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Participatory Rapid Horticulture Appraisal Report



Sukkur Project Region
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The Agribusiness Project



Abbreviations

ASF	Agribusiness Support Fund
ACV	Actual Cash Value
FGD	Focused Group Discussion
M&E/C	Monitoring and Evaluation, Communication
MFIs	Micro financing institutions
NPC	Nominal Protection Coefficient
PRHA/LA	Participatory Rapid Horticulture Appraisal/Livestock Appraisal
SPR	Sukkur Project Region
USAID	United States Agency for International Development

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Executive Summary

The Agribusiness Project is an initiative funded by United States Agency for International Development (USAID) and is being implemented by Agribusiness Support Fund (ASF) in collaboration with international and national organizations. During the first year of this five-year (2011-16) project, a preparatory program was undertaken to gauge the potential of the sub-sector and to prioritize value chains in the context of various project regions including the Project Region of Sukkur. Findings from Participatory Rapid Horticulture Appraisal (PRHA) will enable the project to identify and prioritize; horticulture value chains, opportunities, constraints; and state of the business development services to provide required basis for focusing project interventions. The Sukkur Project Region comprises of 13 districts.

Within the framework of the cluster and value chain approach, a two-prong approach was adopted, first preparation for PRHA exercise in the field and second to collect secondary data and develop appropriate tools for quantification of factors so that it can be measured on a scale for ranking/prioritization. This report pertains to work completed based on both secondary data and primary appraisals of horticulture sub-sector.

The PRHA methodology provides for probing, analysis, and validation of information as they unfold during the field work. Seven factors were applied in the prioritization of value chain. These include; (i) extent of employment generation; (ii) commercial worth; (iii) percentage of small farmers associated, (iv) women involvement; (v) households associated with the value chains; (vi) understanding growth potential; and, (vii) vulnerability of the concerned value chains. Covering 50% of the districts, the exercise was undertaken in the randomly selected settlement/villages within each cluster/district. Each focus group consisted of 10-15 stakeholders, a representative sample of sub-sector. In each district, 2-3 FGDs were carried out. The analysis of secondary data is based on the district-wise data on area and production for last ten years which was collected and tabulated as time series data.

Based on the analysis of both secondary and primary information, it can be concluded that guava, dates, onion, banana and tomato are the priority value chains in Sukkur Project Region. Guava is produced in large quantity in District Larkana and Noushero Feroze. About 20 percent increase in growth has been recorded in guava during the past five years. It is mostly grown by small farmers. Dates are grown in District Khairpur in great quantity, in fact some report it has the highest dates producing zone in South-east Asia. Dates stand first highest producing fruit in the region. Banana has the highest growth rate as compared to other fruits of the region.

A number of opportunities exist, in the region, which can catalyze the development of the sub-sector. Of them the most important are:

- Availability of cold storage and market infrastructure (storage and marketing),
- Increasing demand in national market and
- Technological innovation
- Solar drying technology
- Support from private sector and
- Financial support in the form of grants or interest free loans

These opportunities can be further reinforced through the project interventions leveraged by private-sector investments provided that a holistic and integrated approach is applied. The key constraints hampering the development of fruit sub-sector are:

¹Sukkur, Khairpur, Larkana, Kashmore, Shikarpur, Jacobabad, Ghotki, Shedadkot, Naushahro Firoz, Dadu, Jaffarabad, Naseerabad, Sibi

- Limited knowledge about latest techniques;
- Little knowledge about market intelligence
- Non-availability of certified seeds;
- Non-availability of soft loaning facility, particularly, for tenants.
- Poor packaging
- Improper food processing facilities
- Poor market linkages and
- Poor transportation system

Most constraints are cross-cutting and generic in nature which provides information on the overall sub-sector and some of the constraints can be considered as opportunities for investment by the project provided that willingness in the private sector for investment exists. These may include promotion of certification scheme for production of true to type fruit plants, ensure soft loans for tenants and establish strong market intelligence system for better returns.

In general all variety of vegetables are grown in almost all districts of Sukkur Project Region, however, District Ghotki has a huge vegetable market and supply vegetables to large markets of Sindh and Punjab. Vegetables are mostly grown for commercial purposes and some are also utilized domestically by producers. Major priority opportunities are represented by:

- Availability of cold storage infrastructure
- Increasing market demand
- Market intelligence system
- Potential for processing/preservation and export
- Introduction of tunnel technology

The major issues with vegetables are lack of market intelligence and poor transportation facilities. Vegetables have comparatively short shelf-life hence in mere 24 hours they lost their freshness. There are limited storage facilities available. Additionally, few processing facilities have multiplied the issue. There is a dire need to establish proper infrastructure, connect growers with high-end markets, and international chain of stores. Some other key constraints are:

- High price of agricultural inputs
- Limited awareness among farmers about latest techniques
- Poor packing facilities and skills
- No proper packing facilities and
- Poor quality seeds

The availability and quality of business development services is important for the overall development of any sub-sector. There is a need to build confidence and develop strong linkages of agribusiness with service providers. Currently, the corporate sector prevailing in the region mostly uses imported food for processing, rather than using the locally cultivated fruit. The reason being inconsistency in supply, poor quality fruit, and rapid fluctuations in market rates have compelled them to do so. The presence of the huge corporate sector in the region provides great potential to local farmers and entrepreneurs and thus needs to be explored. Marketing of fruits and vegetables is characterized by the presence of numerous intermediaries performing at various distribution stages, thus adding to marketing costs and directly affecting the price received by the farmer and paid by the consumer. These intermediaries dominate the system and there is little direct market participation of the farmers, particularly small farmers.

Introduction

The Agribusiness Project is an initiative funded through the financial assistance of the American People implemented by United States Agency for International Development (USAID) in collaboration with Agribusiness Support Fund (ASF). The overall goal of the Project is to support improved conditions for broad-based economic growth, create employment opportunities and contribute to poverty alleviation through increase in competitiveness of horticulture and livestock value chains in partnership with all stakeholders. Specific objectives of the project are to; (i) strengthen the capacity in horticulture and livestock value chains to increase sales to domestic and foreign markets; (ii) strengthen the capacity of smallholders and farmer enterprises to operate autonomously and effectively; and, (iii) increase agriculture efficiency and productivity through adoption of new farming techniques and technological innovation among targeted beneficiaries.

During the first year of this five-year project, a preparatory program has been launched to gauge the potential of the sub-sector and to prioritize value chains in the context of various project regions. The project planned and conducted Participatory Rapid Horticulture Appraisal/Livestock Appraisal (PRHA/LA) in all the project regions throughout Pakistan. Findings from PRHA/LA will enable the project to identify and prioritize; horticulture and livestock value chains, opportunities, constraint; and state of the business development services to provide required basis for focusing project interventions.

