleep

Notes:

1. The above matrix depicts routine activity of small dairy farmers. Medium and Large dairy farmers usually hire one or two persons for feeding and milking animals.
2. In case if the milk is sold to any nearby city/town, the milking operations are done two times at 2.00 am and 1.00 pm to send milk early in the morning and in the evening to customers.
3. House work includes childcare, clothes washing and other routine work.

8. Risk Assessment and Mitigation Planning

Risk Assessment and Mitigation Planning (RAMP) is a process of developing a mechanism to identify possible threats and reduce negative impacts on project activities and objectives. This helps address emerging issues in an effective and efficient manner to implement project smoothly. RAMP is the result of a consultative workshopheld with key stakeholders involved in Sindh Agricultural Growth Project (SAGP) and field data collected through field teams in study areas. RAMP identifies types of risks that might involve during implementation phase and also explores risk factors for each risk. Then it assesses severity of risk (medium or high) and its possible impact. Finally, RAMP offers some recommendations to address these issues.

Risks with high severity and probability are:

a. contractual bondage between growers and middlemen;
b. unskilled labour;
c. Women's restricted mobility;
d. sustainability of Chillers;
e. Sustainability of commodity groups/MPGs;
f. Natural disasters; and
g. genetics of animals/crops.

Due to inaccessibility to loans/credit facilities or financial insecurity, many growers purchase farm inputs on credit from middlemen. The later charge higher interest rates on purchases of farm inputs, and also force growers to sell produce to them at comparatively lower rates. This not only pushes growers into permanent bondage of middlemen but also reduce growers' income. In order to free growers from this vicious cycle of bondage, SAGP needs to establish linkage between growers and financial institutions so that growers have easy access to credit with lower interest rates.

Unskilled labour is another highly severe risk that needs to be addressed with adequate trainings. In almost all of the surveyed districts, farmers/workers use traditional methods from sowing to harvesting/post-harvesting stages and this contributes to increase in agricultural losses. SAGP should devise strategy to develop training plans for settled and migratory workers or land owners who themselves cultivate lands. One assessment has already identified specific areas for improvement and actors involved in different stages of cultivation who need to be trained on specified themes. Crop Management Roles and Responsbilities Matrix, presented above, describes who (i.e. men or women) should be trained on what theme.

Women's restricted mobility is another high risk that may affect women's participation in various activities. Women work in lands, but along with their husbands or family members. Women also take care of animals within premises of the households. But women are not allowed to work alone in land or sell milk directly to clients in the towns. SAGP should mobilize communities and provide an enabling environment to women so that they feel secure while engaging in these activities. Even if they cannot sell milk in nearby towns, they should be able to sell milk to nearby chillers.

Sustainability of Chillers is big challenge for SAGP. So long as the project continues, SAGP will provide maintenance cost for operation of chillers. But once the project is over, who will bear the maintenance cost, particularly in the areas which face energy crisis? What if MPG ceases to exist? Who will then own the chiller? How will conflicts be resolved if MPG members fight over ownership of chiller after the end of the project? Once the chiller completes its life, will they purchase a new one? How? SAGP needs to prepare a clear exit strategy so that these issues are resolved smoothly. SAGP can also encourage MPGs to generate a fund for the future maintenance of chillers.

Sustainability of commodity groups and milk producing groups is yet another challenge for SAGP. Agriculture Extension and Livestock Departments have already implemented similar projects in which they have formed farmer's associations, dairy associations, but majority of these groups are no longer functional. SAGP needs to influence provincial government to adopt and sustain these groups in future.

Natural disasters are also a major threat to crops and animals. Floods, heavy rains, droughts, and disease outbreaks severely affect humans and animals, cause damage to livelihood and property. Sindh is a disaster prone province and SAGP needs to introduce disaster risk reduction strategies at local level to address such issues. Moreover, disaster resistant technology or crop variety/animal breed can also be introduced to protect agricultural or dairy products.

Genetics of animals and crops needs to be addressed effectively in order to increase crop yield or milk production. Due to low quality seeds, or unavailability of high-yielding crop varieties, growers are forced to raise crops that result in low yields. Similarly, due to negative beliefs related to or unavailability of artificial insemination services, livestock owners raise local low-milk-yielding animals.

The other risks of medium severity are:

a. disengagement of large/commercial farmers;
b. inactive women's groups;
c. inappropriate timing of trainings;
d. inadequate technology;
e. inappropriate marketing of produce, and
f. diseases in crops/animals.

If SAGP focuses too much on small and medium farmers and disengages large/commercial farmers, it might have negative consequences for SAGP activities. Some of the large farmers have storage facilities where they allow small farmers to store their produce in. Disengaging large farmers may discourage them from providing such a facility to small or medium farmers. Some of the larger farmers also possess tractors, harvesters, and threshers, which they also given on rent to small and medium farmers. Disengaging large farmers might also discourage them from renting these technologies to small and medium land holders. Large/commercial farmers are also big stakeholders who need to be positively engaged in stakeholder meetings, consultative workshops, advisory meetings and mobilization activities.

It is good to form women's groups, but these might not be as effective as men's groups. Majority of the women work as laborers, and only a few really own lands. Members of commodity groups/farmers' associations, who tend to be small or medium landlords, have more influence on decision making than women workers. Men might not allow women workers to exert their influence or men might not seek advice from women due to patriarchal or cultural values. SAGP should mobilize and sensitize men about women and empower women through peer and institutional support.

Inappropriate timing of trainings can also be risk for farmers as well as workers. Trainings should, ideally, contain a practical demonstration of how to reduce post-harvest losses. Hence these can only be done during post-harvest season. And it's the time when landlords need workers. Therefore engaging workers in trainings at a time when their services are highly required might affect income of landlords. SAGP should incentives for the migratory workers so that they stay there and participate in trainings. They should also be compensated for income losses when they participate in trainings.

Cross breeds that might be introduced through artificial insemination needs to be carefully selected. Particularly in Tharparkar, cross breeds have not been successful because of harsh

climate and unavailability of water and fodder. Similarly four-wheel hand carts for dates might not useful. Since the land is not smooth on which workers can drag carts, it might result in waste of technology. SAGP needs to make wise decision while selecting tools and technology for farmers in different districts for different products.

Inaccessibility to good market is also a major risk that is currently faced by producers. Milk Processing Company pays 50% less to the milk producers than the retailers or wholesalers. Since there is only one big processing company in the region, it monopolizes the entire milk market and purchases milk at its own rates.

Diseases in crops/animals also pose a big threat to farmers. Sudden outbreaks severely damage crops and animals. Though frequency of such outbreaks is low, but its impact cannot be negligible. SAGP should provide advisory services to agricultural farmers to use government recommended pesticides, and dairy farmers should be provided routine vaccination and treatment services. And there should be regular herd screening to monitor health of livestock.

Some of the risks are of low severity and occur occasionally. These do not pose major threats to growers or SAGP, can easily be addressed through mobilization, capacity building, provision of extension services and regular monitoring of and support to farmer associations as well as milk producing groups. These risks are Lack of awareness, community conflicts, socio-cultural differences, farmers' unwillingness to adopt technology or sell milk to chillers or get their animals tagged, poor storage capacities for crops etc. SAGP should make coordinated efforts to mobilize communities and ensure adequate community participation in project activities and decision making.

8.1 Risk Assessment and Mitigation Plan

Table 36: Risk Assessment and Mitigation Plan

Type of risk	Severity		Possible Impact	Actions to be taken
	M[6]	H		
Contractual bondage with middleman		√	• Farmers bound to sell to those middlemen who provide them inputs on credit • Low income of farmers	• Access to financial services/institutions
Unskilled labor		√	Increase in losses	• Capacity building of laborers/owner operators
Women's restricted mobility		√	• Less participation in trainings • Less engaged in client dealing • Less engagement in product marketing	• Mobilization and sensitization of men about women • Ensure participation of women in trainings
Disengagement of large farmers/commercial farmers	√		• Some of the large farmers have storage facilities where they allow small farmers to store their produce in. Disengaging large farmers may discourage them from providing such a facility to small or medium farmers. • Some of the larger farmers also possess tractors, harvesters, and threshers, which they also give on rent to small and medium farmers. Disengaging large farmers might also discourage	• Mobilization of large/commercial farmers • Engaging them in stakeholder meetings, consultative workshops, or advisory meetings • Ensure inclusion of large farmers who cultivate land on sharing basis. Their inclusion will also have a positive impact on livelihoods of landless sharecroppers

[6] M= Medium, H= High

Type of risk	Severity		Possible Impact	Actions to be taken
	M[6]	H		
			them from renting these technologies to small and medium land holders • Disengaging large farmers may also result in exclusion of landless sharecroppers	
Inactive women's groups	√		• Majority of the women work as laborers, and only a few really own lands. Members of commodity groups/farmers' associations, who tend to be small or medium landlords, have more influence on decision making than women workers. Men might not allow women workers to exert their influence or men might not seek advice from women due to patriarchal or cultural values.	• Mobilization and sensitization of men regarding women's issues. • Empowerment of women through peer and institutional support
Migration of worker families	√		• Less participation in trainings • If they are engaged in trainings, they might not able to work in lands and earn income during those days.	• Incentives for workers to stay and participate in field-based hands-on trainings • Compensations for workers when do not work in lands and participate in trainings
In appropriate timing of trainings	√		• Trainings should, ideally, contain a practical demonstration of how to reduce post-harvest losses. Hence these can only be done during post-harvest	• Wise selection of timing of trainings • Timing of training of each gender should be set when their work is not much required. For example, picking is usually done by women. During that period, SAGP can

