PAKISTAN
FOOD SECURITY CLUSTER
Strengthening Humanitarian Response

European Commission

PCMA

PRE-CRISIS MARKET ANALYSIS

Wheat Flour Market System

in Jamshoro, Umerkot and Tharparkar districts of Sindh Province, Pakistan

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Executive Summary and Key Recommendations

The Pre-Crisis Market Analysis (PCMA) was conducted in the Jamshoro, Umerkot, and Tharparkar districts of Sindh, Pakistan from November 30th to December 11, 2016. The PCMA was premised on a drought emergency scenario for Umerkot and Tharparkar districts and both flood and drought for Jamshoro district. The PCMA looked at market functionality in 'normal' and 'emergency' times, how the market has responded to past emergencies, and how it might respond to future emergencies. The timing of the 'normal' and emergency scenarios is presented in the following sections.

The PCMA compliments the HEA (Household Economy Analysis) conducted in 2015[1], which looks at resilience and needs at the household level, and the SDNA (Sindh Drought Needs Assessment), which examines the impact of drought on agriculture, livelihoods, food security, nutrition, and water and sanitation. Together, the HEA, SDNA, and PCMA form the basis for the Situation and Response Analysis Framework (SRAF), which the Pakistan Food Security Working Group plans to undertake in the first quarter of 2017.

The PCMA in Sindh was led by one international expert, co-facilitated by a local leader and conducted by 23 Pakistani professionals representing the Government of Sindh (Provincial Disaster Management Authority (PDMA-Sindh) and Bureau of Statistics Sindh (BoS Sindh), the Food and Agriculture Organization of the United Nations (FAO), the United Nations World Food Programme (WFP), Welthungerhilfe (WHH), Secours Islamique France (SIF), Action Contre la Faime (ACF), Plan International, BEST, and the Gorakh Foundation.

Photo 1: Laborers loading chaff for transport from Godown farm near Kotri, Jamshoro

The overall PCMA effort was focused on two critical markets: wheat flour and goats. A separate report is prepared for each of the critical markets; the goat market report also includes analysis on the water and fodder markets. The target population around which key research questions and the PCMA gap analysis are built is poor and very poor households in the three districts. The three districts studied contain different livelihoods zones and bear different levels of risk for chronic drought and sudden-onset flood emergency, affecting wheat production, availability, and access. When possible, the PCMA illustrates what is broadly applicable to the wheat flour market system across the three districts. When necessary, discussion of the findings disaggregates and picks out salient particulars.

Ultimately, this PCMA report is a story of vulnerability from widespread chronic poverty and the subsequent impact of sudden onset and slow onset emergencies, for which there are a number of

[1] *Household Economy Analysis: Drought Impact 2015: Jamshoro, Umerkot & Tharparkar Districts of Sindh Province*, Food Security Cluster, Pakistan, 2016

effective prevention and remediation options. The PCMA takes place in a busy and rich information environment: Sindh province has been and continues to be the focus of much analysis for development and humanitarian relief from international, national, and local helping actors, and various provincial and national government agencies. This PCMA report is not comprehensive: it seeks to complement and augment the many relevant on-going efforts, and provide high-level direction towards discrete, achievable actions that can be taken in the context of the 2017 SRAF and beyond. To briefly summarize findings and recommendations:

The functionality of the wheat flour market system is strong in normal times: wheat is widely available across the districts, with reasonable fluctuations in price across geography, and the value chain. Local and regional market actors are sufficiently integrated that shifts in demand can be accommodated without interruption of supply or significant price fluctuations. Food insecurity in the lowest wealth quintiles does not come from poor market functionality or lack of availability, but rather slow, incomplete or non-existent recovery from past natural disasters, lack of financial access, on-going drought and systemic iniquity that fosters chronic poverty. Poor and very poor households have little or no physical or financial capacity to store the wheat they produce; chronic indebtedness compels them to sell their harvest immediately to service debts. A majority of households in Sindh rely on the market for their cereals;[2] with little or no wheat storage, those households need the market to meet their basic food needs, which quickly compels them to start another cycle of borrowing or purchasing on credit.

Even during flooding (and certainly during drought), small local flour mills (Chaki) are easily accessible by households. In programming, the functionality of the market can be leveraged for multiplier effects. Bypassing the market system in a DRR or emergency response scenario can undermine the speed and strength of the recovery :providing wheat flour directly to households without involving market actors in emergency-affected areas (via cash/vouchers)in the flood affected areas can negatively affect market actors, as was observed in parts of past flood response efforts.

- **Technically discrete, longer-term programming is required to increase resilience**. The most effective, sustainable, and long-term manner of reducing the impact of chronic and sudden onset natural disasters in Sindh is an arc of programming that spans years, rather than manifesting in fits and spurts in emergency response. Ultimately, land reform and agricultural policy reform are required. Absent the will to address such complex, deeply rooted issues, technical assistance can make great gains in food security for vulnerable populations in Sindh, through programs such as those in this short, illustrative list: improved wheat storage techniques and facilities, community seed banking, expansion and improvement of irrigation and water management infrastructure, debt relief and affordable microfinance for wheat farmers, improved food storage and value-added processing for wheat and other staple crops, rural electrification, and market information dissemination mechanisms. Such programming is within the mandate and technical capability of many of the PCMA stakeholders. Specifically for the Food Security working group: for the anticipated SRAF and for programming undertaken in 2017 and beyond, **this report recommends striking a balance between meeting basic needs in emergency response, and mitigation and longer-term development and resilience efforts.** A variety of programming options are described in this section, and in the Response Recommendations section, below.

In the event of flooding, physical access to markets is partially or completely disrupted for a short period of time. Depending on the location, direct assistance is needed by households for 1-2 months while floodwaters recede and households strive to recover. Recovery in the period immediately

[2] 80% of the households surveyed in, *Sindh Drought Needs Assessment: The State of Agriculture, Livelihood, Food Security, Nutrition, Water and Sanitation in Drought Affected Communities in Sindh*, Pakistan Food Security Cluster, August 2016, page 30

after flooding requires direct and in-kind intervention. A range of market-sensitive programming options is appropriate after flood waters recede:

- **In areas in which flood-affected households cannot easily access markets, direct provision of wheat/wheat flour may be required for the first 1-2 months after a flood.** Physical access to markets may be partially or completely disrupted, breaking transportation and supply links, leading to pockets of supply inelasticity and local and inter-local price bubbles. In the cases where local wheat retailers and small mills are functioning and accessible by target populations, it may be more appropriate to supply wheat or wheat flour to those local actors and enable target population access through vouchers; where appropriate, this dual approach would both protect the on-going viability of local wheat market actors and save helping actors costly, complex and time consuming distribution to far-flung households at the sub district and local levels.
- **In urban and peri-urban areas, cash and vouchers are appropriate for resilience, mitigation and emergency response.** Even when there isn't a formally declared emergency, poor and very poor households are living far below the World Bank's 2015 international poverty line of $1.90 per person per day: for example, in the irrigated wheat livelihood zone of Jamshoro and Umerkot, the average income per person per day in poor households is $0.70.[3] As such, households are facing chronic poverty every day; chronic or sudden onset natural disasters increase the severity of their financial and nutritional challenges, and diminish resilience. As wheat flour and other markets for key goods and services are strong, and households have a market orientation for the income and food security, a variety of market-based and market-sensitive options are viable for helping actors in Jamshoro, Umerkot, and Tharparkar. The Food Security Working Group, with support of ECHO, has been investing in raising the technical capacity of helping actors in Sindh to implement cash-based interventions, for example through two 2-day workshops held in June, 2014[4] and two 3-day training in August 2016.[5] However, the appropriateness of cash and vouchers in any area of Sindh is directly dependent on market functionality: taking the 2010 floods as a worst case scenario, "markets took a few more months to recover due to the degree of damage and duration of persistent floods."[6]

To reduce the human impacts of possible impact of on-going and future drought and future floods, this report makes the following recommendations:

- **Conduct targeting, and needs assessment exercises.** Neither the HEA nor the PCMA have sought or presented all of the information necessary for targeting of specific market actors or households. Pakistan is highly exposed to climate change, meeting several of the risk thresholds described in a 2011 report produced by the CGIAR Research Program on Climate Change.[7] Given current scientific data and the lived experience of weather and climate-related events in Sindh over the last 10 years, it is highly likely that drought and/or flooding will be affecting vulnerable

[3] *Household Economy Analysis: Drought Impact 2015: Jamshoro, Umerkot & Tharparkar Districts of Sindh Province*, Food Security Cluster, Pakistan, 2016, page 5.