The report articulated would enable each region to draw specific targets and focused project interventions. This report covers the project region of Sukkur covering northern part of Sindh province. Within the framework of the cluster and value chain approach, a two-prong approach was adopted, first preparation for PRHA exercise in the field and second to collect secondary data and develop appropriate tools for quantification of factors so that it can be measured on a scale for ranking/prioritization. This report pertains to work completed based on both secondary data and primary appraisals.



The Region

The Upper Sindh has an agro-based economy. Accordingly, most of the agro-based industries were set up here including cotton ginning, vegetable ghee & cooking oil, flour, cotton thread, cement, fertilizer, agriculture implements, tractors repair workshop, confectionery and dates processing units etc. Sukkur is also a distribution centre, which fulfills the requirement of whole of the upper Sindh, part of Punjab and Baluchistan. Main products for distribution are: Cotton and silk cloth, hosiery, general merchandise, dates, dry fruits, fresh fruits, vegetables, medicines, paints and varnishes, crockery and cutlery, stainless steel crockery, sanitary ware and fittings, cements, fertilizer, wheat, flour, timber and other miscellaneous items.

Agriculture is the mainstay of the province of Sindh. With its varying climatic conditions and very scanty rainfall, but good soil, man has been practicing agriculture in Sindh since time immemorial, helped by the Indus, one of the longest rivers in the world.

Sukkur has one the largest dates and dry dates market of Asia. Dates and dry date are being exported to India, Australia and America amounting to rupees two billions annually. Due to its soil and seasons, Sukkur is an ideal place for date cultivation. Dates are grown in all the four provinces of Pakistan. The main growing areas are Khairpur, Sukkur, Makran, Panjgoor, DI Khan, Bahawalpur, Jhang and Multan. In spite of growing dates in large quantity, the processing industry is at

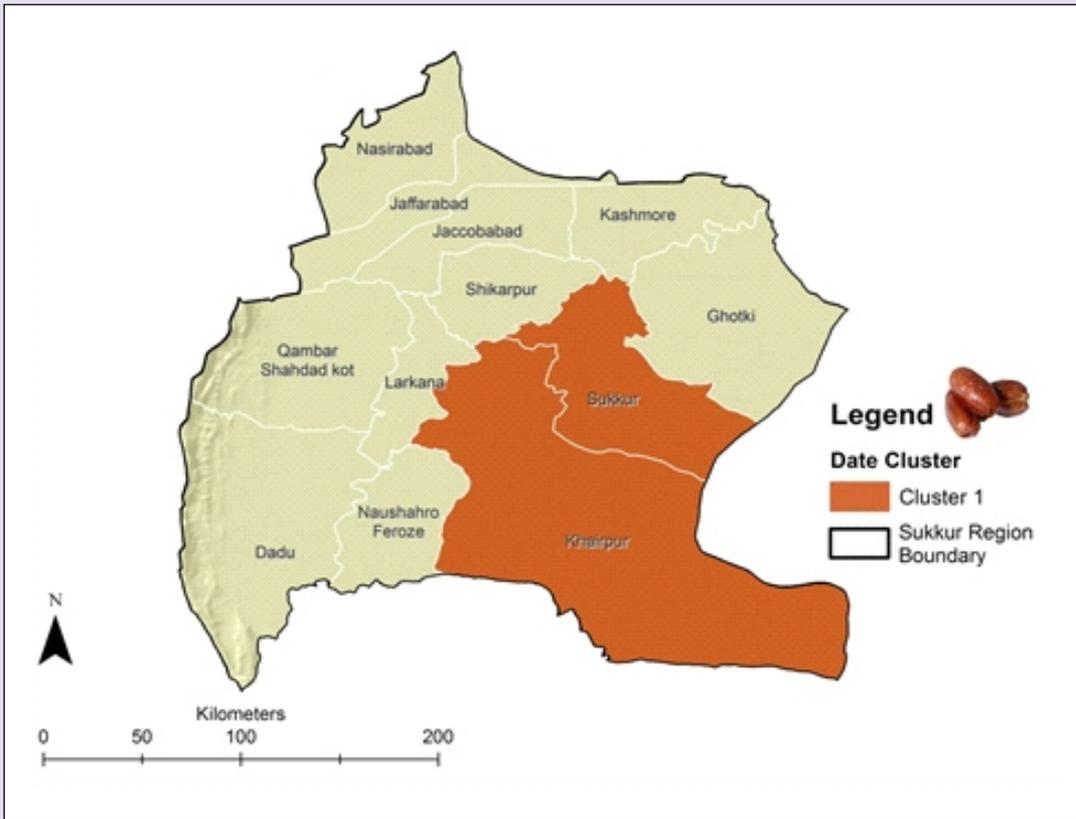
cottage level in Pakistan. Therefore, the industry is not capable to scientifically process its one-fourth production. To process dates, about 10 factories have been set up in date growing areas, but only one packing factory has taken ISO 9000 certificate.

Rich soil, abundant sunshine and four distinct seasons make Sukkur Project Region an ideal place for cultivating a variety of agriculture crops. The above factors help in creating a very special taste in our farm produce, particularly in fruits: Dates, Banana, Guava and mangoes. Sukkur and Khairpur (Mirs) is major date growing district in the country. Our commercially important date varieties include aseel, karbalai, fasli and kupro of Sindh; muzawati, begum jangi, jaan swore, kehraba and rabai of Balochistan; Dhakki and Gulistan of Khyber Pakhtoonkha and Punjab respectively.