Type of risk	Severity		Possible Impact	Actions to be taken
	M[6]	H		
			season. And it's the time when landlords need workers. Therefore engaging workers in trainings at a time when their services are highly required might affect income of landlords.	organize trainings for men.
Inadequate technology	√		Increase in post-harvest losses	Consultation with local farmers/experts Promoting better post-harvest management practices
Stakeholders not willing to adopt technology due to high cost	√		Continuation of old traditional practices	• Increase subsidies • Ensure income return after adopting technology
Natural Disasters		√	• Death of animals/damage to crops • Migration of animals/communities • Closure of chillers/mills • Disruption in supply of milk/crops	• Wise selection of project areas • Introduction of disaster risk reduction strategies at local level, introduction of disaster resistant technology • Introduction of disaster resistant crop varieties/animal breeds
Inadequate marketing for milk/crop	√		• Low Collection of Milk/crop • Project Objectives may be affected	• Effective Marketing Strategy and plan • Strategy for Middlemen • Mechanism for appropriate price of milk
Sustainability of Chiller after the end of the project		√	• Dissolution/inactivity of MPGs • High maintenance cost, particularly in areas facing energy crisis, may result in low prices to milk providers	• SAGP should encourage MPGs to generate a fund for long term maintenance of chillers

Type of risk	Severity		Possible Impact	Actions to be taken
	M[6]	H		
Sustainability of commodity groups/MPGs		√	• Dissolution/inactivity of commodity groups/MPGs	• SAGP should influence provincial government to adopt and sustain these groups.
Diseases in animals/crops	√		• Animal Mortality/crop damage • Low production • Low Farmers Income	• Vaccination • Ensure availability of quality pesticides • Herd Health Screening/crop screening • Animal/crop insurance • Awareness Campaign
Genetics of Animals/crops		√	• Less Milk Production/crop yield	• Artificial Insemination • Animal breed/crop variety improvement performance • Introduction of High Yield Milk Breeds/crop varieties

10. Stakeholder Assessment

Stakeholder management is critical to success of every project. It involves careful assessment of stakeholders (individuals or groups that may be directly or indirectly affected by project). Stakeholder assessment identifies such individuals or groups and assesses their power/influence which they may exert in supporting or blocking the project activities. Stakeholder assessment for SAGP was conducted in a consultative workshop with growers, SAGP staff, agriculture extension and livestock departments, and private partners and the findings are presented in the table below.

The table first identifies stakeholders on the basis of influence or power they have or can exert over the course of implementation of the project. It then places each stakeholder in a relevant column to show whether they will use their influence or power to support SAGP or throw hurdles to block it. It also identifies stakeholders who may change their positions over the course of time depending of circumstances to support or block the project.

The participants in the workshop identified two highly influential stakeholders (middlemen and commission agents) who are likely to oppose SAGP initiatives. Since SAGP intends to provide growers with direct access market, middlemen and commission agents are the main actors who be severely affected, and who, in return, will try to block SAGP activities. As stated in risk mitigation plan, many growers are forced to purchase farm inputs from and sell produce to these middlemen, SAGP will have to find alternatives to provide such financial services to growers so that they get rid of contractual bondage with middlemen. Otherwise, growers will continue to purchase inputs on credit with high interest rates and sell produce to middlemen on cheaper rates. This will not only keep growers in vicious cycle of contractual bondage, but will also reduce income of growers.

The participants in the workshop identified the following highly influential stakeholders that will support SAGP activities: Traders/exporters, Farmers/Producers, Farmer Organizations/Milk producing groups, Agriculture Extension and Livestock Departments, Sindh irrigation Department, Sindh Irrigation and Drainage Authority, Laborers, and Industrialists. Since SAGP intends to reduce post-harvest losses and improve quality of produce, it will not only benefit growers, but will also benefit traders and exporters. This is the main reason they will support SAGP initiatives. Various government departments will also support the project because it is implemented by the government itself. SAGP will also benefit workers/laborers because it will enhance their capacity through trainings and exposure visits. Trained and skilled workers will be demanded more than unskilled and untrained workers. Industrialists will support the initiative because they will get quality produce which will reduce their costs of cleaning, grading and processing.

Civil Society organizations can also support this initiative as work on grass roots level to reduce poverty and improve socio-economic conditions of the poor. Micro-financing institutions will benefit if more growers get loans to purchase farm inputs and agricultural implements.

There are certain stakeholders that may change their positions depending on circumstances. Millers and processors who enjoy monopoly in the market may sometimes support SAGP and may oppose it other times. Media can help disseminate important information to create awareness among growers in other districts, but its negative reporting can also damage mobilization activities.

Politicians can sometimes support SAGP because most of them are also big landholders, but they may also oppose farmer organizations because politicians may consider these organizations as a political threat. Religious scholar can help educate farmers to take better care of animals, to have safety measures for workers etc, but they can also oppose artificial insemination or tagging of animals.

10.1 Stakeholder Assessment

Table 37: Stakeholder Assessment

	Blocker	Swinger	Supporter
High Influence	Middlemen Commission agents	- Millers - Processors - Media - Politicians	- Traders/exporters - Farmers/Producers - Farmer Organizations/MPGs - Agriculture Extension and Livestock Departments - Sindh Irrigation and Drainage Authority - Labor - Industry
Medium Influence			Non-Governmental Organizations (NGOs) Micro Finance Institutions (MFIs)
Low Influence		Transporters Religious leaders	

Some of the stakeholders would oppose SAGP activities as they will be badly affected and their income would be reduced. However, their exclusion is really in the better interest of farmers because the latter will get the direct benefit from the project. The following matrix describes

roles of and opportunities of stakeholders who will support SAGP activities, and explains why they would support SAGP after all.

10.2 Roles and Opportunities Matrix

Table 38: Roles and Opportunities Matrix

Stakeholders	Roles	Opportunities
Agriculture Extension and Livestock Departments, Research Institutes	To provide technical information and extension services to target beneficiaries	• Upgradation of extension services • Technological and equipment support • Capacity building of staff
Farmers' associations/commodity groups/ milk producing groups,	Mobilization of communities Decision making at local level	• Trainings/capacity building • Exposure visits •
Abadgar Boards, Chamber of Commerce, Elected Representatives, Local CSOs, District Government	To moderate between SAGP and communities, and mobilize the later Promote good practices and establish and network of producers and traders/exporters	• Capacity Building • Institutional support
Chillers/millers/processors, traders/exporters	To have a direct access to farmers	• Getting good quality produce that can be exported • Regular supply of milk
Landlords, livestock owners	To use modern practices technology to reduce post-harvest losses	• Awareness about modern farming practices • Access to modern technology • Access to skilled labor force
Women farmers (agricultural and dairy)	To use modern practices technology to reduce post-harvest losses	• Awareness about modern farming practices • Ability to make informed decisions • Increase in social status • Say in household decisions
Tenants/sharecroppers	To use modern practices technology to reduce post-harvest losses and get maximum prices on produce, thereby increasing their overall	• Awareness about modern farming practices • Enhanced skills and knowledge • Reduction in losses and increase in income

Stakeholders	Roles	Opportunities
	income	
Workers (men and women)	To use modern practices technology to reduce post-harvest losses	• Awareness about modern farming practices • Enhanced skills and knowledge • Awareness about Health-friendly harvesting practices • Reduction in harms caused by pesticides
Micro-financing institutions	To provide loans to farmers	• Demand for more loans, if banks provide easy access to credit to farmers
Transporters	To provide logistic support to farmers/traders	• Regular demand for logistic services

11. Communication Strategy

A good communication strategy is a key to successful dissemination of right information to the right person and at the right time to make right decisions. It involves identification of types of information required to make decisions, search for sources of information, assessment of authenticity of sources of information, compilation of information in a meaningful form, development of sources of information disseminations, selection of means of communication, identification of end users of information and dissemination of Information.

- Identification of Types of Information required
- Search for Sources of Information
- Assessment of Authenticity of Information
- Compilation of Information in a meaningful Form
- Development of Source of Information Communication
- Selection of Means of Communication
- Identification of End Users
- Dissemination of Information

Communication Strategy Model, given at the end of the document, presents in detail above mentioned process and describes how information can be processed from the beginning to the end. The model shows that SAGP Program Management Unit (PMU) will be the central point where all the necessary information will be compiled and then disseminated to the end users. In order to better inform the end users (i.e. growers, farmer associations, and milk producing groups), PMU needs to collect various kinds of information from different sources and then compile in a meaningful manner for adequate dissemination. The table below describes what kind of information PMU needs to compile.

Types of Information

Table 39: Communication Strategy Model

Climate/ Weather	Technical Information	Market Information	Financial Information
• Weather forecasts • Rains • Floods • Droughts	• Soil Selection and Management • Varieties of crops • Seed Quality • Fertilizer/Pesticides • Irrigation • Crop Calendar • Pest Management/Disease control • Improved New Technologies • Solutions to emerging problems • Good Practices of Crops & Livestock • Artificial Insemination • Post-harvest losses and management • Value Chain Development	• Price of Commodities • Market reports • Trend in Demand and supply • Labor Information • Linkages with E-market place	• Easy access to credit • Incentives for credit • Crop/animal Insurance

The communication strategy model furthers describes appropriate sources from where such an information can be collected.

Table 40: Types and Sources of Information

Types of Information	Sources of Information
Climate/weather	Meteorological Department, PDMA / DDMA
Technical Information	Agriculture extension and Livestock Departments, Sindh Seed Corporation, Agriculture Research Institutes, Project technical consultants
Market Information	Seed/Fertilizer/Pesticide companies, Market Committees, Chillers/Millers, Abadgar Board, Chamber of Commerce, Traders/Exporters
Financial Information	Micro-financing Institutions- Banks

Since all these sources of information are registered entities and are authorized by the government to run their operations in relevant sectors, information received from these sources should be considered authentic.

Once such information is received, PMU will compile it in a meaningful order so that end users can make informed decisions. About 87% of the respondents in nine target districts possess cell phones, and commonly used networks are Mobilink and Telenor.

Table 41: Use of Mobile Phones

Mobile Users	Mobile Users of Specified Networks				
	Mobilink	Telenor	Ufone	Zong	Warid
80%	44%	44%	7%	4%	1%
Mobile users who can read text messages					93%
Mobile users who can write text messages					85%
	Sindhi	Urdu	English		Roman Sindhi/Urdu
Mobile users who can read text messages in specified languages	58%	45%	37%		42%
Mobile users who can write text messages in specified languages	42%	41%	34%		41%

Of all the cell phone users, more than 90% can read text messages and 85% can also write messages. However, not all of them can communicate through text messages in English. Commonly used languages in text messaging are Sindhi, and Urdu. Hence, SAGP should share information to the end users in Sindhi or Urdu languages, which can easily be understood by majority of the communities in all the target districts.