[4] Training Report: 2-days Basic course on "Cash Transfer Programming", Pakistan Food Security Cluster, Directorate-General for Humanitarian Aid and Civil Protection, http://fscluster.org/sites/default/files/documents/Training%20report%20-%20Basic%20Course%20on%20Cash%20Transfer%20Programming%20(Peshawar%20and%20Hyderabad).pdf

[5] "3 Days Training on Cash Transfer Programming – CTP, 25th – 27th August, 2016, Beach Luxury Hotel, Karachi Sindh", organized by the Cash Working Group, funded by ECHO, http://fscluster.org/pakistan/document/training-report-cash-transfer-0

[6] "Meta Evaluation of ACF Fresh Food Voucher Programmes", ACF, CaLP, ECHO, January 2012, page 17

[7] Polly Ericksen, Philip Thornton, An Notenbaert, Laura Cramer, Peter Jones and Mario Herrero *CCAFS Report Number 5: Mapping hotspots of climate change and food insecurity in the global tropics*, 2011, page 46.

persons; undertaking targeting exercises as a precursor to resilience building programming or as preparation for more rapid, effective emergency response is strongly recommended. At the household level, humanitarian actors should seek to understand how households would utilize cash received in a distribution, and if that is in keeping with the design of the size and frequency of the cash distributions, and any complementary programming. An ACF meta evaluation of cash transfers after the 2010 flooding in Sindh concluded that households spent 50% of the cash received on food, and 40% on health, as disease incidence spiked to high levels after the floods, while a WFP endline report on the impact of cash programming in Tharparkar, Umerkot, and Sanghar districts showed that households spent two thirds of the cash received on food.[8]

Pre-crisis targeting should also yield actionable information about the appropriate delivery methods for cash, given limited mobile networks in rural areas, widespread illiteracy[9] and inexperience with cash cards and ATMs.[10] Examples for technical design and implementation may be gleaned from the government of Pakistan's Citizen's Damage Compensation Programme (CDCP), which used a card platform to distribute nearly $500 million USD to 1.6 million flood affected households in Pakistan between 2010 and 2013.[11]

- **Get more children in school and feed theme there.** School feeding programs may be an effective way to target child nutrition. In Sindh, 40% of children are underweight and 73% are anaemic.[12] Across Pakistan, nearly 7 million children of primary school age are out of school, a disproportionate share of whom are girls.[13] Reduction in cognitive function due to anaemia is likely to be adversely affecting education outcomes.[14] Targeting children through schools rather than at the household level may be somewhat simpler, and also serves as an opportunity for program design and implementation **collaboration between the Food Security Working Group, government of Pakistan, and other stakeholders** such as the World Bank through SERP II (Second Sindh Education Sector Project).[15] Such collaboration, perhaps under the auspices of a programming framework resembling the Protracted Relief and Recovery Operation (PRRO; enhancing food and nutrition security and rebuilding social cohesion),[16] would continue and deepen the work undertaken jointly by Pakistan and its international humanitarian partners in Sindh since 2013. School feeding programs that include markets by sourcing supply from locally produced and sourced foodstuffs may also present opportunities for stimulation of the wheat

[8] World Food Programme, *End-line report on the impact of Cash Based Transfer in Tharparkar, Umerkot and Sanghar June 2016,* http://www.cashlearning.org/downloads/impactofcbtsindhjune2016.pdf, page 1

[9]According to UNICEF, the total adult literacy rate, 2008-2012 is 54.9%. https://www.unicef.org/infobycountry/pakistan_pakistan_statistics.html

[10] Asif Nawaz, Shannon Hayes, Pakistan Flood Response: Piloting Cash Transfers through Prepaid Debit Cards, Oxfam GB, http://www.cashlearning.org/downloads/resources/casestudies/oxfam-gb_pakistan-flood-response-piloting-cash-transfers-through-prepaid-debit-cards.pdf

[11] CSR Asia Business Briefing: Electronic Cash Transfers In Disaster Response – Opportunities For Business Engagement, September 2014, http://www.csr-asia.com/report/CSRA%20Oxfam%20CTP%20Briefing.pdf, page 19

[12] Shehla Zaidi, Zulfiqar Bhutta, Rozina Mistry, Gul Nawaz, Noorya Hayat, Shandana Mohmand, A. Mejia Acosta, *Sindh Province Report: Nutrition Political Economy, Pakistan*, Maximising the Quality of Scaling up Nutrition Programmes (MQSUN), The Agha Khan University, UK Aid, 2015

[13] "Pakistan One United Nations Programme, 2013-2017", https://www.unicef.org/about/execboard/files/PAK_One_UN_Programme_II_(2013_-_2017)_Document_12_June_2012.pdf, pages 2-3.

[14] Kashif Iqbal, Tasneem Zafar, Zafar Iqbal, Mohammad Usman, Hafsa Bibi, Maria Sadaf Afreen, Javeid Iqbal, "Effect of Iron Deficiency Anemia on Intellectual Performance of Primary School Children in Islamabad, Pakistan", Tropical Journal of Pharmaceutical Research, Vol. 14, No. 2, February, 2015

[15] http://projects.worldbank.org/P125952/pakistan-second-sindh-education-sector-project?lang=en

[16] For a brief description of the PRRO and an overview of what the World Food Programme is doing in Pakistan: https://www.wfp.org/countries/pakistan

flour market, and the further **development of clusters** of producers/transporters/miller to service demand generated by feeding programs.

- **Continue and expand wheat flour fortification**. Pakistan has no national laws making wheat flour fortification mandatory (the Punjab is a notable exception at the provincial level). Global acute malnutrition (GAM) rates in Sindh are well above the emergency threshold of 15%.[17] Improving the nutrition derived per kilogram or serving of wheat flour, the most widely consumed staple, is inexpensive and relatively easily achievable. The fortification of wheat flour impacts health, cognition, productivity, and resilience. The Food Security Working group should continue its support for a Sindh and national strategy for wheat flour fortification. Past donor-led efforts at introducing flour enrichment have resulted in a consensus on a pre-mixture of 20 mg of sodium iron EDTA and 1.3 mg of folic acid per kg of wheat flour.[18] As such, there are already technical precedents and stakeholder consensus on enrichment, facilitating the incorporation of enrichment into resilience and response programming that might emerge from the 2017 SRAF.
- **Improved regulation of wheat flour quality** must accompany and complement wheat flour fortification. The current standards for flour sold as "Atta" (the course product obtained by grinding and sieving clean wheat) must meet a number of qualitative indicators and contain no more than 2% of ash and not less than 8% of gluten, among other quantitative indicators. Anecdotal evidence collected during the PCMA suggests that the poorest households are regularly eating wheat flour of inferior quality (for example, with ash content many times the legal maximum), with far reaching implications for nutrition, health, and productivity.

Seasonal rises in price are exacerbated by stockpiling and non-sale of supply when prices are low for the 6 months or so after the harvest, and waiting to sell the wheat or wheat flour until prices are high. This is normal speculative or profit-maximizing behaviour for market actors, but it also increases the financial stresses poor and very poor households face in the lean season from November to March.

A. Overview of the PCMA in Sindh

A PCMA (Pre-Crisis Market Analysis) is an analytical tool used to understand how markets will be impacted by and respond to an emergency. Understanding how markets will react, where market chains are strong and weak, and the role of the markets in the lives and livelihoods of vulnerable households, gives valuable humanitarian and development practitioners. Through an understanding of market dynamics, helping actors may take early actions and design interventions that will build resilience, reducing the negative impacts of future emergencies. Those helping actors may also use market information to undertaken emergency response that is faster, more effective, and more impactful.

The PCMA takes place in a context of chronic drought in most of Umerkot, Tharparkar, and Jamshoro, and the risk of seasonal (occasionally catastrophic) flooding along the Indus River in Jamshoro. Anticipated continued climate change-related degradation of crop yields and food security

[17] "Pakistan One United Nations Programme, 2013-2017", https://www.unicef.org/about/execboard/files/PAK_One_UN_Programme_II_(2013_-_2017)_Document_12_June_2012.pdf, page 3.

[18] Sergey Shevchuk, Kalimuddin Ghauri, *Afghanistan/Central Asia Regional Food Fortification Program: Analysis of Wheat Flour Fortification Legislation and Policy in Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan) and Wheat Flour and Edible Oil Fortification Legislation and Policy in Pakistan and Afghanistan*, The Global Alliance for Improved Nutrition, USAID, September 2015, pages 18-19.

will continue: without investments in improving crop production, expanding/enhancing irrigation and water infrastructure, or an increase in interprovincial trading, the capacity of production to provide enough supply will fall in the face of rising demand, and real food self-sufficiency challenges will be faced in Sindh as early as 2020.[19]

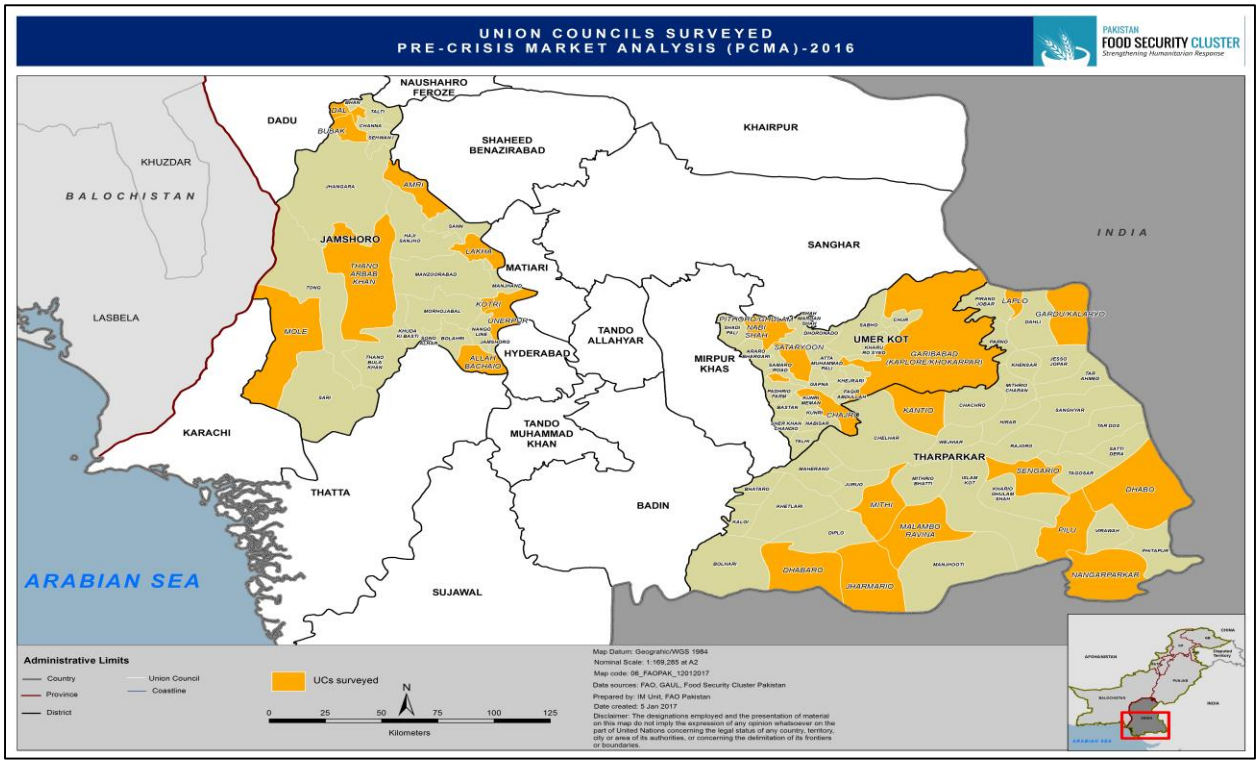
a. Objectives

The objectives of the PCMA are:

1. to generate information that will assist in future emergency response and also link market analysis with preparedness, mitigation, contingency planning, DRR and early recovery.
2. to generate response interventions that can range from immediate relief-oriented activities, to those that look at the underlying structural issues of the market and opportunities to enable it to function more effectively
3. to build the capacity of Food Security working group members on the PCMA tool, by training them, and engaging them in the data collection and analysis process.