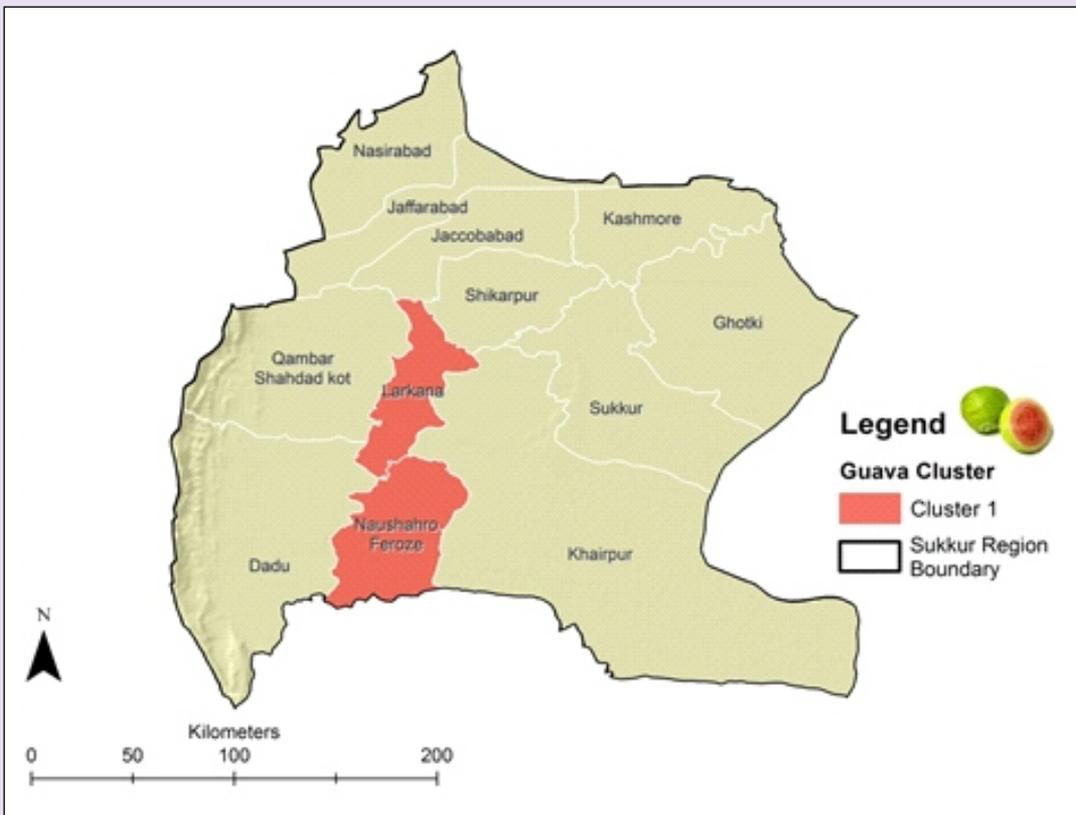
Therhi, in district Khairpur (Mirs) occupies a central place in date processing in Pakistan. Close to one dozen date factories are established in and around this township. Mostly, dates are processed manually. Only skilled male and female workers perform the processing job. Presently, Pakistan is the largest exporter of dates in the world, after India and UAE. Pakistan is not only exporting dates, but also importing dates regularly. In 2006-07 over 6.767 million kg dates worth ACV \$4.792 million have been exported to over 20 countries, while dry dates export was \$33.535 million. By improving the quality and packing and at competitive prices, export of dates can be increased manifold.