Further analysis shows that all of the large farmers possess cell phones, whereas 87% of medium farmers and three quarters of small farmers own cell phones. All the large farmers can read and write text messages, whereas number of small farmers who can read and write text messages is much lower.

Table 42: Mobile users who can read and write text messages

Farmer Categories	Mobile Owners	% who can read text message	% who can write text message
Large	100	100	100
Medium	87	84	77
Small	75	67	61
Grand Total	87	84	79

Data also suggests that the number of mobile users is higher among agricultural farmers than the dairy farmers. Most of the onion growers are mobile users, and more than 80% of Chili and Rice growers use mobiles, whereas slight over three-quarters of date growers have mobile phones. Compared to agricultural farmers, less than 60% of dairy farmers own cell phones.

Table 43: Mobile owners in value chains

Value chain	Mobile Owners
Chilli	84
Dates	77
Onion	94
Rice	81
Livestock	58

Hence, SAGP needs to consider ways other than text or voice messages through which they can delivery key information to dairy farmers.

Social Assessment data also suggests that three quarters of respondents in all the target districts watch television, and majority of them (76%) watch television at night for one to two hours (from 7 pm to 9 pm). This will help SAGP broadcast video messages at these times to reach maximum target population. Video messages, whether broadcast through national or provincial broadcasting service or through local cable TV service, timing of the broadcast is very important.

Table 44: Access to Radio and Television

Persons who watch television				**75%**
Persons who listen to FM Radio				**13%**
	Morning	**Afternoon**	**Evening**	**Night**
Persons watching TV at specified times	**14%**	**6%**	**23%**	**76%**
	One Hour	**Two Hours**	**Three Hours**	**Four Hours**
Persons watching TV for specified hours	**41%**	**42%**	**14%**	**3%**

Though three-fourths of farmers watch television, percent of large farmers is overwhelmingly high. Almost all of them watch television, whereas about three quarters of medium and small do the same.

Table 45: Watching Television

Farmer Categories	% who watch television
Large	95%
Medium	75%
Small	74%
Grand Total	82%

As in case of mobile use, the number of farmers who watch television is higher among agriculture farmers than dairy farmers. On average, more than 80% of agriculture farmers watch television, whereas the figure for dairy farmers is less than 50%.

Table 46: Watching Television

Value Chain	% Who watch television
Chilli	80%
Dates	76%
Onion	90%
Rice	81%
Livestock	47%

Since about half of the dairy farmers do not have access to cell phones and television, SAGP needs to deliver information to them through direct face-to-face communication, community meetings, and pamphlets/brochures or encourage them to purchase and use cell phones to receive timely information.

Though proportion of women respondents in the survey was negligible, qualitative data suggests that most of the women do not have access to cell phones or television. They usually use cell phones of their husbands or brothers to communicate with others. And most of them are uneducated and cannot read or write text messages.

Similarly, most of the migrant workers do not have access to television, radio or cell phones. Since they keep migrating, it would be difficult to provide information to them through community meetings, and informal gatherings. As almost all of the migrant workers, men and women, are uneducated, they cannot read written literature distributed through pamphlets or brochures.

SAGP should devise a different strategy to mobilize such workers and delivery key information to them. SAGP staff should develop a seasonal calendar of migration of these workers, and their landlords in respective districts and share it with staff in all the districts where these

workers migrate during various season. For example, if a migrant family, currently working in District Tando Allah Yar, moves to district Tando Mohammad Khan after November, SAGP staff at the later district should contact the landlord there and make arrangements for mobilization meetings with workers or arrange capacity building workshops for them. Since, migrant workers cannot be mobilized at a single place, it is important to have information about their seasonal movement and arrange training workshops in those districts where they are likely to move according to season.

The following table shows what kind of information should be shared with whom and how. Much of information has to be shared with land owners (large, medium and small), whereas a few types of information should also be shared with tenants, and men and women workers. Technical information like soil testing, crop varieties, seed quality, irrigation, crop calendar, value chain, and new technologies should be shared with farmers as well as farm managers (who are usually hired by large farmers to oversee their land and crop cultivation). This information won't be useful for settled or migratory workers as they don't have decision making powers or purchase farm inputs or equipments. However, information about pest management and disease control, good farming practices, should post-harvest losses management should be shared with all those engaged in agriculture i.e. farmers, farm managers, sharecroppers, settled and migratory workers.

Table 47: Information

	• Type of Information	**Target End User**	**Mode of Communication**
Climate/ Weather	• Weather forecasts • Rains • Floods • Droughts	• Farmers (large, medium and small), sharecroppers, and tenants	• Text Messages • Voice Messages • FM Radio • Radio Pakistan • Television
• **Technical Information**	• Soil Selection and Management	• Farmers/sharecroppers , farm manager	• Text and Voice Messages • FM Radio, Radio Pakistan • Television • SAGP Website • Brochures/Flyers, News Letters • Monthly, Quarterly Bulletins • Emails • Video Documentaries and Video
	• Varieties of crops		
	• Seed Quality		
	• Fertilizer/Pesticides		
	• Irrigation		
	• Crop Calendar		
	• Pest Management/Disease control	• Farmers/sharecroppers , farm manager, workers	
	• Improved New Technologies	• Farmers/sharecroppers , millers, processors	
	• Solutions to emerging problems	• Farmers/sharecroppers , farm manager	
	• Good Practices of Crops &	• Farmers/sharecroppers	

	• Type of Information	Target End User	Mode of Communication
	Livestock	, farm manager, workers	extension messages through mobile van shows
	• Artificial Insemination	• Dairy Farmers, religious leaders	
	• Post-harvest losses and management	• Farmers/sharecroppers , farm manager, men and women workers	
	• Value Chain Development	• Farmers/sharecroppers , farm manager, traders/exporters	
	•		
• **Market Information**	• Price of Commodities • Market reports • Trend in Demand and supply • Labor Information • Linkages with E-market place •	• Farmers/sharecroppers, farm manager	• Text Messages • Voice Messages • FM Radio • Radio Pakistan
• **Financial Information**	• Easy access to credit • Incentives for credit • Crop/animal Insurance •	• Farmers (land owners: large, medium, small)	• FM Radio • SAGP Website • Brochures/flyers • Emails

However, apart from these direct beneficiaries, the above information should also be shared with other stakeholders who could be engaged in social mobilization and capacity building of producers. All the information should be shared with NGOs, specifically working on agriculture. They can also deliver this information with other farmers who are not the part of the project. Religious leaders should be sensitized about artificial insemination, and they should be encouraged to educate dairy farmers to avail such services. During harvesting season, transporters should also be informed about harvesting activity so that they could schedule their transporting activities in a way which could help farmers transport produce to the market in time.

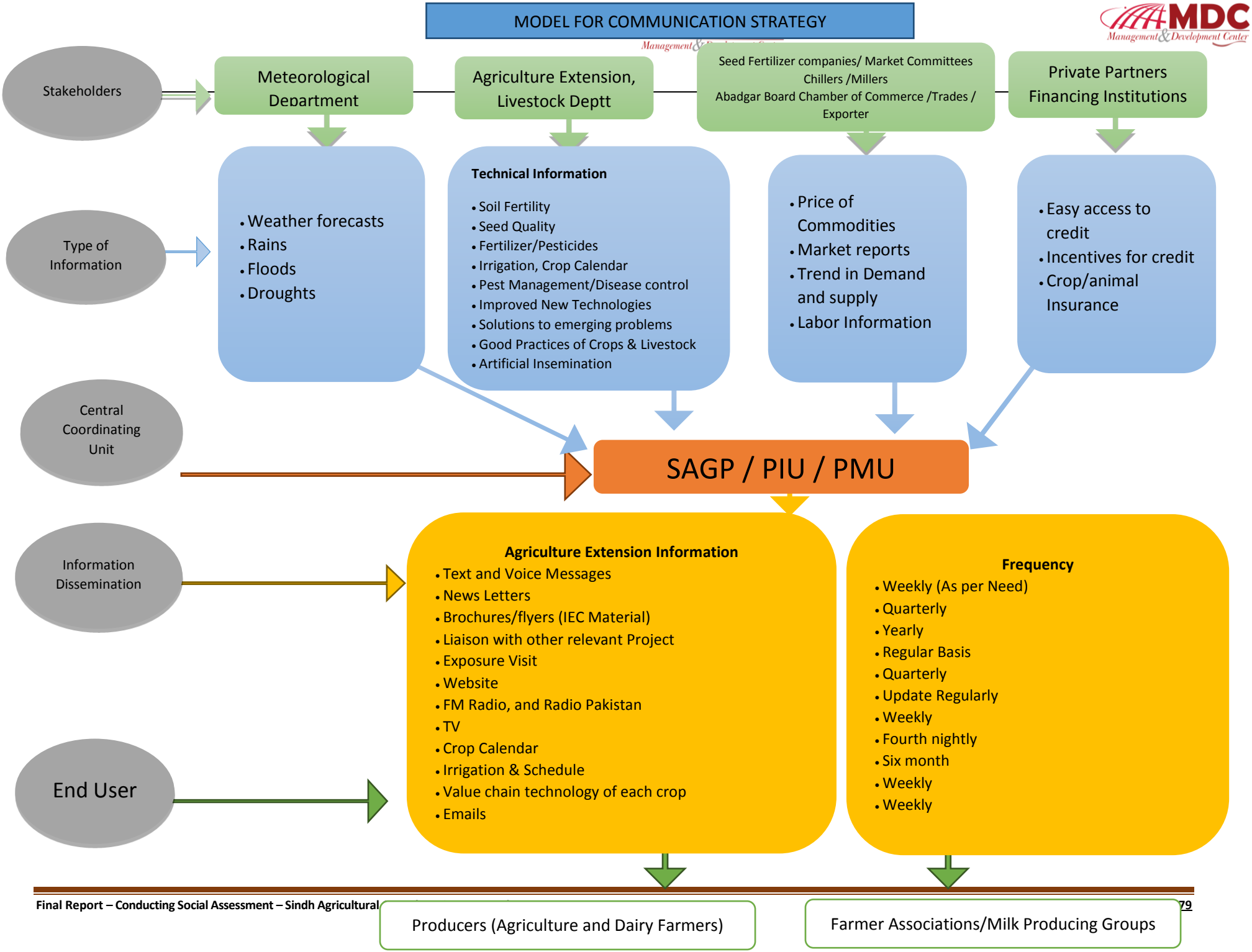
Millers and processors should also be provided information about new improved technologies so that they could upgrade their facilities and reduce post-harvest losses. Traders/exporters should be informed about which variety of crop produces better results, and in which district, farmers have produced quality crops. This would help establish a network of growers and traders whereby traders can directly purchase produce from the farmers.