B. Methodology

Consultation meetings conducted by the PCMA Leader and FAO were held with key stakeholders in Islamabad and Karachi. The PCMA Leader then conducted three and a half days of training in Karachi which was co-facilitated by a local leader. The teams then conducted data collection, interviewing relevant actors in the randomly selected sub-districts and villages. Data analysis was conducted for two



[19] Winston Yu, Yi-Chen Yang, Andre Savitsky, Donald Alford, Casey Brown, James Wescoat, Dario Debowicz, Sherman Robinson, "The Indus Basin of Pakistan: The Impacts of Climate Risks on Water and Agriculture", The World Bank, 2013, page 13

days in Karachi followed by a presentation of preliminary findings to stakeholders.

For the fieldwork, the 21 members of the PCMA team were divided into six teams; two per district. Each team had an appointed Team Leader, and one team leader also acted as the District Leader. The District Leaders were the main point of contact with the PCMA leader, conferring by telephone or email each day of the data collection to discuss respondents covered, issues with data collection tools, and logistics.

Data collection tools were created and refined in several stages. Household questionnaire, Government Food Officer key informant interview, focus group discussion guide, and semi-structured market actor interview were introduced to the PCMA team for review during the training period in Karachi. In groups, PCMA participants refined the tools and took turns teaching the wider PCMA team on the contents and uses of the tools. The teams travelled from Karachi to their field accommodations on Saturday, December 3rd, conducted data collection from December 4th to 8th, and returned to Karachi on December 9th afternoon. In total, 76 households, 80 market actors, 3 Government key informants were interviewed and 23 FGDs were conducted across 14 Tehsils/Talukas of the three targeted districts (see annex C for details). The first day of data collection in the field was a pilot of the tools; minor refinements were made for the second and subsequent days of data collection. The land areas of the three districts are enormous: Jamshoro is 11,273 square kilometres, Umerkot is 5,487 square kilometres, and Tharparkar is 19,398 square kilometres.[20] The PCMA used random sampling to select areas for data collection, with the intention of building a dataset that would be geographically diverse; accessing poor and very poor households in the irrigated and rain fed agriculture livelihood zones. The market actors and households interviewed in sub-districts villages represent the scope of livelihood zones in the three districts.

The data collected is presented in this report occasionally as an aggregation across the three districts, when such aggregation is appropriate. When findings are sufficiently diverse across wealth groups or livelihood zones, the findings have been disaggregated. Collaborative analysis was conducted in Karachi on December 9th and 10th, with a preliminary presentation of findings made to INGO, NGO, and government stakeholders on December 11th. The 15 steps of the PCMA methodology are described in greater detail in Annex C, and the composition of the field teams can be found in Annex B.

Figure 1: Map of Union Councils surveyed for PCMA in Jamshoro, Umerkot, and Tharparkar districts

C. Focus populations and locations

Basic characteristics of very poor and poor households are presented in Tables 1-5. The focus population chosen for the PCMA is poor and very poor households, defined on the basis of average monthly income earned during normal period. The average household size for very poor and poor households in all districts is 7, except for poor households in Jamshoro, which have an average of 9 members. Households

	Normally Cultivate Land	
District	**Very poor**	**Poor**
Jamshoro	25%	67%
Tharparkar	60%	60%
Umerkot	80%	86%
Overall	57%	73%

Table 1: Percentage of households that normally cultivate land

[20] Japan International Cooperation Agency, Kaihatsu Management Consulting, Inc., C.D.C. International Corporation, "The Project for the Master Plan Study on Livestock, Meat and Dairy Development in Sindh Province in the Islamic Republic of Pakistan", October 2011, pages 20-21

across the two wealth groups in the 3 districts own small amounts of land which is also not completely cultivated due to

limited water supplies.

	Avg. Amount of Land Owned (Acres)		Avg. Amount of Land Cultivated (Acres)	
Districts	**Very poor**	**Poor**	**Very poor**	**Poor**
Jamshoro	0	2	12	3
Tharparkar	4	5	2	7
Umerkot	4	2	3	4
Overall	4	3	4	5

Table 2: Average number of acres owned and cultivated by very poor and poor households

The majority of poor and very poor households are tenants or sharecroppers (78% in Jamshoro, 55% in Tharparkar, and 61% in Umerkot); a minority own the land that they cultivate (22% to 23% across the 3 districts). Whether owners or tenants, most households in irrigated or rain fed agriculture areas are farming only a few acres of the *rabi* (winter wheat). The most productive wheat farming is done close to the Indus river in Jamshoro, where farmers may capture the river for irrigation. Away from the Indus, the three districts are arid, and

wheat farmers rely on rain for their crops.

Households in the arid, agro-pastoral areas of Tharparkar and Umerkot rely more heavily on livestock and use land for grazing.

Some landless households rely entirely on casual and agricultural labour for income. Landless households are even more reliant on markets for their food needs. Casual and agricultural labour, tenant farming, and ownership of some livestock (goats are the most common animal kept) are the core characteristics of poor and very poor households in the three districts.

	Type of Ownership of Land Cultivated		
District	**Owner**	**Tenant/ sharecropper**	**Owner and tenant**
Jamshoro	22%	78%	0%
Tharparkar	23%	55%	23%
Umerkot	22%	61%	17%
Overall	22%	61%	16%

Table 3: Type of ownership of land cultivated

The main sources of livelihood include agriculture wage labour, non-agricultural wage labour, handicrafts, sale of livestock products and charity/Zakat/BISP payments during both normal and emergency periods (see table on sources of livelihood in annex A). However, households shifted their sources of livelihood from agriculture to non-agriculture based during emergency period.

Average monthly household income show the grinding poverty faced by the very poor and poor households in normal times, as well as the reduced income wrought by emergencies. The already low income levels further worsens during emergency and very poor households have experienced more reduction in their incomes compared to poor households between normal and emergency periods.

		Avg. No of Livestock Owned			
		Very poor		Poor	
District	**Animals**	**Normal**	**Emergency**	**Normal**	**Emergency**
Jamshoro	Cows	0	0	0	0
	Goats	1	1	5	5
	Sheep	0	0	0	0
Tharparkar	Cows	0	0	0	0
	Goats	5	5	9	7
	Sheep	0	0	2	0
Umerkot	Cows	0	0	0	1
	Goats	5	3	5	3
	Sheep	0	1	0	0
Overall	Cows	0	0	0	1
	Goats	3	3	6	4
	Sheep	0	0	1	0

Table 4: Average number of livestock owned in normal and emergency periods

District	**Period**	**Avg. Monthly Income of Household (Rs.)**		**Percentage Reduction in Income between Normal and Emergency Periods**	
		Very poor	**Poor**	**Very poor**	**Poor**
Jamshoro	Normal	6750	7667	-50	-30
	Emergency	3375	5333		
Tharparkar	Normal	4000	6000	-31	-13
	Emergency	2760	5200		
Umerkot	Normal	3300	8000	-36	-32
	Emergency	2100	5429		
Overall	Normal	4536	7267	-40	-27
	Emergency	2700	5333		

Table 5: Household average monthly income in normal and emergency periods

D. Crisis scenarios and selected timeframe

The crisis scenarios chosen for the PCMA are flooding in areas of Jamshoro, and drought in the arid, non-flood risk areas of Umerkot and Tharparkar. The time frames chosen for the normal period and the emergency period are listed in Table 7. FAO projects a record wheat harvest for Pakistan in 2017,[21] reflecting high productivity in irrigated farmlands along the Indus. In the arid, rain-fed areas of Jamshoro and Umerkot, and all of Tharparkar, drought conditions have become chronic, killing hundreds of children under the age of five[22] and thousands of livestock each year. The floods of 2010 were used as the emergency scenario for flood-affected communities of Jamshoro, representing a worst-case: nationwide 20 million people were affected, 1.8 million houses were damaged or destroyed, 1.3 million hectares of field crops lost, more than 1 million animals and 1, 800 people died.[23]

Normal and Emergency Periods		
District (Crisis)	**Normal Period**	**Emergency Period**
Jamshoro (Flood)	August-September 2012	August-September 2010
Jamshoro, Tharparkar and Umerkot (Drought)	December-March 2012-13	December-March 2014-15

Table 6: Reference periods for 'normal' and 'emergency'