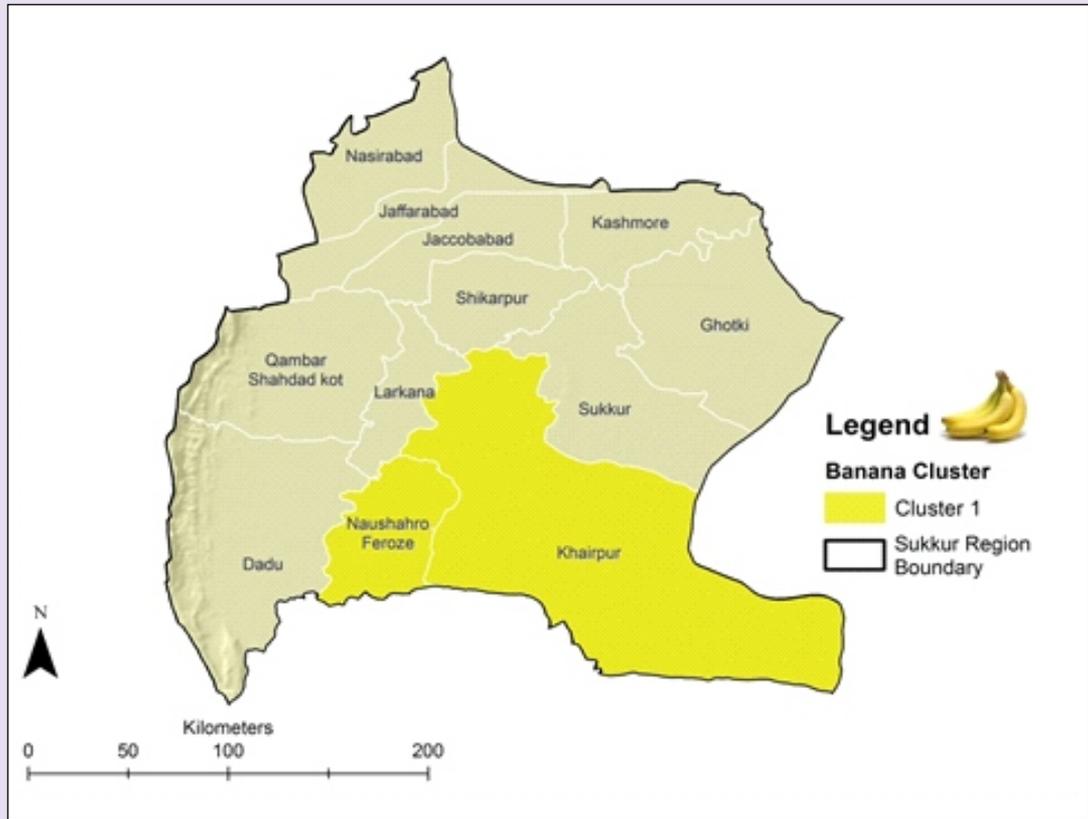
Date Clusters



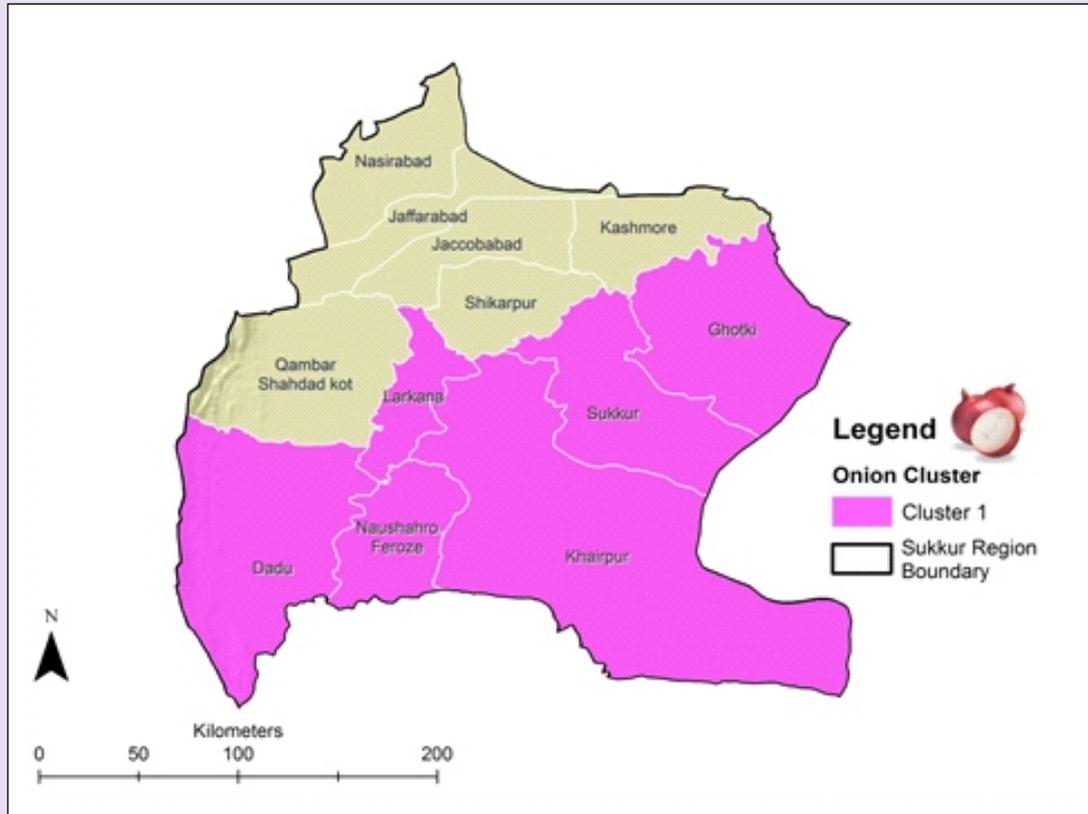
Guava Clusters



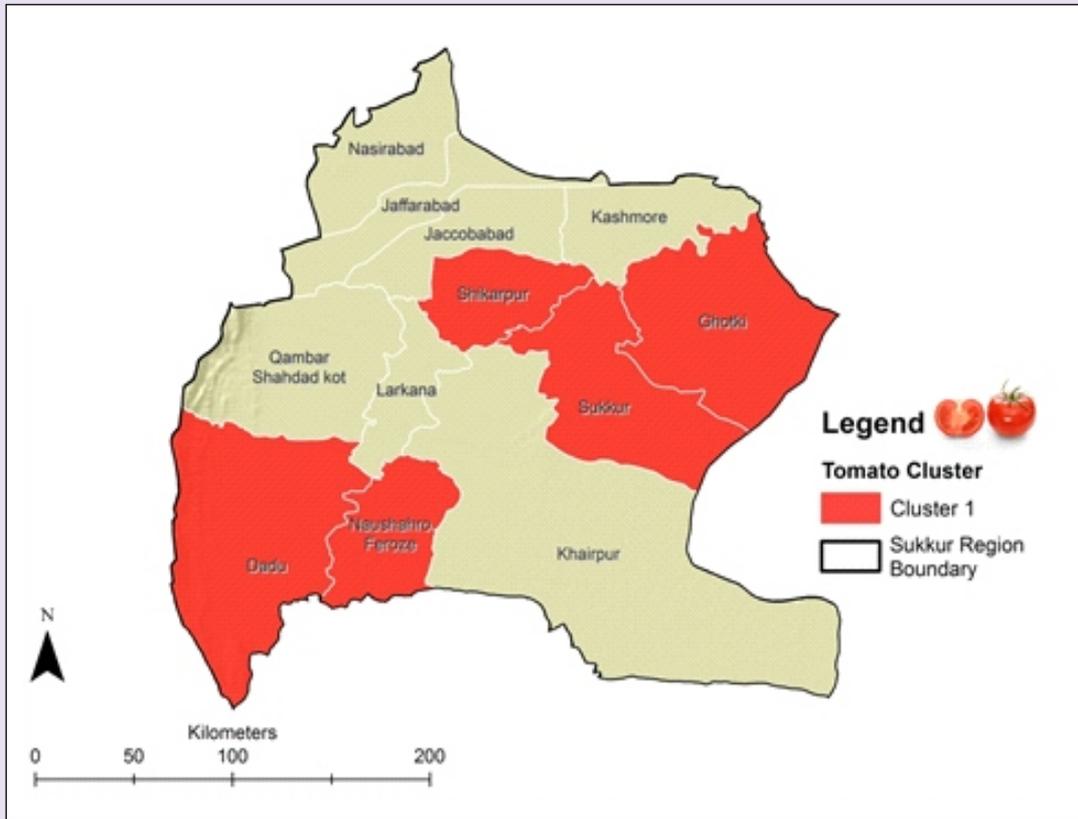
Banana Clusters



Onion Clusters



Tomato Clusters



Methodology and Approach

The Participatory Rapid Horticultural Appraisal (PRHA) is one of the effective methodologies for exploring and gathering topical and focused information about a sub-sector system. Its advantages are to gather and analyze market information in a relatively short period of time employing less resource. The methodology provides for probing, analysis, and validation of information as they unfold during the field work.



The PRHA exercise allowed for a quick assessment of the sub-sector, including prioritization of value chains, identifying and prioritizing opportunities and relevant constraints impeding the realization of the opportunities as well as an assessment of the current state of the services provided by various facilitators to agribusinesses in the region. Further, linkages of the

sub-sectors with local and national markets were also explored. The appraisal was conducted with a view to prepare the stage for focusing project intervention as well as for the project baseline and value chains benchmarking studies. The PRHA results will enable to prioritize value chains (validating the cluster approach), set benchmarks, and support establishment of a database to generate primary data on key indicators to be maintained and updated during the course of project implementation and afterwards supporting the planning, monitoring, evaluation and communication functions of the project.

The analysis of secondary data is based on the district-wise data on area and production for last ten years which was collected and tabulated as time series data. From these data, subset for Sukkur Project Region was extracted. The district-wise secondary data on area, production for, dates, banana, guava, mango, lemon, water melon, melon, was tabulated from year 2005 to 2010. The major factors considered as important aspect for prioritization included; (i) the growth % rates share of commodity in provincial & national production Sukkur Project Region share in national production; (ii) Sukkur Project Region share in Sindh; (iii) productivity gap; (iv) employment intensity; and, (v) export potential based on incentive structure.

The primary appraisals were based on quantification of factors so that it can be measured on a scale for ranking/prioritization against each prioritized value chain. Seven factors were applied in the appraisal included; (i) extent of employment generation; (ii) commercial worth; (iii) percentage of small farmers associated, (iv) women involvement; (v) households associated with the value chains; (vi) understanding growth potential; and, (vii) vulnerability of the concerned value chains.