Once, end users and means of communication have been identified, PMU will then decide how such information should be disseminated, whether it should be disseminated daily, weekly, monthly or quarterly, and through what means of communication. The following table describes types of information, mode of communication and frequency of information dissemination.

Table 48: Type of Information

Type of Information	Mode of Communication	Frequency of Dissemination
Climate/Weather	Text Messages	Daily
	Voice Messages	Daily
	FM Radio	Daily
	Radio Pakistan	Daily
	Television	Daily
Technical Information	Text and Voice Messages	Weekly
	FM Radio, Radio Pakistan	Weekly
	Television	Weekly
	SAGP Website	Weekly
	Brochures/Flyers, News Letters	Once, but to be updated regularly
	Monthly, Quarterly Bulletins	Need-based
	Emails	Need-based
	Video Documentaries and Video extension	Monthly/quarterly
	messages through mobile van shows	Need-based
Market Information	Text Messages	Daily
	Voice Messages	Daily
	FM Radio	Daily
	Radio Pakistan	Daily
Financial Information	FM Radio	Weekly
	SAGP Website	Once, but to be updated regularly
	Brochures/flyers	Need-based
	Emails	Need-based

All the above communication strategy has been graphically presented in the following model.


MODEL FOR COMMUNICATION STRATEGY
Stakeholders
Meteorological Department
Agriculture Extension, Livestock Deptt
Seed Fertilizer companies/ Market Committees
Chillers /Millers
Abadgar Board Chamber of Commerce /Trades / Exporter
Private Partners Financing Institutions
Type of Information
• Weather forecasts
• Rains
• Floods
• Droughts
Technical Information
• Soil Fertility
• Seed Quality
• Fertilizer/Pesticides
• Irrigation, Crop Calendar
• Pest Management/Disease control
• Improved New Technologies
• Solutions to emerging problems
• Good Practices of Crops & Livestock
• Artificial Insemination
• Price of Commodities
• Market reports
• Trend in Demand and supply
• Labor Information
• Easy access to credit
• Incentives for credit
• Crop/animal Insurance
Central Coordinating Unit
SAGP / PIU / PMU
Information Dissemination
Agriculture Extension Information
• Text and Voice Messages
• News Letters
• Brochures/flyers (IEC Material)
• Liaison with other relevant Project
• Exposure Visit
• Website
• FM Radio, and Radio Pakistan
• TV
• Crop Calendar
• Irrigation & Schedule
• Value chain technology of each crop
• Emails
Frequency
• Weekly (As per Need)
• Quarterly
• Yearly
• Regular Basis
• Quarterly
• Update Regularly
• Weekly
• Fourth nightly
• Six month
• Weekly
• Weekly
End User
Producers (Agriculture and Dairy Farmers)
Farmer Associations/Milk Producing Groups

12. Community Feedback Mechanism (CFM)

The above communication strategy flows from top to bottom (i.e. from information providers to end users), communication strategy would be incomplete if there is no mechanism to listen to the concerns of end users, and address their issues. Community feedback mechanism provides a platform through which end users (producers, farmer associations, and milk producing groups) can share their complaints and suggestions with service provider. In the context of Sindh Agricultural Growth Project, the following CFM model has been designed in accordance with culture and norms of the target communities.

Means of complaint submission
Submission of complaint
Receiving of complaint
Acknowledgement of receiving of complaint
Verification of complaint
Compilation of complaints at a centralized MIS system
Redressal of complaint
Monitoring and evaluation of complaint redressal process

12.1 Means of complaint submission

As majority of the target population resides in rural areas, who cannot easily access SAGP implementing units for redressal of grievances, SAGP should be adopt the following easily accessible and low-cost means complaint submission through which stakeholders at grass roots level can reach SAGP authorities.

- Face-to-face communication
- Complaint/Suggestion Boxes
- Telephone Call
- Text Messages
- Email
- Website
- Freedom Phone

12.2 Submission of Complaints

Face-to-face communication (FFC) is the most cost-efficient and easily accessible means of registering complaints or providing suggestions. Beneficiaries can communicate their issues with SAGP staff when the latter visit the target villages. SAGP staff should always carry a complaint/suggestion paper on which they can write issues communicated verbally to them by the communities. These should be signed by the complainants or should carry their thumb impressions. Once such a complaint is registered with SAGP staff, the

complainant should be given a complaint number for reference which would be used for correspondence. Main strength of the FFC method is that even uneducated beneficiaries, who cannot write complaint or write a text message in a cell phone, can easily communicate their concerns to SAGP staff.

Complaint/Suggestion Boxes are another way to let community members express their concerns. Such a box should be installed at an easily accessible place in a target village. The boxes should be locked to maintain privacy of the complainants and should be checked at least once a week by the SAGP staff. Regular checking of boxes will ensure whether any one has submitted a complaint or not.

Telephone call and **text message** are the fastest way to contact SAGP and register complaint.As majority of the producers possess cell phones and can read and write text messages, it would be easier for them to register their complaints through calls or text messages. SAGP should provide a toll-free universally accessible number to all the producers, members of farmers' associations and milk producing groups through which they can submit their complaints to SAGP.For this, SAGP should build a well-equipped grievance redessal unit within SAGP office where messages in kinds of formats and languages could be received and registered.

Through very few producers use internet, it would still be useful if SAGP provides beneficiaries with **email** addresses or name of **website** where they can submit their complaints.

Freedom Foneis a free and open source software to that enables to create and share audio content using interactive voice response, voice mail and text messages. SAGP can suggest farmers and groups to use freedom fone to submit their complaints.

12.3 Receiving of Complaints

When a complaint is received, it must immediately be registered with a reference number for future correspondence. It should also be registered with the name of the complainant, his/her cell number, name of village (if provided by the complainant) and the date and time on which complaint is received.

12.4 Acknowledgement of receiving of complaints

There should be an auto-reply mechanism through which complainants know that their complaint has been received by SAGP. Whether one sends a complaint through a text message, email or website, he or she should receive an acknowledgement from SAGP for receiving of a complaint. Acknowledgement should also carry a reference number for future correspondence.

12.5 Verification of complaints

Once a complaint is registered, it is also important to know whether the complaint is a genuine or a fake one. A person might have sent a text message by mistake, or the complaint might not be relevant to SAGP, or it might be a spam email. SAGP staff should verify complaints by making telephonic calls to the complainants to make sure these are genuine, and then should share complaints with relevant staff for redressal.

12.6 Compilation of complaints in a centralized MIS system

There should be a centralized MIS system to track record of all complaints submitted through various means. This will help SAGP in monitoring of CFM and strengthen its mobilization activities. All this data should be pass-word protected with limited access only to authorized persons who could receive, register, and share complaints with other relevant staff for grievance redressal.

12.7 Redressal of complaints

SAGP staff should redress community's grievances within a week or within a shortest possible time. Quick response to complaints will build a better image of SAGP and will build trust among the beneficiaries. This will also help SAGP in mobilizing communities to achieve project objectives.

12.8 Monitoring and Evaluation of CFM

There should be a strong monitoring and evaluation mechanism to ensure whether CFM is working effectively. SAGP should make telephonic calls to complainants to know whether their grievances have been addressed after a given time period. SAGP should regularly analyze data of complaints to assess how many complaints have been registered and redressed. Such an analysis would also help SAGP know what kinds of complaints are made by most of the complainants, and from which locations.

13. Social Mobilization

Agriculture Extension and Livestock departments have been providing their services for many years, it should not be a problem for SAGP to identify stakeholders and mobilize communities to make them functional, empowered and decision making groups with access to reliable knowledge and improved quality services. Social mobilization is a bottom-up approach which means SAGP needs to focus on grass-roots issues of small and medium farmers, hold consultative meetings with them, find out workable solutions, form active and functional groups, build capacity of farmers, establish their linkages with institutions, and make a strategy to sustain these groups.

Social Assessment study's findings show various issues faced by small, medium and large farmers in the surveyed districts. The major issue described by them is their inaccessibility to institutional credit. This pushed them into a permanent bondage with middlemen or input dealers. This not only increases cost of cultivation because input dealers sell inputs at higher rates, but also reduces income of farmers because dealers purchase the produce at cheaper rates. Another issue is unavailability of quality seeds and other farm inputs. Farmers don't know which variety needs to be grown and whether the seeds of that variety are genuine or not. None of the farmers or tenants was observed to adopt safety measures while spraying pesticides. This poses serious risks to the health of workers, especially women who bring their children to lands and breastfeed their newborns and infants.

Irrigation schedule and unavailability of water at lands lying at the tail end of distributary are also major issues faced by farmers. Lack of knowledge and skills regarding post-harvest management of crops also results in post-harvest losses. Use of old traditional practices, and unavailability of and unaffordability to purchase technology also contributes to continuation of inadequate management of crops. Dairy farmers also face similar problems whereby they are forced to sell milk at cheaper rates because they don't have access to technology to preserve milk for longer hours.