The second emergency scenario is drought in 2014-2015, which has continued into a chronic emergency: in Table 7 more than 70% of agro-pastoral households in Umerkot report that water is not available at all. In Tharparker, more than 80% of agro-pastoral households reported no water availability. Consequently, food security is greatly undermined for farmers without access to irrigation and households that rely on livestock: as can be seen in the integrated food insecurity classification map from November 2015 in Figure 2 below, the current drought is causing all of Tharparkar to be highly insecure (emergency), and all of Umerkot and Jamshoro to be moderately food insecure (stressed). The current drought is not anomalous, but rather part of a larger long-term trend of declining annual rainfall and more sporadic rains, a Pakistan Journal of Meteorology report from 2012 concluded that the, on-going change in the rainfall pattern and prolonged droughts "will pose severe risks to agriculture and water management sectors."[24]

District	**Availability of Water for Agricultural Activities Compared to Normal Period**			
	Not Available at all	**Very less available**	**Available to some extent**	**Fully available**
Jamshoro	33%	44%	11%	11%
Tharparkar	83%	9%	9%	0%
Umerkot	72%	11%	17%	0%
Overall	70%	16%	12%	2%

Table 7: Availability of water for agricultural activities compared to normal period

[21] Food and Agriculture Organization of the United Nations, Global Information and Early Warning System Pakistan Country Brief, 30 November 2016, http://reliefweb.int/sites/reliefweb.int/files/resources/PAK30-November-2016.pdf
[22] World Food Programme, "Pakistan Food Security Bulletin, Issue 4: July 2015 – June 2016, published September 2016, page 10
[23] Loreto Palmaera, "Emergency Market Mapping and Analysis: Pakistan Flood Response, 7-28 September 2010", ECHO, 2010, page 3.
[24] Salma, S., S. Rehman, M. A. Shah2, "Rainfall Trends in Different Climate Zones of Pakistan", *Pakistan Journal of Meteorology*, Vol. 9, Issue 17, July 2012, page 46

Photo 2: Local flour mill (chaki) in Thano Bula Khan market in Jamshoro

Figure 2 (below) shows the flood-affected areas in Jamshoro for the floods of 2010, 2011, and 2012. Figure 3 (below) is a map showing the severity of drought in Jamshoro, Umerkot and Tharparkar prepared using data from Quarterly Drought Bulletins produced by Pakistan Meteorological Department (PMD).

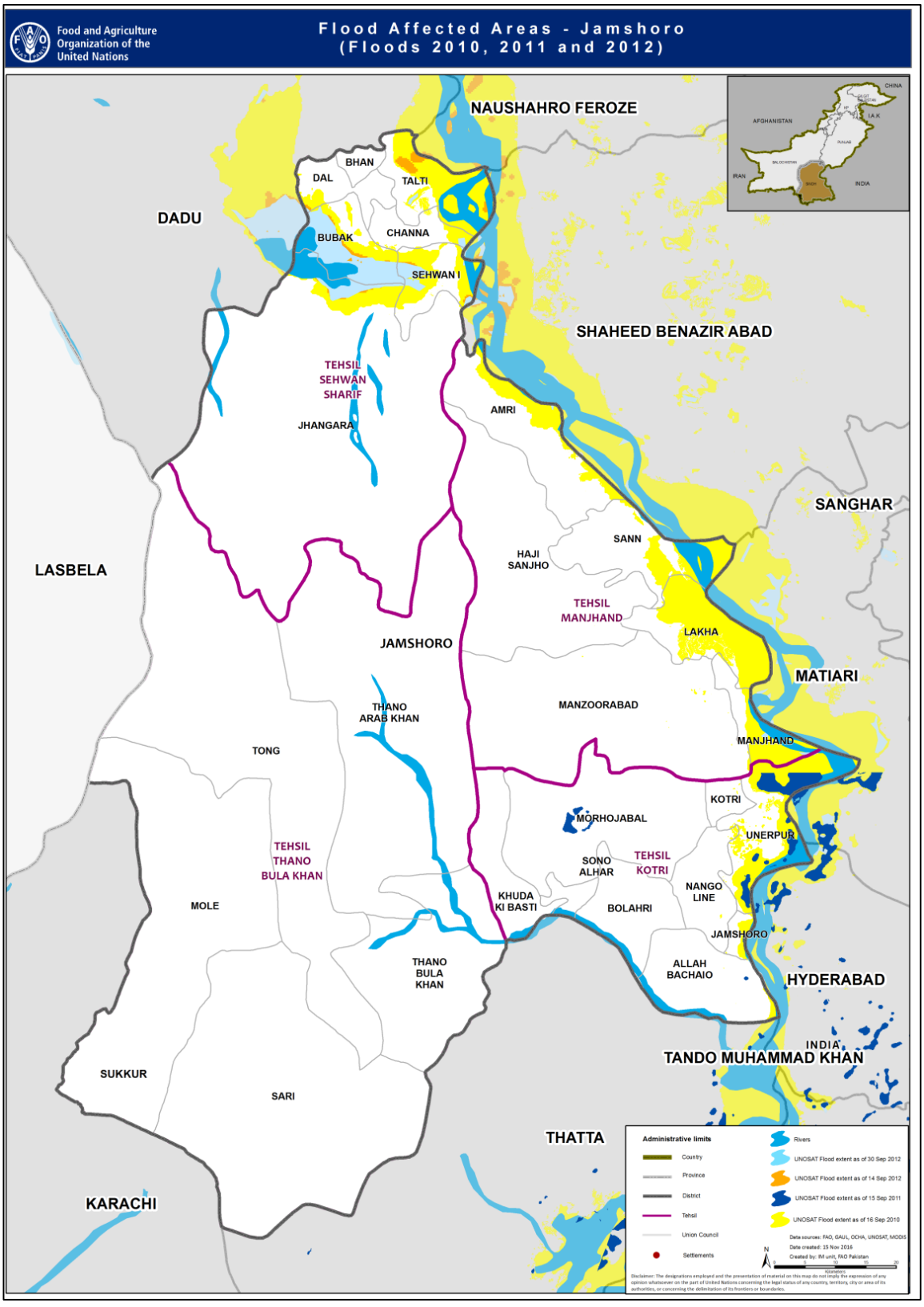


Figure 2: Map of flood-affected areas in Jamshoro in 2010, 2011, and 2012

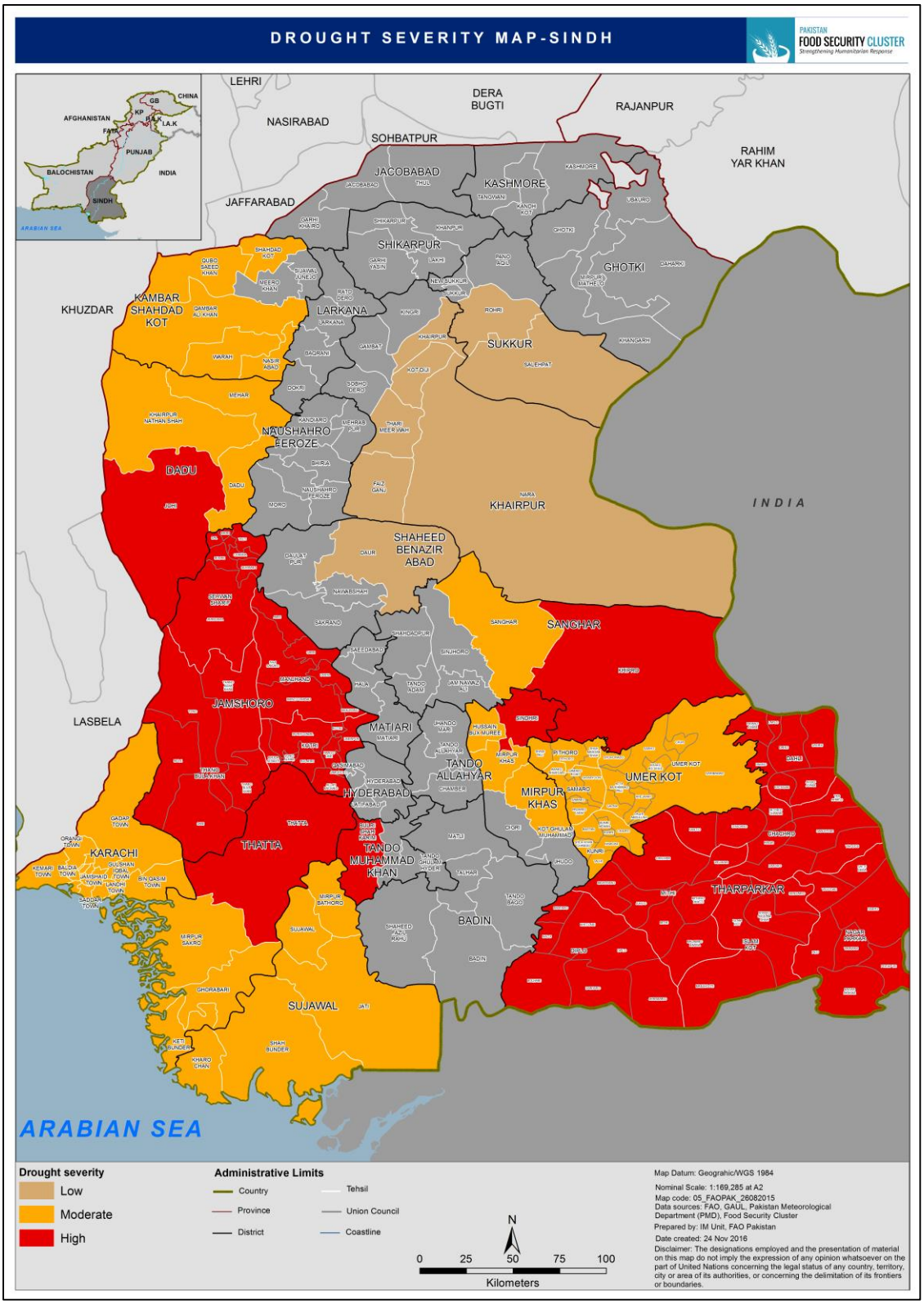


Figure 3: Map of drought severity in Sindh during 2013-15

E. Market systems and season of the analysis

The selection of critical markets was undertaken collaboratively through a series of meetings in Islamabad and Karachi.[25] The result of those meetings was a strong consensus on the importance of wheat flour as a critical market system to be analysed by the PCMA: wheat is the staple food for all wealth groups in Sindh province. The choice of a second market system was less clear, with interest divided between the goat, water, and fodder markets. The goat market system was ultimately chosen, with the logic that it is a good vehicle for also studying water and fodder, which are the key inputs for goats. As documented by the 2015 HEA, goats are often the only livestock owned by poor and very poor households,[26] and represent both an important source of nutrition (milk) and income through selling goats and their offspring.