The appraisal was carried out by the project region with the assistance of the project M&E/C unit and consultants retained to guide the team throughout the implementation of the appraisals. Covering 50% of

the districts, the exercise was undertaken in the randomly selected areas/settlement/villages within each cluster/district. Each focus group consisted of 10-15 stakeholders, a representative sample of sub-sector. In each district, minimum one FGDs was carried out. The analysis of the information was consolidated at the project region level to draw conclusion and

inferences. FGDs were conducted in District Khairpur, Sukkur, Jacobabad, Larkana, Ghotki and Noushero Feroze to acquire relevant information.

Detail of the major crops and yields for 2009-11 in the Sukkur Project Region are listed below:

Final Estimate of different crops of Sindh for the Year 2010-11 Production in M.Tons

Districts	Onion		Chilies		Tomato		Potato		Banana		Dates	
	2009-10	2010-11	2009-10	2010-11	2009-10	2010-11	2009-10	2010-11	2009-10	2010-11	2009-10	2010-11
Khairpur	18,270	22,340	38	98	472	563	1,162	1,579	28,454	21,563	229,674	257,194
Ghotki	30,638	32,637	40	13	166	224	63	45	867	885	5,266	4,589
Sukkur	15,749	20,432	17	14	1,483	1,333	61	70	470	460	30,008	34,067
Noushero Feroze	15,263	38,192	88	28	1,185	1,386	1,001	1,100	8,567	8,022	473	653
Shikarpur	33,175	30,512	26	71	215	3,643	736	46	32	32	1,137	1,187
Larkana	16,771	29,923	6	22	2,043	3,134	0	0	0	0	0	0
Kashomore	0	0	26	2	126	53	0	0	0	0	0	0
Dadu	0	0	369	663	369	103	92	636	269	224	16	34
Kamber Shahdadkot	0	0	0	0	968	909	0	0	0	0	0	0
Jacobabad	4327	4534	0	4	237	209	0	0	0	0	0	0

Source: Agriculture department, Government of Sindh.

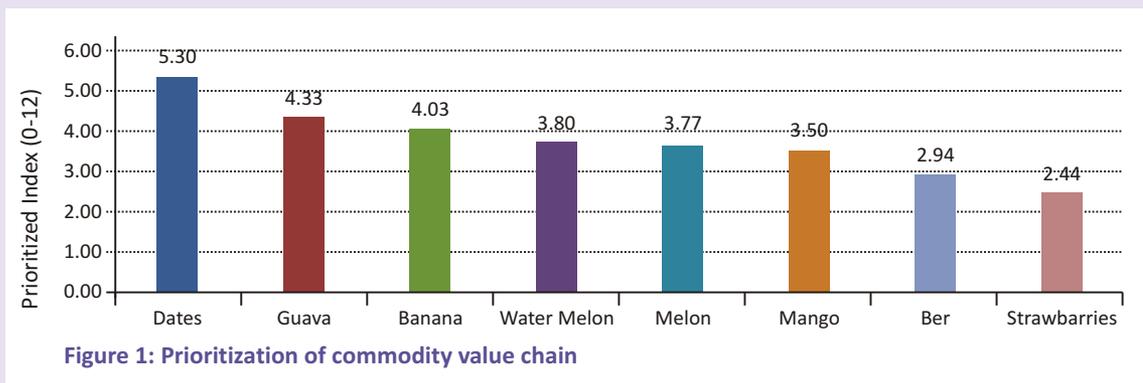


Appraisal of Fruit Sub-Sectors

Prioritization of value chains

The comparative appraisal is based on the composite index calculated based on the seven factors used in the grind analysis. The analysis of fruits places dates as the priority followed by Guava, Banana and Water Melon in the region as shown in Figure 1 below.

unfortunately there is no women involvement in this fruit value chain. However it provides livelihood to 55% small farmers. Losses in guava have been observed up to 20%, which can be minimized using improved management practices. It has high potential to be marketed at the national and international levels. Guava is produced in large quantity in District Larkana and then in Noushero Feroze.



Dates are grown in District Khairpur in great quantity, in fact some reports it as the highest dates producing zone in South-east Asia. The FGDs conducted show that growth rate in water melon and banana over the past five years is highest among the value chains; the growth of banana rising in different districts including Sukkur Khairpur, N.Feroze, while for water melon it covers mainly Jacobabad and ghotki; however, its growth in Larkana district is limited.

Dates stand first highest producing fruit in the region. District Khairpur is the largest dates producing zone, however, district Sukkur also contributes in limited scale. Dates offers 18% women involvement and provides livelihood to 53% small farmers. Losses in dates have been observed up to 13 percent.

Guava stands second highest fruit value chain;

Banana is considered the third most cultivated fruit value chain, being grown in Sukkur, Khairpur and N. Feroze Districts. 13 percent increase in growth has been recorded in banana during the past five years. 20% small farmers are involved in banana growing; as recorded during FGDs. Watermelon being grown in district Jacobabad and Larkana has great potential respectively. 17 percent of small farmers are involved in water melon. It offers significant women involvement that is up to 30 percent.

Melon follows in series after watermelon, which is cultivated in District Jacobabad in great quantity. Comparing with other fruits, only 5 percent of small farmers produce melon, which are mostly sent to Lahore and Quetta. There has been witnessed tremendous growth in Melon production in past five year (up to 20 percent). About 35 percent of women

folk are involved in Melon production, which is encouraging. The disappointing part of the fruit is there are highest losses as high as up to 30 percent. These losses are due unavailability of market access, poor transportation facilities, weak market linkages, and farmers poor knowledge about post-harvest management.

Mango stands sixth, with considerable expansion potential. There has been witnessed 02 percent

Strawberry in Sindh is cultivated in the months of February to March, when no other country produces the fruit. Hence, the fruit could grab the export market, and has good potential to grow further.

Table 1 below validates the potential fruit value chains in the region that includes dates, banana, guava, and water melon as the most cultivated crops including other as shown.

Table 1: Comparison of area under fruit in Pakistan and Sindh¹. (Hectares)

FRUIT	2004			2005			2006		
	PAKISTAN	SINDH	% SHARE OF SINDH	PAKISTAN	SINDH	% SHARE OF SINDH	PAKISTAN	SINDH	% SHARE OF SINDH
Mango	151534	4921	32.4	15657	49	31.9	16455	5071	30.8
Banana	33096	2907	87.8	3251	29	91.3	3488	3216	92.2
Guava	63470	7956	12.5	6180	8	13.1	6249	8680	13.8
Dates	81727	2644	32.3	8199	26	32.5	8469	2926	34.5
Jaman	1337	196	14.6	1282	131	10.2	1338	190	14.2
Phalsa	1363	758	55.6	1394	756	54.2	1250	620	49.6
Ber	3019	1642	54.3	3152	1	55.4	3905	2499	63.9
Chikoo	1518	978	64.4	1627	1	63.6	1790	1194	66.7
Papaya	1837	1025	55.8	1704	867	50.8	1739	901	51.8
Melons	37744	3537	9.37	4500	10	23.3	4579	1156	25.2

1- Source:- Crop Reporting Services of Provinces

growth in past five years. There has been 08 percent women involvement in this crop. Mango is cultivated in District Khairpur, Sukkur, Larkana and Noushero Feroze. According to FGD 15 percent losses are witnessed during crop handling at different stages. As the crop is perishable and having little shelf life, the losses are high. Mango is being sent to Lahore, Karachi and Quetta. Some of the FGD participants informed that from Quetta, mango is exported to Afghanistan, Kazakhstan and Iran. There are no proper processing units in Sindh. About 22 percent employment is being created through this crop. High quality mangoes are being grown in lower Sindh districts especially district Mirpur Khas is very much famous for its quality Sindhri Mangoes.