SAGP staff needs to mobilize communities, form commodity groups/milk producing groups and hold consultative meetings to find out workable solutions to the above issues. They also need to build capacity of farmers/tenants (men and women) and introduce modern technology to reduce post-harvest losses. Social Assessment has already charted out roles of men and women, farmers and tenants and suggested what trainings should be provided to what of participants. Such trainings should be provided by expert agriculture extension and livestock officers in their respective areas.

SAGP also needs to improve access of farmers to credit and provide incentives to avail credit so that they can easily purchase new technology and get rid of contractual bondage with middlemen/input dealers. Many large farmers already possess threshers, dryers, and harvesters, but small and medium farmers have either to hire these from large farmers or from other dealers in the markets. During harvesting and post-harvesting season, large farmers usually do not give these technologies to small or medium farmers because they themselves use

these, or when they do give these to small/medium farmers, it is gets usually late for harvesting. Providing small and medium farmers with access to credit or to technology would reduce monopoly of large farmers over modern technology, they will be able to get as much benefit from agriculture as large farmers do.

SAGP should chart out a clear strategy for sustainability of groups. SAGP should influence provincial government to adopt these groups and sustain them. Terms of reference should be prepared for such groups which contain instructions how the groups will continue to operate once the project ends.

There should be groups of small, medium and large farmers, which should be linked together to share information and maintain regular coordination. Women should be mobilized and encouraged to form such groups. Where possible, combined groups should also be formed in which men and women together make informed decisions. Women's participation is very important as many of them are involved in land cultivation and dairy production. They are also the ones who are badly affected by pesticides and droughts/disasters.

Inclusion of settled and migratory workers also need to be ensured while mobilizing communities and conducting trainings for capacity building. SAGP Operational Manual mainly focuses on producers and spares only a small activity for workers, especially women, to keep them safe from bio-hazards. However, as these workers are involved in activities during harvesting and post-harvesting time, their capacity also needs to be built. Post-harvest losses cannot be minimized if the persons involved in post-harvest activities are not provided adequate trainings.

Skill enhancement of workers, settled or migratory, men and women, would not only reduce post-harvest losses, but will also improve quality of produce which will result in better selling prices and better remuneration of workers. For example, during field visit to Kunri, District Umerkot, some chilli growers are using modern chili drying mats which were provided to them by companies that make products from this crop. The companies also educated workers about how to take care of drying mats and to how grade chilies. Such a practice has resulted in high quality chilies which have much reduced levels of Aflatoxin, and growers get higher prices for their produce. The growers, as a result, also increased wages of their workers. A progressive chili grower said, "I must increase wages of my workers because they are the ones who know well how to dry chilies and how to grade them. It is only because of their efforts that I have been able to get premium prices for my produce. If I do not raise their wages, they won't work efficiently, and I won't get that much profit."

SAGP should regularly respond to complaints by farmers. This will help SAGP gain trust and confidence of communities. Communication Strategy, which has already been prepared should be adopted sincerely and grievances of farmers should be redressed in due time.

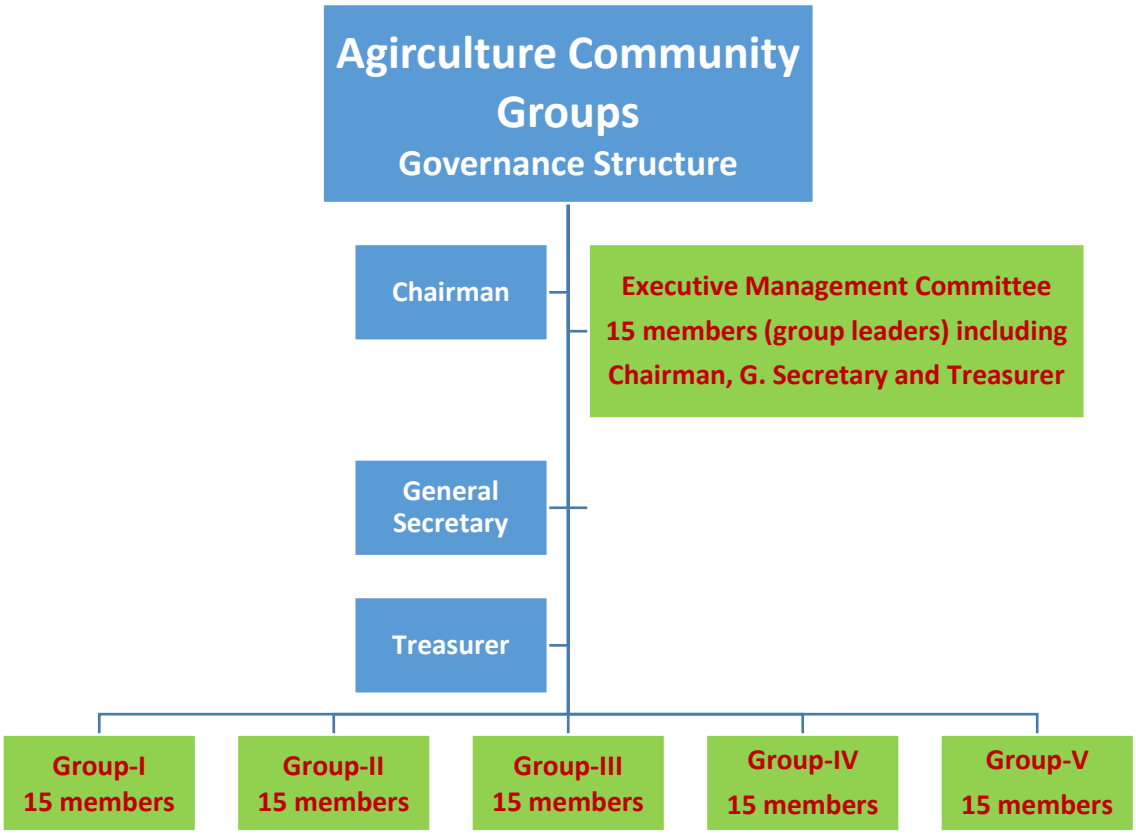
There should be regular monitoring of all the groups to ensure they are working properly and making collective decisions. SAGP should develop a criterion to assess functioning of each group and make efforts to make them fully functional groups.

The model below provides an overview about social mobilization process. This is not an exhaustive model, but contains contours of important activities to be carried out extension workers of agriculture and livestock departments. Since extension workers possess expertise in their technical areas, they also need to be trained in social mobilization, communication skills, value chain development, assessing market trends and establishing links among various stakeholders.

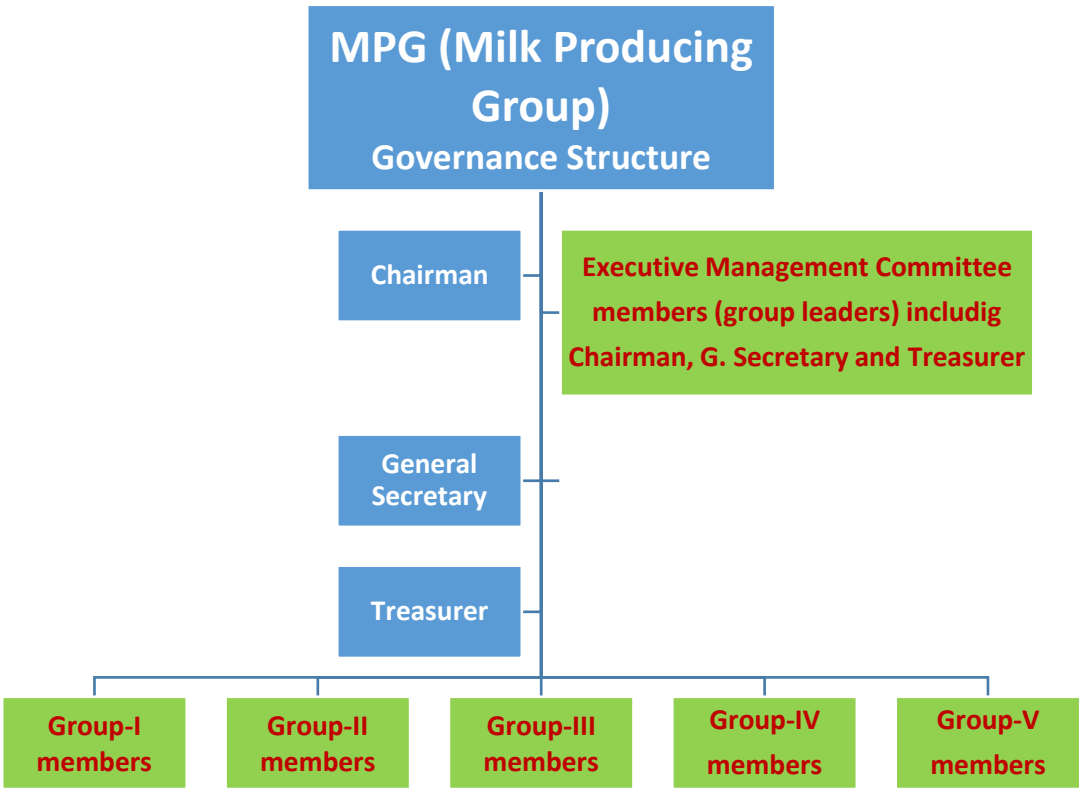
Fig – Social Mobilization Stages

The following organizational structures are suggested to organize communities at village and district level. The following figures suggest the SAGP needs to establish farmer groups at village levels (a cluster of villages in a Union Council), and then all these groups need to be organized at district level with pre-defined roles and responsibilities.

Fig – Proposed Organizational Structure of Agriculture /Livestock Community Organization



As described above, similar structure of groups should be organized for dairy farmers. Department of Livestock can form milk producing groups of men and women. Where possible, a combined group of men and women should also be formed to ensure equal participation and representation of both the genders. When such groups are formed at village level (or a cluster of villages), they should be organized at district level with democratically elected members of both the genders.



14. Output and Outcome Indicators

Though the project covers lots of areas, this section mainly focuses on indicators for social mobilization, capacity building, and communication.