a. Seasonal calendar

The agricultural calendar for the wheat crop is critical to the lives and livelihoods of households across the wealth spectrum in Jamshoro, as are the seasonal dry periods for households in Tharparkar and Umerkot. Wheat producing households sell much or all of their wheat crop immediately after harvest: they are compelled to do so to service debt obligations and make purchases to meet basic needs. Households might keep some wheat for consumption or perhaps seed stock, but lack of storage and continuous pressures to obtain cash to purchase essentials in the market quickly push very poor and poor households into selling harvested crops.

Seasonal Calender for Wheat Flour

Factor/Activity	J	F	M	A	M	J	J	A	S	O	N	D
Wheat Cultivation/ Sowing												
Wheat Harvesting												
Agriculture Labour Peak Demand												
Rains & Flood Risk												
Selling/ Procurement												
Labour Migration												
Wheat Shortage												
Low Prices for Wheat												
High Prices for Wheat												

Umerkot+Jamshoro	Tharparkar	All 3 Combined

[25] Prior to arriving in Pakistan, the PCMA leader in consultation with local leader drafted a tentative list of options for two critical markets to be studied in the PCMA. Two consultation meetings were held in Islamabad on November 28; first between the PCMA Leader and technical personnel of FAO and WFP to discuss the critical market options. In the second meeting, technical personnel from FAO, WFP, ACF and OXFAM discussed the critical market options and normal and emergency periods for crisis scenarios. On November 29th, two consultation meetings were held in Karachi. In the morning, the PCMA Leader along with FAO and WFP personnel conferred with provincial government departments: PDMA Sindh and BoS-Sindh. In the afternoon, second consultation meeting was attended by personnel from provincial departments (PDMA, Bureau of Statistics, Livestock and Nutrition Programme), UNFAO, UNOCHA, INGO and NGOs.

[26] *Household Economy Analysis: Drought Impact 2015: Jamshoro, Umerkot & Tharparkar Districts of Sindh Province*, Food Security Cluster, Pakistan, 2016, pages 18-19

F. Narrative of key actors and key findings

This section contains narrative descriptions of key actors and key findings relevant to their role in the market systems, the target population, and the answers to the key analytical questions. Following the descriptions are market maps, one representing the baseline (normal) and the other representing a future emergency situation, based on how markets have reacted to past emergencies.

Retailers are the main suppliers of wheat and wheat flour for very poor and poor households in Jamshoro, Umerkot, and Tharparkar. The retailers are supplied via transporters by wholesalers and mills in the larger market areas of the district or sub district. Retailers typically purchase wheat and wheat flour in maunds and sell in kilograms. Steady retail turnover is spurred by year-round demand for wheat and wheat flour. Via the market, there are numerous suppliers and transporters available to retailers, who need only 1-3 days for stocking lead-time, and can obtain a wide range of quantities of wheat without significant price fluctuations. Retailers do not keep large volumes of wheat or wheat flour on hand; storage capacity and purchasing power are limited. Low volumes of inventory are turned over regularly, supported by robust supply mechanisms and low price volatility. Retailers may purchase stock on credit; repaying the wholesalers using proceeds from retail sales over the course of one or two weeks, before restarting the cycle of restocking on credit. As seen in Figure 4 (below),[27][28] retail price correlations between the Karachi, Lahore, Multan, Lahore, and Quetta markets indicate moderate price integration between the market areas, and given the consistency of demand at the household level and the speed at which retailers are accustomed to being able to procure and restock, demand appears somewhat elastic.

Figure 4: Price per kilogram (PKR) for wheat flour in major cities of Pakistan

[27] Food and Agriculture Organization of the United Nations, Global Information and Early Warning System food price monitoring and analysis tool, http://www.fao.org/giews/food-prices/tool/public/index.html#/dataset/domestic, accessed 27 December, 2016

[28] Vulnerability Analysis and Mapping (VAM) Unit of the United Nations World Food Programme, *Pakistan Market Price Bulletin, November 2016, http://documents.wfp.org/stellent/groups/public/documents/ena/wfp288941.pdf?_ga=1.124866378.1749180989.1482594529 page 3*

Commodity	City	Price per kg (PKR)	Price per kg (USD)
Wheat	Lahore	34.38	0.33
	Multan	32.38	0.31
	Karachi	36	0.34
	Peshawar	34	0.33
	Quetta	35	0.33
Wheat Flour	Lahore	38	0.36
	Multan	37.38	0.36
	Karachi	43.76	0.42
	Peshawar	37.48	0.36
	Quetta	40	0.38

Table 8: Retail price in PKR and USD per kilogram of wheat and wheat flour in Pakistan's major cities.

Wholesalers operate only in main market towns in each of the districts. They purchase their stocks from large wheat flour mills following the harvest and store it in warehouses, normally storing enough to meet the demand within the district until the next year's harvest, though if they miscalculate, or if demand increases, they can always import stocks from Punjab Province. Like retailers, they regularly buy and sell on credit. Wholesalers buy and sell wheat flour in maunds, the local term for sacks of 40 kg.

Transporters Transport is widely available throughout the wheat flour market chain. Typically, transporters do not purchase the wheat or wheat flour they transport, but rather transport it for a fee on behalf of the buyer or seller. Trucks of various sizes are available at competitive prices in all three districts; small vehicles or hand carts might carry a few maunds between local actors, while medium and large trucks may carry hundreds of maunds to larger market centres, like Hyderabad or Karachi.

Large Flour Mills are few in number but produce vast quantities of wheat flour[29]. Low grade flour found in the markets comes from large flour mills, which often reprocess and mix in flour milling byproducts, such as starch. In its pure unadulterated form, with 'everything included", wheat flour is referred to as '100%'. If 10% of a batch or bag of milled flour consists of a mixed-in byproduct, the flour is referred to as '90%'. The lower the purity of the flour the cheaper it is per kilogram, but the less satiety, nutrition and kilocalories it provides. The poorest households purchase the lowest quality flour, which comes from high ash content[30] wheat varietals, and has so much starch mixed in it looks 'pure white'.

Small Flour Mills Small, generator-run flour mills are ubiquitous in sub-district market towns, and common in villages. They purchase wheat from wholesalers or retailers, and mill flour for retail sales, selling the flour in increments of one to a few kilograms. Small flour mills generally keep very little inventory on hand, instead milling to order, or milling a volume of wheat appropriate according to their perception of daily or weekly demand, given current conditions and historical experience.

Large Landowners own anywhere from 25 to hundreds of acres, which are farmed by tenant farmers. Landowners receive the cash value of 50% to 75% of the cash value of each harvest of their tenants. For the sale of wheat from land cultivated by day labourers, large landowners are also able to avail themselves of government programs for purchasing wheat via the food department, by obtaining the government stamped 40 KG sacks in which all government purchased wheat must be stored. The government generally purchases wheat at a higher price than what the tenant farmers are able to obtain in the market. For example, as of December 2016, a maund of wheat sold to the government in

[29] According to team leaders, in total 18 large flour mills are functioning in three targeted districts: 2 each in Umerkot and Tharparkar and 14 in Jamshoro.

[30] Highest ash content varietals are Pirsabak-05 (1.55%), Tatar-96, (1.93%), and Fakr-e-Sarhad (1.9%). Muhsin Jamal, Inam -ur-Rahman, Muhammad Asif Nawaz, Tahir Hussain, Sami Ullah, Muhammad Ali, Muhammad Shuaib, "The 0verall range of ash content in wheat varietals is 1.46% to 2.33%. Physiochemical And Nutritional Evaluation of Selected Pakistani Wheat Varieties", *Journal of Agricultural and Biological Science*, Vol. 8, No. 2, February 2013, pages 153-155.

Jamshoro is purchased at a price 1,200 PKR, higher than a maund of wheat sold in the open market at around 1,000 PKR.

Poor and Very Poor Households Poor and very poor households rely heavily on the market for wheat flour and other staples. Their price sensitivity is somewhat low, as they have few alternatives to fulfil their basic food needs, particularly in the lean season. Household purchasing power is very low, but is artificially augmented by heavy borrowing and purchasing on credit. Much or all of the income realized from wage labour or the sale of harvest must be diverted to debt service. Pakistan's fiscal policy of indirect taxation affects market prices "disproportionately affects the poorer segments of the population."[31]

Avg. Acres of Wheat Cultivation		
	Normal Period (Avg.Acres)	Cultivation of wheat-Emergency Period (Avg.Acres)
Jamshoro	4	2
Tharparkar	1	0
Umerkot	3	1

Table 9: Avg. number of acres wheat cultivated per household

Poor and very poor households have limited or no facilities for storing wheat: if there is any wheat left to be kept after selling the harvest in the market to meet immediate needs and service debts, wheat is stored in the open, in a long mound, sometimes topped with a layer of mud. Storage in this manner offers no protection from flooding, and little protection from rain and spoilage. In the irrigated belt of Jamshoro and Umerkot mostly poor and very poor households depend on landlords who provide wheat on credit year-round. Every landlord cultivates wheat in the Rabi season and store as per their own consumption needs and the requirements of their tenants.