Ber and Strawberry are grown in limited area, however, due to its great potential there is high demand of strawberry. Strawberry rollers are brought from Sawat, due to poor handling during transportation mortality is quite high, which is up to 10 percent. Strawberry is only grown in district Sukkur and Khairpur. 5 percent growth is witnessed in past three years, as people have started cultivating strawberry from 2009. Strawberry though extremely perishable fruit is being sent to Karachi and even being exported from there through export agents.



Table 2: Possible production clusters of fruit value chains

Priority Value Chains (Fruit & Vegetables)	Clusters (Mention Districts)	Total Production (in M. Tons)	Total Production (Tons)	% share of the Province	% share of the Country
Guava	Larkana	23,371	32,770	55	6
	N.Feroze	9,399			
Dates	Sukkur	28,753	253,862	97	46
	Khairpur	225,109			
Water Melon	Ghotki	1,185	1,185		
	Jacobabad				
Banana	Khairpur	36,646	47,973	37	35
	Ghotki	1,407			
	N.Feroze	9,920			
Mango	Khairpur	32,111	78,980	20	5
	Ghotki	2,054			
	Sukkur	3,044			
	N.Feroze	41,771			
Lemon	N.Feroze	7675	7,675		0.07
Melon	Jacobabad				
Ber	Larkana		7,165		0.06
Strawberry	Sukkur & Khairpur				

Based on the analysis of both secondary and primary information, it can be concluding that in fruits dates, banana and guava and mangoes are the priority value chains in the Project Region of Sukkur. The key clusters for the priority products are given in Table 2.

According to the above stated table, prioritization cluster considering their geographical proximity for

dates one cluster would be Sukkur and Khairpur as are in close proximity. For water melon Jacobabad would be the ideal cluster. For guava two clusters each for Larkana and N. Feroze will be formed as physically these districts are quite distant. For Banana one cluster for Khairpur and N. Feroze will be formed, as both districts are adjoining. For mango N. Feroze is potential cluster district.



Prioritized Opportunities

For prioritization of opportunities, paired ranking tool was used. Table 3 below provides self-explanatory list of opportunities as prioritized/ranked by the participants during the FGDs.

The study reveals that a number of opportunities exist, in the region, which can catalyze the development of the sub-sector. These are listed in Table 3 of which the most important are the infrastructure (storage and marketing), increasing demand and processing technologies etc. These opportunities can be further reinforced through the project interventions leveraged by primary-sector investments provided that a holistic and integrated approach is applied.

The key constraints hampering the development of fruit sub-sector are listed in Table 4. Of significance are those are categorized as high in terms of its intensity. Some of the constraints mentioned can be in contradiction with the opportunities listed which indicate that the production of fruit and its marketing is in transition as a component of the farming system which has traditionally been subsistence oriented. Most constraints are cross-cutting and generic in nature which provides information on the overall sub-sector and some of the constraint can be considered as opportunities for investment by the project provided that willingness in the private sector for investment exists. These may include promotion of certification scheme for production of true to type fruit plants, ensure soft loans for tenants and establish strong market intelligence system for better returns.

Table 3: Priority opportunities

Priority opportunities	Rank
Availability of cold storages and market infrastructure	1
Increasing demand in national market	2
Processing technology	3
Technological innovation	4
Solar drying technology	5
Private sector support	6
Micro Finance Institutions (provision of grants/interest-free loans)	7

Prioritized Constraints

Constraints to fruit value chains were also identified and prioritized by participants during the FGDs on the basis of their potential as high, medium or low. List of prioritized constraints can be seen in Table 9 below.

Table 4: Priority constraints

Priority constraints	Intensity
Lack of awareness about latest techniques	High
Lack of awareness about market intelligence	High
Unavailability of certified seeds	High
Non-availability of soft loaning facility, particularly, for tenants	Medium
Use of poor packaging	Medium
No proper facilities for processing of fruits	Medium
Poor market linkages	Low
Unavailability of proper transportation facility.	Low



Appraisal of Vegetables Sub-Sectors

Prioritization of value chains

On the priority scale, onion is the leading commodity followed by okra, tomato, bitter gourd and cauliflower. The priority ranking of vegetables based on the rapid appraisal is shown in Figure 2 below.

supply vegetables to large markets of Sindh and Punjab. Vegetables are mostly grown for commercial purposes as well as domestic utilization by producers. During FGD it has also been learnt that vegetables are grown by small farmers, about 80 vegetable growers are small farmers. Percentage of women involvement in vegetable cultivation is also very high, ranging from 30 to 80 percent. Losses in vegetable are up to 10 percent. Up to 70 percent employment is created by

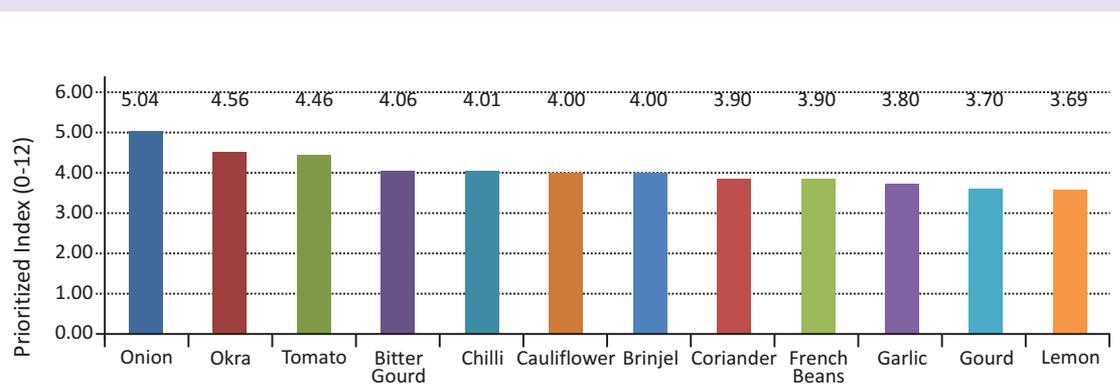


Figure 2: Prioritization of vegetable value chains based on FGDs

Source: PRHA field survey June 2012

In general all variety of vegetables are grown in almost all districts of Sukkur Project Region, however, district Ghotki is the main area for vegetable market, and

vegetable value chain.