14.1 Social Mobilization

The Operational Manual for SAGP provides only a couple of indicators for social mobilization: Number of Farmer Associations formed, and Number of Milk Producing Groups formed (for complete details of output indicators of the entire project, see Annex II). However, formation of such associations/group does not ensure benefit to the producers. As large farmers have political linkages and wield social and political power, they get control of irrigation water, have access to credit and extension services, and purchase modern technology. It is, therefore, necessary to ensure inclusion of small and medium farmers in such associations/groups. It would be better if SAGP forms separate associations/groups of small and medium farmers. Moreover, such mobilization activities need to produce results that show how small and medium farmers get benefit from these. The main problems small and medium farmers face are, as stated in previous section, are bondage with input dealers, lack of access to credit, lack of access to irrigation water and extension services. Mobilization of farmers needs to address such issues and help farmers solve them. Hence these indicators should be added in the list, as given below:

Table 49: Mobilization

Output	Indicator	Means of Verification
Mobilization	Number of Small Farmer Associations formed	Monthly, quarterly and yearly progress reports, Midterm and endline survey reports
	Number of Medium Farmer Associations formed	
	Number of Large Farmer Associations formed	
	Number of farmers accessing institutional credit	
	Number of farmers getting timely and required amount of irrigation water	
	Number of farmers purchasing inputs from dealers of their own choice	
	Number of farmers selling produce to dealers of their own choice	

Local and migratory workers also need to be mobilized into such associations/groups so that they also get empowered to demand safe farmlands for work, and increase in their wages because of improved skills that result in reduction in post-harvest losses. Though it would be easier for such associations/groups for local workers, SAGP needs to establish linkages between local and migratory workers so that they keep sharing farming experiences with each other.

14.2 Capacity Building

For capacity building of farmers, the Operational Manual provides output indicators of number of trainings delivered, number of persons trained, number of exposure visits/study tours

arranged, IEC material developed and distributed etc. These are in fact input, not output, indicators and do not necessarily show that such activities will produce the desired outcomes/results. SAGP needs to revise output indicators for capacity building, and also ensure participation of local and migratory workers of both the genders. If trainings or capacity building activities do not reduce post-harvest losses, do not bring premium value to commodities, and do not increase income of workers, then such activities are of no use to farmers and workers, and would be merely be waste of money and time. The suggested indicators are:

Table 50: Capacity Building

Output	Indicator	Means of Verification
Capacity Building	Number of farmers, small/medium/large, using modern farming practices	Midterm and endline surveys, quarterly reports
	Number of local and migratory workers (male and female) using modern farming practices	Annual reports
	Number of farmers, small/medium/large, having reduced post-harvest losses	Annual and Endline reports
	Number of farmers, small/medium/large, getting premium prices	Annual and Endline reports
	Number of local and migratory workers (male and female) receiving increment in wages	Annual and Endline reports

14.3 Communication

As in above paragraph, output indicators for communication given in SAGP Operational Manual are: Text messages sent, FM Radio messages transmitted, TV shows held, information disseminated through newspapers. Again, these are input indicators, and do not show they will reach to the target audience and what their coverage would be. The findings of the present study suggest that only 13% of the farmers have access to radio, and less than half of livestock owners have access to television. Hence such mediums would not be much effective in disseminating information. Mobile use is more widespread than TV and Radio. However, it is difficult to assess impact of information dissemination through mobile phones, TV, or radio. It is still more difficult to assess change in behavior/practice influenced by information disseminated through such technology. Moreover, very few women have access to TV and Mobile phones, and almost all of the local and migratory workers, men and women, are illiterate who cannot read and write text messages. Therefore, SAGP needs to revise output indicators for communication as suggested in the following table:

Table 51: Communication

Output	Indicator	Means of Verification
Communication to the beneficiaries	Number of farmers who received message about weather and acted accordingly Number of farmers who received information about new technology and adopted it. Numbers of farmers who received information about sowing time and acted accordingly Number of workers (local and migratory) who received information about bio-hazards and adopted safety measures	Midterm and endline surveys, quarterly reports

15. Conclusion

Findings of Social Assessment suggest that agriculture farmers are not able to cultivate all of their lands due to various problems, and this results in low land utilization and low crop production. Crop yield per acre is lower in the lands which lie at the tail end of the distributary or watercourse, or which do not get irrigation water in time. Prices of crops also vary with respect to variety of crops, access to market, and fluctuations in demand and supply.

Due to complicated procedures involved in accessing loans from banks, majority of the farmers are pushed in to permanent contractual bondage with input dealers who sell inputs at higher prices and purchase produce at lower prices.

Average milk yield is lower in Tharparkar district because it is drought prone area, and animals produce less milk because of unavailability of regular supply of water and fodder. Majority of the dairy farmers are forced to sell milk at lower prices because they do not have technology to preserve milk for longer hours.

Majority of the farmers practice traditional farming methods, but they are willing to have their capacity enhanced through trainings. They are also willing to purchase technology packages to reduce post-harvest losses and improve quality of produce.

Implementation of Sindh Agricultural Growth Project involves several high and medium risks, which, if not addressed well, will result in failure of the project. There are also some stakeholders, which will be badly affected by implementation of the project, and they are likely to oppose activities by SAGP staff.

16. Recommendations

Capacity building of farmers and workers will certainly improve their knowledge and skills, but they also need to be supported in making full utilization of their lands. They should also be provided support from land preparation to harvesting and post-harvest management of crops. SAGP needs to carefully design trainings for capacity and wisely select participants for these trainings. In some cases, landowners themselves work in lands, whereas in other cases, they engage workers for land cultivation. And at various stages, women are also involved in agriculture. SAGP should wisely decide which type of training has to be given to what type of participants.

Trainings of migratory workers also need to be carefully designed so that they can easily participate. Since they keep migrating from one area to another, it would better if proper calendar of their movement is development and their trainings are arranged in the district where they are likely to move next.

SAGP has also to be careful in selection of MPGs and in providing chillers because many livestock owners in Tharparkar district migrate to barrage areas during drought periods, and milk production gets very low.

SAGP should help farmers to get easy access to institutional loans so that they get rid of contractual bondage with middlemen or input dealers. This will not only empower farmers, but will also increase their income.

Communication strategy has to be effectively adopted and implemented so that farmers remain updated about climate, crop prices, trends in demand and supply, modern practices and modern technology. Though large farmers have access to cell phones and television, small agricultural farmers and most of dairy farmers do not have access these technologies. SAGP should disseminate technical or other relevant information to them through informal gatherings, community meetings or pamphlets.

SAGP needs to establish a centralized community feedback mechanism to redress community grievances, and gain their trust as well as confidence. And there should be proper monitoring and evaluation mechanism to assess complaints and their redressal, and then inform higher management to make changes, if required, in the implementation plan.

Since technology has to be transferred on cost-sharing basis, producers need to be informed clearly about cost sharing proportion. Such terms and conditions should be publicly announced/advertised in order to avoid fraudulent activities.

ANNEXES

Annex –1 Summary of Socio-economic Indicators

Table 52: Summary of Socio Economic Indicators

Respondents	n(%)	
Male	853 (95%)	
Female	47 (5%)	
Grand Total	900 (100%)	
Language		
Sindhi	58%	
Siraiki	25%	
Marwari	11%	
Other	6%	
Religion		
Muslim	96%	
Hindu	4%	
Type of House		
Kacha	36%	
Semi-pakka	18%	
Pakka	47%	
Land Ownership Patterns		
Owner	96%	
Owner + land Leasee	4%	
Land Holding	Acres	
Average land possessed	20.3	
Average Land Cultivated	16.14	
Share-cropping pattern		
Farmers -Owner Operator	55%	
Farmers hiring sharecroppers	45%	
50 - 50 %	(39%)	
75% Land Owner 25% Farmer	(6%)	
Average yield per acre and average price per 40 KG		
Chilies	Yield/Acre	17
	Price/40 kg	5780
Dates	Yield/Acre	77
	Price/40 kg	2311

Onion	Yield/Acre	132
	Price/40 kg	513
Rice	Yield/Acre	66
	Price/40 kg	850
Crop Selling patterns		
Sell Standing Crop	17%	
Sell in Local Market	40%	
Sell in Main Market	40%	
Any Other Market	10%	
Access to Agriculture Extension Services		
Agriculture Extension Services	24%	
Agriculture Inputs	97%	
Agriculture Credit	64%	
Training needs of Agriculture Farmers		
Farmers requiring trainings	99%	
Types of trainings required		
Good agricultural practices	94%	
Crop production	96%	
Crop rotations Inter-cropping options	91%	
Harvest & Post-harvest Management	92%	
Nursery production	84%	
Training in the use of equipment newly introduced	79%	
Business groups and Association Management	74%	
Enterprise Management	78%	
Exposure visits (as needed)	91%	
Average Milk Yield	KGs	
Cow	4.6	
Buffalo	6.5	
Goat	0.8	
Sheep	0.6	
Camel	4	
Milk Selling Pattern		
Middlemen	42%	
wholesaler/retailer	52%	
Household client	49%	

Milk consumed VS sold		
	Milk consumed at home	Milk sold out
Cow	3.6	9.2
Buffalo	4.2	9.8
Goat	2.0	4.1
Sheep	1.7	4.0
Camel	4.0	12.0
Animals vaccination Coverage	85%	
Training Needs of Dairy Farmers		
Animal Health Management	68%	
Nutrition Management	67%	
feed Formulation	65%	
Advisory Services	44%	
% willing to have animals tagged	70%	
Access to Veterinary Extension Services		
Vaccination	84%	
Treatment	92%	
Artificial Insemination	9%	

Table 53: Mobile Users of Specified Networks

Mobile Users	Mobile Users of Specified Networks				
	Mobilink	Telenor	Ufone	Zong	Warid
80%	44%	44%	7%	4%	1%
Mobile users who can read text messages					93%
Mobile users who can write text messages					85%
		Sindhi	Urdu	English	Roman Sindhi/Urdu
Mobile users who can read text messages in specified languages		58%	45%	37%	42%
Mobile users who can write text messages in specified languages		42%	41%	34%	41%