		Volume of Wheat Harvest Kept for Own Consumption (Avg. Maunds)	
District	Period	Very poor	Poor
Jamshoro	Normal	12	41
	Emergency	12	Unknown
Tharparkar	Normal	0	0
	Emergency	0	0
Umerkot	Normal	24	17
	Emergency	6	8

Table 10: Average volume wheat harvest that farming households keep for own consumption

Many poor and very poor households rely on casual unskilled labour and agricultural labour for income throughout the year: it is the second largest source of income for agro-pastoralists after selling their own production. Often the payment for labour comes in the form of wheat grain or flour, not cash. The terms of trade for one day of casual unskilled labour and one kilogram of wheat flour have slowly trended upwards in the last six years: in December 2016 one day of casual unskilled labour would earn the equivalent of about 11 kg of wheat flour.[32] In October 2016 it was 14.3[33]

Government Food Officers There is one government food office located in each of the three districts studied. At the time of each wheat harvest the food office uses its procurement centers scattered across each district purchase wheat harvested by large landowners. Purchases are

[31] "Pakistan One United Nations Programme, 2013-2017", https://www.unicef.org/about/execboard/files/PAK_One_UN_Programme_II_(2013_-_2017)_Document_12_June_2012.pdf, page 9.

[32] Vulnerability Analysis and Mapping (VAM) Unit of the United Nations World Food Programme, *Pakistan Market Price Bulletin, February 2012,* http://documents.wfp.org/stellent/groups/public/documents/ena/wfp246327.pdf?iframe, page 4

[33] Vulnerability Analysis and Mapping (VAM) Unit of the United Nations World Food Programme, *Pakistan Market Price Bulletin, November 2016,* http://documents.wfp.org/stellent/groups/public/documents/ena/wfp288941.pdf?_ga=1.124866378.1749180989.1482594529 , page 2

denominated by maunds: the government only purchases maunds of wheat in bags bearing an official government stamp. The per-maund purchase price is set each January by the federal government. The government stores the wheat in storage facilities; there is at least one storage facility per district, often consisting of a compound of buildings. In one Jamshoro facility alone, the Government Food Office is storing more than 100,000 MT of wheat in 100 kg sacks. At the pleasure of the government, the stored wheat may be sold to large mills and wholesalers, or distributed to households via the government revenue agency.

The government food office purchases approximately 10% of production in its district.[34] The share of wheat as a percentage of overall agricultural production is rising, making it a common occurrence that the volume of wheat the Government Food Officers are mandated to purchase in a given year exceeds the storage capacity of the district food office, occasionally leading to spoilage of wheat stored in the open: the government lost 7,000 maunds of wheat in the floods of 2010. Wheat is being grown more and more because it is a staple food for producing households, and can very quickly be sold for cash in local markets; other crops do not provide such a quick return.

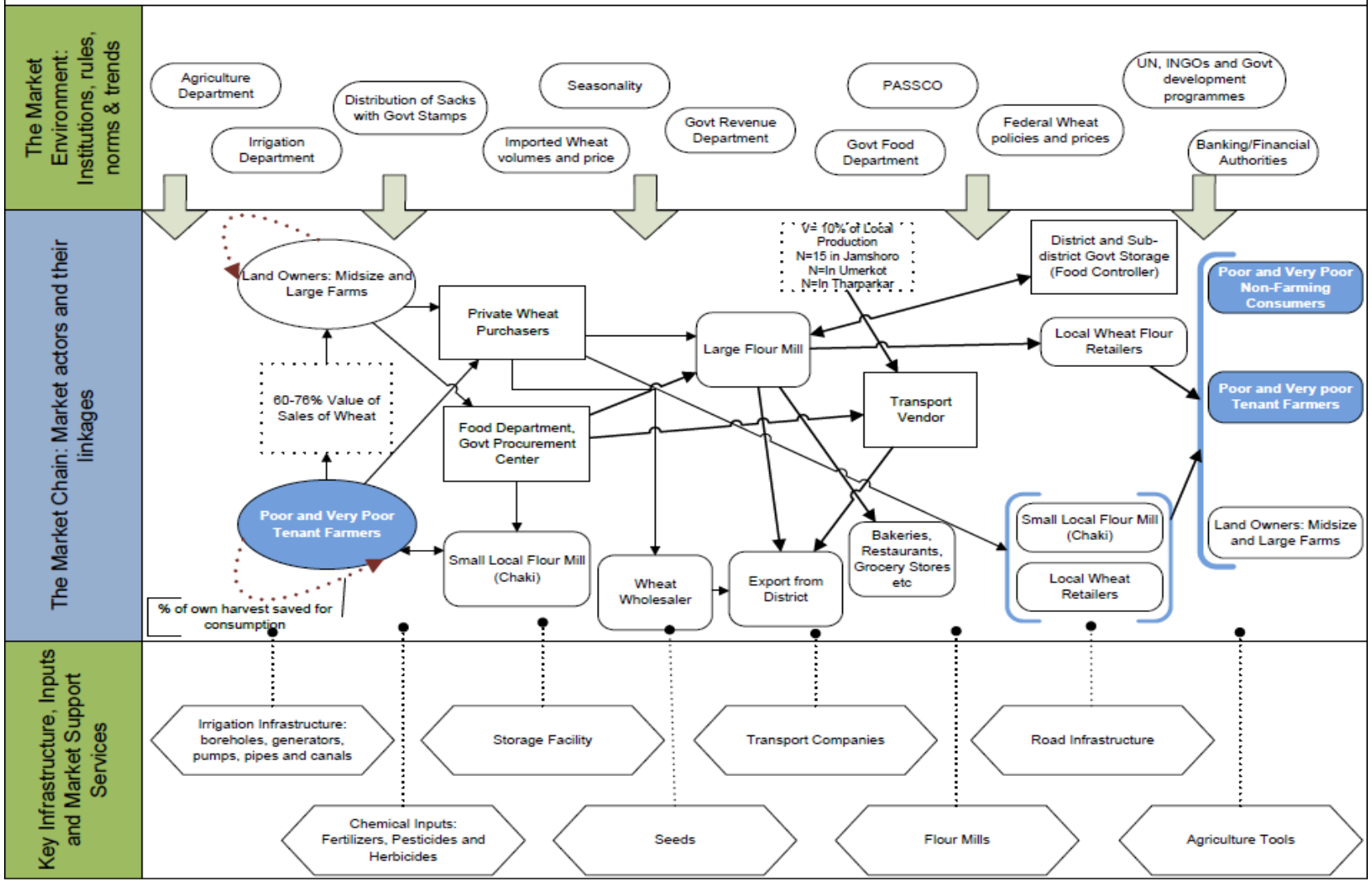
Photo 3: Onion field near Thano Bula Khan, Jamshoro