Table 5 below shows the comparison of area (in Hectors) under cultivation in Sindh with overall cultivated area in Pakistan. The secondary data reveals that the share of lady finger, tinda, brinjal, bitter gourd, beans cauliflower in national and provincial production is quite high and indicates the significance of these vegetables and highlights the need to provide support to improve their competitiveness. In northern Sindh district Ghotki has distinct standing due to high quality production of different vegetables. The issue

concerned is lack of market intelligence and poor transportation facilities. Vegetables have comparatively short shelf-life hence in mere 24 hours they lost their freshness. There are no proper storage facilities available according to discussion held during FGD. Additionally, lack of processing facilities has multiplied the issue. There is dire need to establish proper infrastructure, connect growers with high-end markets, and international chain of stores viz. hyper star etc.

Table 5: Comparison of area under vegetables in Pakistan and Sindh. (In Hectares)

VEGETABLE	2004			2005			2006		
	PAKISTAN	SINDH	% SHARE OF SINDH	PAKISTAN	SINDH	% SHARE OF SINDH	PAKISTAN	SINDH	% SHARE OF SINDH
KHARIF									
Lady Finger	1446	467	32.3	1468	476	32.4	1478	491	33.2
Squash	978	259	26.5	1009	245	24.3	1035	250	24.2
Brinjal	864	168	19.5	886	204	23.0	848	155	18.3
Bitter Gourd	574	87	15.2	590	81	13.8	586	95	16.2
Bottle Gourd	562	49	8.82	575	55	9.7	589	64	10.9
Lufa	109	69	63.8	115	73	63.7	785	50	64.8
Long Melon	206	20	100.0	211	21	100.0	128	12	100.0
Cucumber	969	49	51.5	110	50	45.4	117	54	46.4
Pursilano	143	14	100.0	129	12	100.0	70	70	100.0
Beans	290	29	100.0	264	26	100.0	190	19	100.0
Field. Vetch	148	148	100.0	153	153	100.0	130	130	100.0
Lotus	182	18	100.0	145	14	100.0	143	14	100.0
RABI									
Radish	993	159	16.0	1026	145	14.1	1023	132	12.9
Spinach	772	194	25.2	713	133	18.6	686	135	19.6
Cauliflower	1135	165	14.5	1130	138	12.2	1147	121	10.6
Cabbage	441	151	34.4	480	165	34.4	479	156	32.7
Sweet Potato	894	41	45.8	841	34	40.7	925	43	47.2
Peas	993	145	14.6	1059	147	13.9	1150	153	13.3
Garden Peas	632	63	100.0	486	48	100.0	430	43	100.0
Knol Kohl	305	30	100.0	165	16	100.0	99	99	100.0
Fennu Greek	583	58	100.0	439	43	100.0	435	43	100.0
Lettuce	94	94	100.0	99	99	100.0	125	12	100.0
Tomatoes	2474	608	24.6	2884	940	32.6	2939	869	29.5

Source: Crop reporting services of provinces

The production clusters of vegetables value chain in Sukkur and their percentage share can be seen in Table 6 below.

Table 6: Possible production clusters of vegetables value chains

Priority Value Chains (Fruit & Vegetables)	Clusters (Mention Districts)	Total Production (in M. Tons)	Total Production (Tons)	% share of the Province	% share of the Country
Tomato	Sukkur	1,333	9,496	8	15.59
	N. Feroze	1,386			
	Shikarpur	3,643			
	Larkana	3,134			
Potato	Khairpur	1,579	2,679	41	0.10
	N. Feroze	1,100			
Onion	Khairpur	22,340	178,570	21	30.1
	Ghotki	32,637			
	Sukkur	20,432			
	N. Feroze	38,192			
	Shikarpur	30,512			
	Larkana	29,923			
	Jacobabad	4,534			
Chilies	Dadu	663	663	3	
	Khairpur				
Okra	Larkana		22,112		
	Sukkur				
	Khairpur				
	Ghotki	Data not available			
Cauliflower	Ghotki		13,314		
Brinjal	Ghotki		3,707		
Bitter Gourd	Ghotki		2,576		
Gourd	Ghotki				
Garlic	Ghotki				
French Beans	Ghotki				
Coriander	Ghotki				

2- Agriculture Department, Government of Sindh.
Pakistan Bureau of Statistics, ITC/Pakistan Statistical Book-2008, Development Statistics of Sindh 2008

Prioritized Opportunities

Opportunities for vegetables related value chains were scored and ranked during the exercise.

The appraisal reveals that major priority opportunities are represented by the availability of cold storage infrastructure increasing market demand and potential for processing/preservation and export. These opportunities are cross-cutting and investment in these will generate employment and income generation opportunities. Ranking of priority opportunities concerning vegetables is given in Table 7 below.

Table 7: Priority opportunities

Priority opportunities	Rank
Grading and packaging	1
Association / access to high end markets	2
Market intelligence system	3
Availability of cold storages	4
Market linkages	5
Certified seed availability	6
MFI's provision of grants/soft loans	7
Introduction of tunnel technology	8

Prioritized Constraints

Constraints to fruit value chains were also identified and prioritized by participants during the FGDs on the basis of their potential as high, medium or low. Here is a list, which is self-explanatory.

The key constraints hampering the development of vegetable sub-sector are listed in above given Table 8 below. Most constraints are cross-cutting and generic in nature relevant to the sub-sector in general. The

high ranking constraints provide opportunities for investment which will not only generate income and employment but also act as drivers for the wider development of the sub-sector. However the key consideration for intervention in addressing the constraint should be private sector investors willing to partner with the project.



Table 8: Priority constraints

Priority constraints	Intensity
High price of agriculture inputs	High
Lack of awareness among farmers about latest techniques	High
No proper packing facilities/ skills	High
No proper storage facilities	High
Poor quality seeds	High
Poor linkages with national markets	Medium
No proper facilities about grading and packaging	Medium
High cost of transportation	Medium
Lack of awareness and facilities about improved farming practices	Low

State of the Services Provision

The availability and quality of business development services is important for the overall development of any sub-sector. The situation regarding services provision for both fruit and vegetables was appraised together with focus groups. In most cases the linkages between service providers and users were termed as weak to medium. To be effective in enhancing profitability of fruit growers, there is a need to build confidence and develop strong linkages of agribusiness with service providers.