Table 54: Persons who watch television

Persons who watch television				75%
Persons who listen to FN Radio				13%
Persons watching TV at specified times	Morning	Afternoon	Evening	Night
	14%	6%	23%	76%
Persons watching TV for specified hours	One Hour	Two Hours	Three Hours	Four Hours
	41%	42%	14%	3%

Annex –2 Provisional List of Key SAGP Stakeholders

Key Stakeholder	Horticulture/Agriculture	Dairy	SAGP intervention
Producers	• Small farmers (hold 1-5 ha) • Medium farmers (hold 6-25 ha) • Women • Tenants • Landless • Large farmers (hold 26 ha or more) • Farm supervisors	• Small holders (3-5 cattle/buffalos) • Medium holders (6-15 cattle/buffalos) • Women • Commercial farmers	• Small and medium farmers will be mobilized into farmer groups (FGs) or milk producing groups (MPGs) • SAGP also provides extension services, including animal health, AI services, and disease screening.
Existing farmer organizations (FOs)	• FOs supported by Chamber of Agriculture or Abadgar Board • Water User Associations(WUAs) formed by Dept of Agr(tertiary canals) • FOs formed by	Existing dairy groups (women's groups formed by provincial government project, etc.)	FOs and other groups will be the entry point in identifying producers and FG/MPG formation
Potential service provider (mobilization)	Civil Society Organizations (CSOs)Non-governmental Organizations(NGOs)	CSOs, NGOs	CSOs and NGOs maybe contracted tomobilize farmers andsupportdevelopingtechnologytransferplans
Private sector (financial linkages)	Micro-finance institutions (MFIs); commercial banks	In-kind farmer contribution(no financing foreseen)	MFIs and commercialbanks may provideloans to farmers toprovide 30 percentfarmer contribution
Private sector (market linkages)	Input suppliers Middlemen, traders, whole sellers	Milk plants (Angro, etc.) Local milk men	SAGP plays key rolefor the interaction between MPGs and private sector
Program, donors		Provincial government projectAngro Provincial Youth Dev Project(P&D) – livestock	

Annex –3 Suggested MIS Indicators

Output	Indicator	Baseline Figure	Target	Means of Verification
Establishment of Project Implementing Units	Number of project implementing units established			• PIU at designated district available • PIU Employees available and functional
	Number of PIU employees deployed			
	Number of PIU vehicles, equipment and furniture procured			
Project Baseline	Number of project baseline for agriculture component completed			• Baseline study for the agriculture component • Baseline study for the livestock component
	Number of project baseline for livestock component completed			
Crop Yield per Acre	Average crop yield per acre per district			• Midterm Evaluation • Final Evaluation
	Percentage increase (per hectare, per tree) of particular crop			•
Milk Yield	Average Milk Yield per Animal Per district			• Midterm Evaluation • Final Evaluation
	Percentage increase (per hectare, per tree) of particular crop			•
High Grade and Sale of Commodities	Percentage of high grade produce of selected commodities by targeted beneficiaries			• Market Reports • Midterm Evaluation • Final Evaluation
	Percent increase in aggregate sale of target commodities for targeted beneficiaries			
Net income	Average Net Income of Farmers per district			• Midterm Evaluation • Final Evaluation
Aggregate Commodity Sales	Percent increase in aggregate sales of selected commodities for targeted beneficiaries			• Market Reports • Midterm Evaluation • Final Evaluation
Use of technology	Number of farmers willing to purchase technology Packages			• List of farmers applied for purchase of technology • List of farmers having purchased technology
	Number of farmers using technology Packages			

Output	Indicator	Baseline Figure	Target	Means of Verification
	Number of technologies packages adopted			packages • Midterm Evaluation • Final Evaluation
	Number of farmers benefited from technology			
	Number of farmers promoted by the project who have adopted an improved agricultural technology			
Mobilization	Number of Farmer Associations formed			• Monthly, quarterly and yearly progress reports
	Number of Milk Producing Groups formed			
Functioning of Farmer Associations and Milk Producing Groups	Number of farmer associations maintaining proper record			• Meeting minutes • Record available
	Number of milk producing groups maintaining proper record			
	Number of farmer associations convening regular meetings			
	Number of milk producing groups convening regular meetings			
Capacity Building	Number of trainings delivered			• Training/Event Reports • Attendance of Participants • Pictures • Stakeholder Satisfaction Reports
	Number of farmers/tenants trained			
	• Number of Men trained			
	• Number of Women trained			
	Exposure Visits arranged			
	Number of farmer study tours arranged			
	Number of sponsor stakeholder forums organized dialogue among value chain actors			
	Number of training material produced			
	Number of training material distributed among trainees			
	Percent increase satisfaction of trainees from various capacity building programs			
Modernization of programs and facilities	Number of agriculture research centers rehabilitated			• Activity reports • Pictures
	Number of artificial training centers rehabilitated			
	Number of semen product units rehabilitated			

Output	Indicator	Baseline Figure	Target	Means of Verification
Livestock Management	Number of Animals Vaccinated			• Animals record • Monthly, quarterly and yearly progress reports
	Number of Animals treated			
	Number of animals castrated			
	Number of animals artificially inseminated			
On-farm Pre-and Post losses and wastage of selected commodities	Percent of farmers achieving reduction of on-farm pre and post-harvest losses and wastage for selected commodities			• Midterm Evaluation • Final Evaluation
IEC Material Produced and Distributed	Number of IEC material produced			• List of IEC material • List of beneficiaries
	Number of beneficiaries received IEC material			
Communication to the beneficiaries	Number of SMS sent to beneficiaries			• Record of text messages sent • Event reports/ pictures • Programs broadcast on air • Cuttings of newspapers
	Number of FM radio messages transmitted			
	Number of TV programs organized			
	Number of times information disseminated through newspapers			
Agriculture Awareness	Advisory/Counseling Sessions held on use of			• Monthly progress reports • Quarterly progress reports • Yearly progress reports
	• Land Preparation			
	• Irrigation			
	• Use of Pesticides, Seeds and Fertilizers			
	• Harvesting			
	• Post-Harvest Management			
	• Marketing			
Competitive research	Number of competitive research projects awarded			• Research proposals/reports
	Number of competitive research projects successfully completed			
Project Management Information Systems (PMIS)	• Number of farmers/registration of farmers			• List of farmers • Lists of farmers receiving equipments and trainings
	• Number of farmers receiving equipments • Number of farmers receiving trainings			

Output	Indicator	Baseline Figure	Target	Means of Verification
Market Access to the Farmer	Number of local markets catering to the needs of the farmer for the particular crop			• Reports of the markets availability in the local, regional, provincial and world
	Number of main markets catering to the needs of the farmer for the particular crop			
	Number of international markets catering to the needs of the farmer for the particular crop			
Project Complaint Management	Number of complaint received from the beneficiaries (gender disaggregation)			• Reports of receiving and responded complaints by gender disaggregation •
	Number of complaint forwarded to the concerned officials			
	Number of complaint resolved			
	Number of complaint responded to the complainant			
Project Studies and Documentation	Number of Sindh Agriculture Development Strategy developed and approved			• Sindh Agriculture Development Strategy study • Feasibility studies • Impact studies • Monthly progress reports • Quarterly progress reports • Yearly progress reports • Midterm evaluation report
	Number of feasibility studies for future investment plans prepared and approved			
	Number of impact studies carried out			
	Number of Monthly progress report produced			
	Number of Quarterly progress report produced			
	Number of Yearly progress report			
	Mid-term evaluation of the project			
Visits of WB Mission and Visitors	Number of WB mission visits to the project			• Event reports/minutes of meetings • Pictures
	Number of visitors made visits to the project area			
Committee Meetings	Number of steering committee meetings convened			• List of participants • Minutes of the meeting • Pictures
	Number of project committees meetings convened			

Annex –4 Field Tools

Social Assessment
Sindh Agriculture Growth Project

HOUSEHOLD SURVEY - AGRICULTURE

GUIDELINES FOR THE INTERVIEWER

The interviewer must select the land owner (small, medium or large), who is operating his/her own land for this interview. The respondent selected for this interview should be resident of the same village. .

The interviewer must follow the sequence of questions as these are listed in this questionnaire and there are also some skip conditions as indicated at relevant places in the questionnaire.

1. An Arrow ➢ has been used in the questionnaire to indicate the skip condition defined to go to next question. For every question, responses are given are given with codes.
2. The interviewer should only circle the number of the reply. The only exception is when there is option of "Other" to specify another answer – you may write (specify) in the blank space but still you will circle the code number of this answer – "Other (Specify)".
3. Some questions carry multiple option answers, where you can circle more than one answers.
4. If a respondent refuses to answer, the interviewer should remind to respondent about the importance and confidentiality of the survey.
5. It is very important that answers are collected for each question. At all times, the interviewer must remain professional and express no reaction to the answers that are being given by the respondent. In case, if the interviewer feels that some answers seems to unrealistic, then interviewer can probe further indirectly to re-confirm about the answers. The respondent must comfortable to tell the truth. Don't give leading answer impression to the respondent so that the respondent may give answers according to the choice of interviewer. The validity of the survey results will be harmed if respondents try to provide the answers that they think the interviewer would approve of.

INTRODUCE YOURSELF BEFORE STARTING THE INTERVIEW

I am _____ and I am here to collect data for Sindh Agriculture Growth Project (SAGP). The project aims to improve the productivity and competitiveness of small and medium producers in selected commodity value chains. I'll ask you some questions about your household and agriculture engagement. Your information will help the government implement SAGP effectively in target districts.

The discussion will take in between 30 and 40 minutes depending on your interest and participation. Any information that you provide will be kept strictly confidential and will not be shown to other people. The information that you provide during the discussion will be presented together with answers from other participants so that you cannot be identified. The discussion is voluntary and you are free to choose not to answer any or all of the questions, or to leave the discussion at any time.