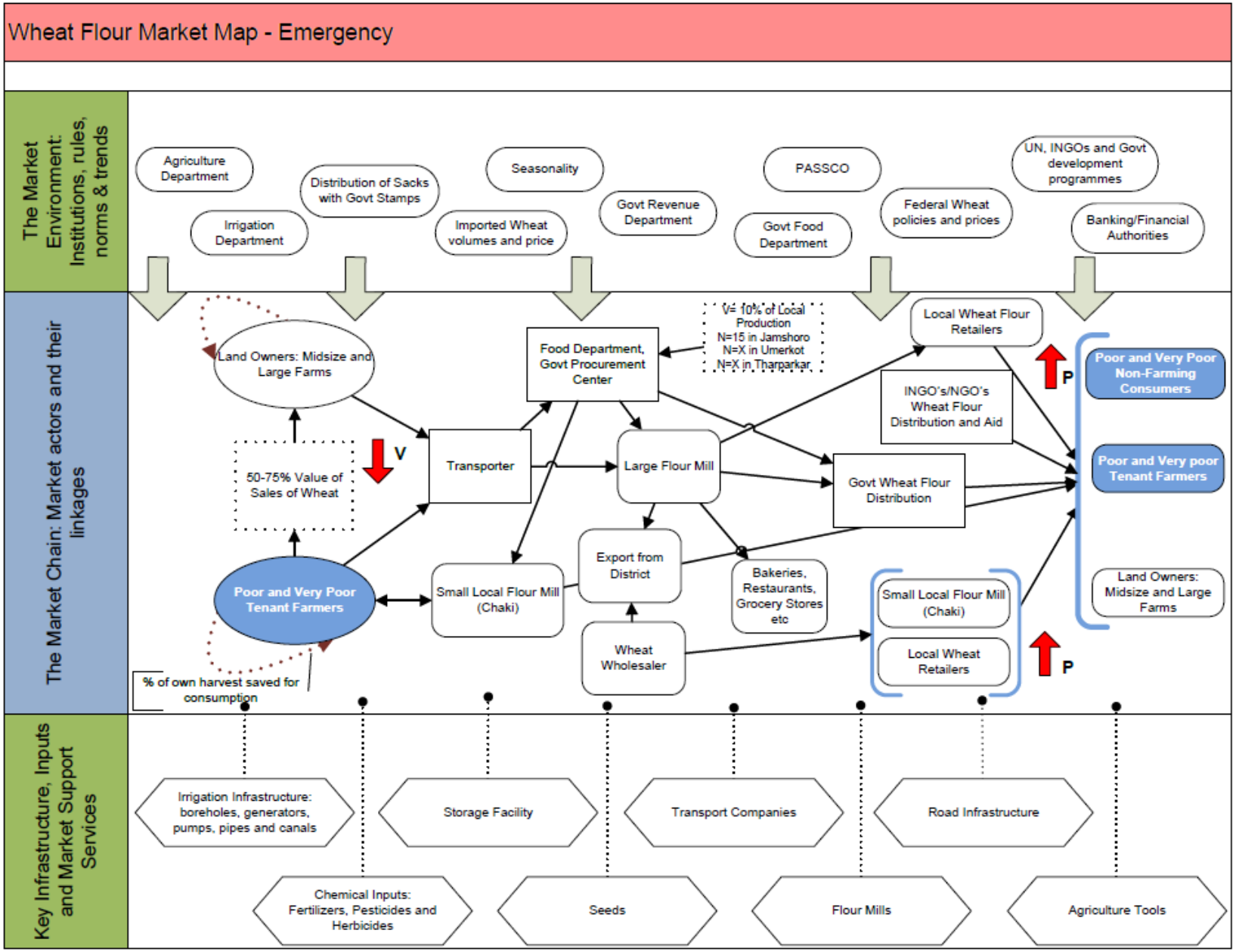
G. Market maps for wheat flour

Based on inputs from local experts and findings of PCMA, following baseline and emergency maps for wheat flour have been prepared. The maps list actors in the market chain; key infrastructure, inputs and market support services, and the market environment: institutions, rules, norms and trends.

[34] Interview with Government of Pakistan District Food Control Officer, Sehwan, 07 December 2016

Wheat Flour Market Map - Baseline




Wheat Flour Market Map - Emergency
The Market Environment: Institutions, rules, norms & trends
The Market Chain: Market actors and their linkages
Key Infrastructure, Inputs and Market Support Services
Agriculture Department
Irrigation Department
Distribution of Sacks with Govt Stamps
Imported Wheat volumes and price
Seasonality
Govt Revenue Department
Govt Food Department
PASSCO
Federal Wheat policies and prices
UN, INGOs and Govt development programmes
Banking/Financial Authorities
Land Owners: Midsize and Large Farms
50-75% Value of Sales of Wheat
V
Transporter
Food Department, Govt Procurement Center
V= 10% of Local Production
N=15 in Jamshoro
N=X in Umerkot
N=X in Tharparkar
Large Flour Mill
Govt Wheat Flour Distribution
INGO's/NGO's Wheat Flour Distribution and Aid
Local Wheat Flour Retailers
P
Poor and Very Poor Non-Farming Consumers
Poor and Very poor Tenant Farmers
Land Owners: Midsize and Large Farms
Poor and Very Poor Tenant Farmers
% of own harvest saved for consumption
Small Local Flour Mill (Chaki)
Export from District
Bakeries, Restaurants, Grocery Stores etc
Wheat Wholesaler
Small Local Flour Mill (Chaki)
Local Wheat Retailers
P
Irrigation Infrastructure: boreholes, generators, pumps, pipes and canals
Storage Facility
Transport Companies
Road Infrastructure
Chemical Inputs: Fertilizers, Pesticides and Herbicides
Seeds
Flour Mills
Agriculture Tools

H. Summary of key findings

Key actors	Key findings	Implications for response
Poor consumers (including landless HHs)	Wheat is the key staple. Households also consume rice, millet, guar, and sorghum.	Humanitarian response to floods and drought should take into account HH preferences for commodities and in what form they should be delivered: the HHs have expressed preference for wheat flour over wheat grains.
	The floods of 2010 and forced many HH's into negative coping strategies of selling livestock and taking additional debt. Most households have not been able to fully restore themselves to pre-flood 'wealth', and they remain financially vulnerable with low resilience for their food security and livelihoods. The on-going drought deepens and prolongs this vulnerability, particularly in non-irrigated agriculture and pastoral areas.	Poor and very poor HHs have needs that constitute a humanitarian emergency, even absent additional exogenous shocks like floods or more severe droughts. Programming for resilience and DRR should begin as soon as practicable to mitigate the impact of future disaster events.
Small –scale producers, (tenant farmers and small holders)	Tenant farmers live in perpetual debt to landowners, vendors, and creditors. Structural iniquity in the feudalistic rural agriculture economy, natural disasters (most notably the floods of 2010 and the on-going drought) and other factors of adversity constitute a demographic profile of deep vulnerability.	Helping actors active in Jamshoro, Umerkot, and Tharparkar must dedicate themselves not just to emergency preparation and response, but also to longer-term poverty eradication and food security programming.
Large scale landowners	Large landowners have strong disincentives to support education, land reform or other processes that would empower the poorest.	Programming must be realistic about what is possible at the ground level. Identifying or developing a small cadre of progressive large-scale landowners might be a point of entry to a demonstration effect that can be scaled.
	In addition to appropriating half to three quarters of the value of their tenants' harvest, through graft and influence peddling, connected landowners and politicians capture government flour procurement opportunities, securing a higher price per kilogram than what less fortunate producers receive in the open market	Emergency programming, even that which is market-sensitive, will likely perpetuate and reinforce structures that are the driving force of chronic poverty and vulnerability to the emergency to which humanitarian actors are responding: true disaster risk reduction and resilience programming must seek to empower poor and very poor households to make progress out of the repetitive cycle of grinding poverty, vulnerability, and natural disaster impacts.

Chaki (village mills)	Village mills are physically and financially vulnerable to flooding in Jamshoro, and struggle for viability in the face of significantly reduced business volume as a result of drought in drought affected areas.	Support can be provided to village mills by linking them to voucher programs, and by targeting them with market support programming, such as grants for rehabilitating or constructing buildings and storage areas that are flood resistant.
Retailers and wholesalers	Wheat and wheat flour retailers of various sizes are ubiquitous. Stock lead times are short – often 1 to 2 days, and when capital and supply are available, they can quickly double or triple their inventory.	Retailers and wholesalers are a crucial market actor, in that they 'face' the households. As such, they should be supported and included in market-based resilience and response programming.

Lesson	Implication(s) for Response
Chronic drought in Tharparkar and Umerkot constitute a widespread and current emergency	Planning and action should be undertaken with a sense of urgency: the first priority is fulfilling basic needs.
	Effectively targeting households affected by a chronic drought emergency requires more than actions such as food aid: extant market systems should be leveraged to support the recreation of productive HH assets.
As demonstrated in 2010, massive flooding causes significant disruption to market functionality	Market-based programming is not appropriate until a critical mass of market functionality is restored (locally and across the wheat market chain).
	DRR and resilience activities targeting market actors may mitigate the impact and duration of time in which the market is considered insufficiently functional to support market-based programming.
	DRR, resilience and preparation activities targeting clusters of households and key market actors in a given geographic area can protect access in an emergency.
The combined response to the flooding in 2010 neither met HH needs nor were continued for long enough	Building on the PCMA, HEA, SDNA and other recent and relevant information gathering activities, investment in targeting and sensitization activities can be undertaken as part of DRR and resilience activities before the next large, sudden-onset emergency.
	Per person and per household rations must be increased, and those larger rations must be made available until no longer needed.

I. Gap Analysis: Comparing gap in needs with market capacity

In the baseline period, the PCMA estimates that an average-sized household of 7 persons requires 73 kg of wheat flour per month.[35] There is more than enough wheat flour available in the markets to meet household needs, but poor and very poor households in the districts studied to not have adequate financial access to markets. Even after increasing immediate purchasing power through borrowing or buying on credit, those households still face a shortfall of wheat flour in the baseline period. During drought conditions, the shortfall is exacerbated by reduced crop yields and wheat quality, and a corresponding reduction in income from sales of wheat and other agricultural products. During a flood emergency, households face shortfalls due to constrained financial access and temporary disruptions of physical access to markets. Although more than half of households interviewed in the PCMA received wheat flour distributions from the government, NGOs or INGOs, the shortfall per household per month is still almost 60 kilograms in the irrigated agriculture zones of Jamshoro and Umerkot, and around 40 kilograms per household per month in the agro-pastoral zones of Umerkot and Tharparkar in a severe drought emergency scenario. Chronic drought, too-heavy rains and minor flooding also deepen the wheat flour shortfall for very poor and poor households, but severe flooding, used in the gap analysis table is the extreme case (eg. the floods of 2010) so as to illustrate the potential scope of household gaps in future emergencies.

Wheat Flour Assistance Received during Emergency Period (Avg. KGs)		
District	**Very poor**	**Poor**
Jamshoro	5	20
Tharparkar	40	25
Umerkot	22	67
Overall	**22**	**38**

Table 11: KGs of wheat flour received by very poor and poor households in emergency relief

The approximate number of households unable to access sufficient wheat is the estimated number of households in each livelihood zone that are 'poor' or 'very poor' wealth groups as defined in the Household Economy Analysis of 2016. According to the HEA, 62% of the 700,000 total households in the irrigated agriculture livelihood zone and 64.5% of the 1,843,300 households in the agro-pastoral livelihood zone are poor or very poor.[36]

Given that the average price of a kilogram of wheat flour across the three districts studied is 40 PKR, the total value of the gap for poor and very poor households in the irrigated agriculture areas of Jamshoro and Umerkot is more than 4.1 billion PKR, or $39.84 million USD. For the households in the agro-pastoral areas of Umerkot and Tharparkar, the value of the total gap is more than 9.6 billion PKR, or $92 million USD. Neither of these value calculations takes into account the value of the wheat flour households report that they, based on past experiences, expect to receive from the government or INGOs.