Sukkur Project Region has an edge due to presence of tycoon viz. Engro Foods. During meetings held with Engro it was learnt that they used to import quality pulp (Guava) from foreign instead of procuring from local market. The reason being inconsistency in supply, poor quality fruit, and rapid fluctuations in market rates have compelled them to do so. On the other hand, the presence of Engro Foods and Nestle is a big opportunity for local growers and entrepreneurs. State of the service provision can be seen in Table 9 below.

Table 9: State of the service provision

Service Providers	Linkages	Paid/Free	Services Provided
Agriculture Department s (Research, Extension, Water Management etc.)	Medium	Free	Awareness, guidance and information regarding seeds and improved agriculture practices.
Commercial Banks	Weak	Paid	Finance, training and information
Banks (ZTBL)	Medium		
Exporters	Medium		Collect the produce from the farm for local market (mandi)
Market Agents	Medium to Strong	Cash & Credit	Marketing and fixing of prices and supply of inputs
	Strong	Credit	Financial support in purchase of inputs like fertilizers, pesticide etc.
Non Governmental Organisations (NGOs)	Medium to Strong	Free and cash both	Trainings and information, consultancy and timely supply of inputs on subsidized cash payment
Private Seed, Agro-Chemical, Packaging and Fertilizer Companies	Medium to Strong	Cash	Provide inputs, timely supply of inputs on cash payment, awareness of the farmers

State of Market Linkages

Marketing of fruits and vegetables varies from commodity to commodity; however, generally, most of the produce is channeled to local and country markets. Some of the national markets relevant for the regional producers include Sukkur, Hyderabad, Lahore, Karachi, Islamabad and Quetta. Demand for fruits and vegetables do exist in the international markets (particularly Gulf countries) but that needs to be tapped after overcoming several constraints related to export.

Marketing of fruits and vegetables is characterized by the presence of numerous intermediaries performing at various distribution stages, thus adding to marketing costs and directly affecting the price received by the farmer and paid by the consumer. The domestic market players include farmers, commission agents, contractors, wholesalers, inter-market traders and many other retailers. In general, intermediaries dominate the system and there is little direct market participation of the farmers, particularly small farmers.

The existing marketing operations are performed by traditional way such as, rough harvesting and handling methods, rudimentary grading, and poor quality packing, which reduce its marketability, leading to

lower prices in the market. The non-availability of refrigerated lorries/trucks to transport vegetables and fruits from farm to distant markets increases the spoilage rate and reduces the bargaining position of the sellers.

Absence of enabling policies favoring growers (particularly small farmers), ineffective approaches towards improving and sustaining product quality, and lack of reliable updated market information also impede farmers' ability to take maximum benefits they deserve. Lack of market information system has increased the complexity of the marketing system on one hand and brought less return to the farmers on the other. Strengthening market information system can play vital role in increasing returns to the growers of fruits and vegetables, which can ultimately improve the living standard of the rural population and bring prosperity in the country. Exports are considered as a means of surplus disposal mainly channeled from the wholesale markets. Exports endeavors need to be supported by a "grow-for-export" strategy. Again, a well-established market information system can play vital role in this connection.

Conclusion

The region represents a special case for opportunity and constraints to expand horticulture exports. The key constraints which are hampering the abilities of the sector include poor quality of the produce often failing to meet export standards; perishability to produce that requires efficient handling, low level of value addition and processing and marketing, resultantly poor performance of the sub-sectors as a whole. On the other hand Sukkur Region offers a varied climatic zones, close proximity to growing markets (national and international), lower production cost due to cheap labor and availability of water provide good opportunities to grow a variety of products year round and to capture larger share of niche markets.

Based on the PRHA, the following summary conclusions can be drawn;

- Among the fruits Dates, Guava, Banana, Mango, and Water Melon value chains represent potential in terms of volumes, value and diversity while other products can be promoted as niche market opportunities.
- Among the vegetables, priority is associated by grower to Onion, Okra, tomatoes, bitter gourd and Coriander whereas many different other vegetables can be produced in the off-season.
- The prioritized value chain is not competing well in global markets as none of them are among top 20 on volume and value terms. In vegetables (chilies and onion) is performing better in global markets.
- For fruit and vegetables, to develop in the region, it has to realize growth in volumes, however competition at domestic and world market would, in addition, need to invest in quality improvement.
- The productivity of fruits and vegetable as well as post-harvest losses are of special mention to be addressed. Productivity gap for most commodities under review range from 85 to 95 percent. Relatively lower productivity and poor quality of the produce makes Sukkur region fruits and vegetable uncompetitive in export markets despite massive devaluation in the country's currency over the last four years. This also explains low or decreasing market share for horticulture crops in global markets. The post-harvest losses represent an opportunity to be tapped on.
- Lack of post-harvest infrastructure (cool chain, pack houses, poor packaging etc.) and logistics for maintaining the quality of the highly perishable fruits that carries poor physical market access, increasing input prices, poor coordination among stakeholders, lack of economies of scale and traditional practices are some of the constraint that impact the production of both fruit and vegetables.

References

The secondary data in this report has been taken from and estimated based upon data given with the following sources:

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2. Economic Survey of Pakistan
3. FAO Database

4. **The Growth % rates**
 - 4.1 Crops area and production (by districts) 2004-2005 to 2008-2009, Government of Pakistan, Ministry of Food, Agriculture and Llivestock (MINFAL)
5. **Share of commodity in world production**
 - 5.1 Crops area and production (by districts) 2004-2005 to 2008-2009, Government of Pakistan, Ministry of Food, Agriculture and Livestock (MINFAL)
 - 5.2 Agriculture Statistics of Pakistan, 2009-10 and previous publications
 - 5.3 FAO Database 2012 accessed through internet
6. **Region Share in National Production**
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 - 6.2 Agriculture Statistics of Pakistan, 2009-10 and previous publications
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 - 7.2 Agriculture Statistics of Pakistan, 2009-10 and previous publications
8. **Productivity Gap**
 - 8.1 Crops area and production (by districts) 2004-2005 to 2008-2009, Government of Pakistan, Ministry of Food, Agriculture and Livestock, (MINFAL)
 - 8.2 FAO Database 2012 accessed through internet
9. **Employment Intensity**

Potential for labor per acre calculated as percentage of labor days of wheat (ADB) plus index derived by PRHA results at field survey in the region and information gathered from various reports.
10. **Export Potential as Measured by Incentive Structure**

FAO Database: The difference between export value of Pakistani produce and world export value (five years average).

(Annexure are available at The Agribusiness Project Office Islamabad, and can be provided upon request for reference)





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