Social Assessment
Sindh Agriculture Growth Project

HOUSEHOLD SURVEY - DAIRY

GUIDELINES FOR THE INTERVIEWER

The interviewer must select land owner (small, medium or large) as per criteria for the day of visit and field plan. The respondent selected for this interview should be resident of the same village. .

The interviewer must follow the sequence of questions as these are listed in this questionnaire and there are also some skip conditions as indicated at relevant places in the questionnaire.

1. An Arrow ➢ has been used in the questionnaire to indicate the skip condition defined to go to next question. For every question, responses are given are given with codes.
2. The interviewer should only circle the number of the reply. The only exception is when there is option of "Other" to specify another answer – you may write (specify) in the blank space but still you will circle the code number of this answer – "Other (Specify)".
3. Some questions carry multiple option answers, where you can circle more than one answers.
4. If a respondent refuses to answer, the interviewer should remind to respondent about the importance and confidentiality of the survey.
5. It is very important that answers are collected for each question. At all times, the interviewer must remain professional and express no reaction to the answers that are being given by the respondent. In case, if the interviewer feels that some answers seems to unrealistic, then interviewer can probe further indirectly to re-confirm about the answers. The respondent must comfortable to tell the truth. Don't give leading answer impression to the respondent so that the respondent may give answers according to the choice of interviewer. The validity of the survey results will be harmed if respondents try to provide the answers that they think the interviewer would approve of.

INTRODUCE YOURSELF BEFORE STARTING THE INTERVIEW

I am _____ and I am here to collect data for Sindh Agriculture Growth Project (SAGP). The project aims to improve the productivity and competitiveness of small and medium producers in selected commodity value chains. I'll ask you some questions about your household and dairy engagement. Your information will help the government implement SAGP effectively in target districts.

The discussion will take in between 30 and 40 minutes depending on your interest and participation. Any information that you provide will be kept strictly confidential and will not be shown to other people. The information that you provide during the discussion will be presented together with answers from other participants so that you cannot be identified. The discussion is voluntary and you are free to choose not to answer any or all of the questions, or to leave the discussion at any time.

Social Assessment
Sindh Agriculture Growth Project

FOCUS GROUP DISCUSSION CHECKLIST

(AGRICULTURE) – LAND OWNERS/LANDLESS, MIRGRATORY WORKERS/WOMEN

Introduction to the Interviewee:

INTRODUCE YOURSELF BEFORE STARTING THE INTERVIEW

I am _____ and I am here to collect data for Sindh Agriculture Growth Project (SAGP). The project aims to improve the productivity and competitiveness of small and medium producers in selected commodity value chains. I'll ask you some questions about your household and dairy engagement. Your information will help the government implement SAGP effectively in target districts.

The discussion will take around one and half hour or so depending on your interest and participation. Any information that you provide will be kept strictly confidential and will not be shown to other people. The information that you provide during the discussion will be presented together with answers from other participants so that you cannot be identified. The discussion is voluntary and you are free to choose not to answer any or all of the questions, or to leave the discussion at any time.

Purpose:

Before we get started, we would like to give you a little background about focus group discussions and why we are doing this focus group discussion with you. Focus groups are intended to give us a sense of how a group of people feels about a certain issue. We often want confirmation that others feel this way, so we might follow up a question with something like "Do others feel this way" or "Is this important for other people to know about?" We want to hear from everyone, and so at times we may interact to help the conversation keep moving. We will be taking your comments and summarizing them to share with the project implementers. You and your individual opinions won't be identified in any way.

Village: _____ Tehsil: _____ District: _____

Category of FGD:_____ Date:_____

Participants List:

S. No	Name	Gender	Age	Occupation	Contact
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Social Assessment
Sindh Agriculture Growth Project

FOCUS GROUP DISCUSSION CHECKLIST
(DAIRY) – OWNERS/LABOUR, MIRGRATORY WORKERS/WOMEN

Introduction to the Interviewee:
INTRODUCE YOURSELF BEFORE STARTING THE INTERVIEW

I am _____ and I am here to collect data for Sindh Agriculture Growth Project (SAGP). The project aims to improve the productivity and competitiveness of small and medium producers in selected commodity value chains. I'll ask you some questions about your household and dairy engagement. Your information will help the government implement SAGP effectively in target districts.

The discussion will take around one and half hour or so depending on your interest and participation. Any information that you provide will be kept strictly confidential and will not be shown to other people. The information that you provide during the discussion will be presented together with answers from other participants so that you cannot be identified. The discussion is voluntary and you are free to choose not to answer any or all of the questions, or to leave the discussion at any time.

Purpose:
Before we get started, we would like to give you a little background about focus group discussions and why we are doing this focus group discussion with you. Focus groups are intended to give us a sense of how a group of people feels about a certain issue. We often want confirmation that others feel this way, so we might follow up a question with something like "Do others feel this way" or "Is this important for other people to know about?" We want to hear from everyone, and so at times we may interact to help the conversation keep moving. We will be taking your comments and summarizing them to share with the project implementers. You and your individual opinions won't be identified in any way.

Village: _____ Tehsil: _____ District: _____

Category of FGD:_____ Date:_____

Participants List:

S. No	Name	Gender	Age	Occupation	Contact
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

KEY INFORMANT CHECKLIST
LIVESTOCK

Name	•
Designation	•
Date of interview	•
Department	•
Contact	• Cell Email

1. What is the proportion of dairy farmers and non-dairy farmers?
    a. What are the patterns of livestock ownership?
    b. What is the proportion of men and women dairy farmers?

2. What are general dairy farm management practices?

3. Source of technological information
    - Main sources of technical information
    - Assessment of different sources (regularity of interaction, type of information provided, and reliability of the information provided)
    - Knowledge gaps in dairy management
    - Sources commonly adopted by the dairy farmers
    - What sources should be adopted to equip dairy farmers with latest technology

4. Marketing of the dairy products
    - Marketing channel/key players involved in marketing
    - Role of middleman
    - Marketing constraints
    - Suggestions/recommendations for improvement

5. Credit
    - Credit for small, medium and large dairy famers
    - Advantages and disadvantages of different sources of credit
    - Gender differences in access to credit
    - Issues of small, medium and large dairy farmers in getting credit
    - Recommendations

6. Training needs
    - What are training needs of dairy farmers

KEY INFORMANT CHECKLIST

FOR PARLIAMENTARIANS, CIVIL SOCIETY ACTIVIST, NGOs, REPRESENTATIVE AND FARMERS ENTERPRISE GROUPS ETC

Policy Implications for Post-Harvest Practice

Administrative & Background Information

1. Date of interview.
2. Name of informant.
3. Organization/institution.
4. Designation within organization/institution.
5. Organizational/institutional mandate, mission and goals.

Agricultural and Post-Harvest Policies/Strategies

1. What agricultural policies exist at national and provincial level?
2. In your opinion, what strategies should be adopted to formulate agricultural policies at national and provincial level?
3. Please give your recommendations for agriculture policy to support small, medium and large farmers
4. Do you know the current situation of post-harvest management practices at national/provincial level

Recommendations for inclusion of effective post-harvest management practices in the policy formulation. What strategy should be adopted to improve post-harvest management practices at provincial level?

6. Please suggest which component of agriculture should be prioritized when the policy is formulated
7. In your opinion, what socio-cultural issues can emerge with adoption/introduction of new technology and how to mitigate them? What are social risks such as unemployment or exclusion of poor daily wage workers in case of introduction of new technology and how to mitigate it.
8. In your opinion, are all the stakeholders involved in policy formulation? If no, how to ensure their participation

KEY INFORMANT CHECKLIST

FOR PARLIAMENTARIANS, CIVIL SOCIETY ACTIVIST, NGOs, REPRESENTATIVE AND FARMERS ENTERPRISE GROUPS ETC

Policy Implications for livestock management

Administrative & Background Information

1. Date of interview.
2. Name of informant.
3. Organization/institution.
4. Designation within organization/institution.
5. Organizational/institutional mandate, mission and goals.

Livestock Policies/Strategies

1. What livestock policies exist at national and provincial level?
2. In your opinion, what strategies should be adopted to formulate livestock policies at national and provincial level?
3. Please give your recommendations for agriculture policy to support small, medium and large dairy farmers
4. Do you know the current situation of dairy farm management practices at national/provincial level
5. Recommendations for inclusion of effective dairy farming practices for policy formulation
6. What strategy should be adopted to improve dairy farm management practices at provincial level?
7. Please suggest which component of dairy farming should be prioritized when the policy is formulated
8. In your opinion, what socio-cultural issues can emerge with adoption/introduction of new technology and how to mitigate them? What are social risks such as unemployment or exclusion of poor daily wage workers in case of introduction of new technology and how to mitigate it?
9. In your opinion, are all the stakeholders involved in policy formulation? If no, how to ensure their participation

Chilli/onion/rice/dates

KEY INFORMANT CHECKLIST

Name	•
Designation	•
Date of interview	•
Department	•
Contact	• Cell Email
Crop (tick appropriate crop)	• Chili • Rice • Onion • Dates

1. What are Land ownership and tenure patterns in your village in term of owner-cultivator, sharecropping, and tenancy?
    a. What is ratio of landless farmer to the land owners
    b. What is cost/profit sharing ratio on leased land

2. Do landless farmers have any influence in decision making on agricultural investments

Do female family members have any influence in decision making on agricultural investments

3. Are there migratory and local landless households in this area?
    a. What is ratio of landless households
    b. What is ratio of migratory labor
    c. Proportion of landless households (local and migratory) participating in target value chains and their labor opportunities on small and medium farms
    d. What is their role in farming activity of onion/ chillies/ rice/ dates
    e. What are labour work opportunities for those households in your village?
    f. Will they be affected by the launching of SAGP (both positive & negative)

4. Post-harvest management practices
    - Post-harvest practices at field level
    - Methods used in postharvest practices
    - Issues in postharvest practices
    - Technology required for the post-harvest practices
    - KIs satisfication with present post-harvest practices
    - How to reduce the post-harvest management losses?
    - Will farmers be willing to invest in any technology for effective post-harvest management?