[35] Based on an average per capita consumption of wheat flour of 125 to 128 kilograms per person per year, according to Dmitry Prikhodko, Oleksandr Zrilyi, "Pakistan: Review of the wheat sector and grain storage issues", Food and Agriculture Organization of the United Nations, 2013, page 11

[36] *Household Economy Analysis: Drought Impact 2015: Jamshoro, Umerkot & Tharparkar Districts of Sindh Province*, Food Security Cluster, Pakistan, 2016 Pages 18-19

Focus Population	Approx. No. of HHs unable to access sufficient wheat flour	Avg. HH wheat flour require-ment (KGs)	Avg. quantity of wheat flour aid received per HH per month	Avg. HH shortfall per month (KGs)	Approx. duration of gap (months)	Total gap (Maund)	Value (PKR)	Value (USD)
Very poor and poor households in agriculture areas of Jamshoro and Umerkot	434,000	82	22.5	59.5	4	2,582,300	4,131,680,000	39,480,929
Very poor and poor households in agro pastoral areas of Umerkot and Tharparkar	1,188,928	79	38.5	40.5	5	6,018,947	9,630, 315, 626	92,024,022

Table 12: Gap analysis table

Preferences for aid: Averaged across Jamshoro, Umerkot, and Tharparkar, 93% of very poor households and 64% of poor households prefer to receive wheat in the form of flour, rather than grain.

Further, more than half of households have expressed their preference to receive food assistance in-kind and around one-fifth prefer cash in case of future emergency. The poorest are more likely than poor (64% vs. 53%) to prefer food assistance in-kind. In contrast to Tharparkar and Umerkot, the overwhelming majority of the poorest and poor households in Jamshoro have shown preference for cash to meet their food needs.

	Households' Preference for Wheat Flour/Wheat Grain		
District	Assistance type	Very poor	Poor
Jamshoro	Wheat grains	0%	33%
	Wheat flour	100%	67%
Tharparkar	Wheat grains	20%	75%
	Wheat flour	80%	25%
Umerkot	Wheat grains	0%	14%
	Wheat flour	100%	86%
Overall	Wheat grains	7%	36%
	Wheat flour	93%	64%

Table 13: HH preference for wheat flour/grains in future emergency

	Households' Preference to Receive Food Assistance in Case of Future Emergency		
District	**Form of assistance**	**Very poor**	**Poor**
Jamshoro	In-kind	25%	33%
	Cash	75%	67%
Tharparkar	In-kind	80%	40%
	Cash	0%	20%
	Cash/In-kind	0%	20%
	Cash/Vouchers	20%	20%
Umerkot	In-kind	80%	71%
	Vouchers	20%	29%
Overall	In-kind	64%	53%
	Cash	21%	20%
	Vouchers	7%	13%
	Cash/In-kind	0%	7%
	Cash/Vouchers	7%	7%

Table 14: HH food assistance preferences in case of future emergency

a. Key analytical questions

Data gathering and analysis for the wheat flour PCMA was structured around 4 key analytical questions. The key analytical questions and the responses to those questions as evidenced by the data gathered and analyzed by the PCMA Sindh team are:

1. **How does the wheat flour market system behave normally, and how will it behave during a drought emergency?**
    a. **Is it supplying the appropriate volume/quality of wheat flour?**

The wheat flour market was behaving in emergency in a manner similar to its past performance in normal period. Wheat and wheat flour are widely available in the markets at the district, sub district, and village level. Households in the lower end of the wealth spectrum rely heavily on regular, small volume purchases of wheat from the market, particularly in the months leading up to the harvest in March. Ubiquitous production of wheat in irrigated and rain fed agriculture areas, a strong transport sector and a basically functional road network support a modest prices spread between central market areas, production areas, and remote demand areas. Hundreds of thousands of maunds of wheat stored by the government ensure supply and a degree of price stability in the case of emergency.

In the event of a drought emergency that affects production, physical access to markets will be unaffected, but poor households' will have less financial ability to access wheat flour markets. Wheat fields may be left fallow during a drought, depressing the demand for agricultural labour. Households

which rely in part on agricultural labour for income will face additional livelihoods and food security challenges as their income falls while wheat flour prices rise in the months before the annual wheat harvest.

In the event of a flood emergency, physical access to markets will be significantly reduced for households living in flood-affected areas: roads will be impassable. The floods of 2010 provide an illustration of how markets will react: widespread destruction of crops in irrigated production areas will lead to significant reduction in supply of wheat, wheat flour, and seeds, pushing up prices. Credit, which is a crucial lubricant in the functioning of the wheat flour market chain will dry up for many actors, causing supply gaps and restocking challenges, pushing prices higher. The reduction in seed stock will likely increase the need for farmers to borrow for the next planting season, increasing household indebtedness. Distributions of wheat and wheat flour by the government of Pakistan and the international and Pakistani humanitarian community will close a part of the food gap for some households during the 1-3 months immediately following the flooding. Demand pressure on the market will continue, spurring imports of wheat from Punjab, and perhaps the on-going release of government stocks of wheat.

b. Is it integrated and competitive?

The wheat flour market is somewhat integrated within and between districts, between Sindh and other provinces, and with global commodities markets. Each year the Economic Coordination Committee (ECC) of Cabinet of the government of Pakistan sets wheat flour prices. The price for 2017 is the same as the price for the last two years: 1,300 PKR per maund, which is several hundred PKR higher than the prices in the international market. The rationale is that the higher prices protects the income of the farmers that sell to government procurement centres, and that because wheat products figure so prominently in the Pakistan consumer price index, higher prices mitigate general inflation.[37] The bifurcation of the wheat market into open competitive pricing versus government subsidized pricing introduces anti-competitive dynamics and creates winners and losers: producers that sell to government procurement centres (primarily large scale landowners with political connections) enjoy a meaningfully higher sales price for their wheat. When purchasing wheat, all consumers and market actors may access competitively priced wheat. Even small local wheat flour retailers may (indirectly) connect to international markets from which competitively priced wheat is imported: in 2013, the government of Pakistan and commercial actors imported 350,000 tons of wheat.[38] A further indication of integration is, in cases when Sindh production is insufficient and prices of local wheat rise, private sector market actors import wheat from the Punjab. Given that wheat flour is widely available for retail and wholesale across all three districts, even in non-production areas, there are a volume of actors and dynamism in the market that indicates competitiveness.

c. To what extent can it respond to an increase in demand?

Except in cases where flooding temporarily affects physical access and market linkages, there is no gap in the ability of the market to respond to an increase in demand: when local production is curtailed, the market reacts quickly by sourcing wheat from elsewhere in the district, from production areas in other districts, or from outside of Sindh Province, most usually the Punjab.

Wheat flour retailers and wholesalers have regular inventory turnover and rapid restocking times – often only 1 or 2 days of lead time are required, even for areas located several hours drive from commercial hubs. Wheat retailers and flour mills, particularly the numerous 'chaki' (small mills) located

[37] Food and Agriculture Organization of the United Nations, Food Price Monitoring and Analysis, "Pakistan keeps unchanged wheat support price", 14 December 2016, http://www.fao.org/giews/food-prices/food-policies/detail/en/c/460132/, accessed 26 December 2016

[38] United Nations Food and Agriculture Organization, "Pakistan: Review of the wheat sector and grain storage issues", 2013, page 2

in every sub-district, affirm that they can significantly increase productivity – by a factor of 2 or more, if their purchasing power and supply of wheat is adequate.

2. **Will poor and very poor households be able to continue to access the needed volume and quality of wheat flour during a drought or flood emergency?**

No, even in normal times, poor and very poor households do not have adequate financial access to the needed volume and quality of wheat flour. There is adequate availability of wheat flour in the market, but the low purchasing power of the very poor and poor households compels them to purchase low quality (and less nutritious) wheat flour. Even taking on unsustainable levels of debt does not give those households enough purchasing power to satisfy their nutrition needs. In the event of a flooding emergency, poor and very poor households will have inadequate financial access, and may also face challenges with physical access to markets for up to 5 months. Acute challenges to financial access through reduced purchasing power will continue until the harvest, and likely beyond. Similarly, in the current drought emergency, poor and very poor households have inadequate financial access; the longer the drought the, the greater the toll on livestock and crops, and the more extensive will be the associated negative coping mechanisms. The severity of the flood and the severity and length of the drought are key determining factors in both emergency needs and the time and resources required to recover. What has happened across the three districts studied is after the major floods of 2010 and in the context of chronic drought, poor and very poor households are at a 'new normal' that is below international thresholds for income, nutrition, and other key indicators. As such, even in times that might be considered 'normal' relative to periods of major emergency, many poor and very poor households are in a slow downward spiral, and rely heavily on credit they cannot afford in the long run to make possible the fulfilment of their short-term needs through purchases of wheat flour in the market. Current and future emergency conditions will only exacerbate their chronic seasonal reduction of affordable access.

3. **What are the most appropriate ways to reduce the possible impact of drought or floods on the market system and on the target population's access to markets?**

Most households of poor or very poor economic status would benefit from a larger volume of wheat flour distributed for a longer period of time. In a drought scenario, physical access to markets is not an issue; market-based programming is the best way to reduce impact by bolstering purchasing power. In the case of flooding, physical access to markets may be difficult, dangerous, or costly for poor and very poor flood-affected households. In the initial month or more after a sudden onset flood emergency, distribution of wheat and wheat flour to households would be appropriate. Flooding may also damage storage facilities and destroy inventory kept by flour mills, wholesalers, and retailers. In such circumstances market support activities would be appropriate; subsidized restocking, guaranteeing patronage and stimulating demand through a voucher program, etc. Response options and recommendations can be found in greater detail in the "Response Recommendations" section, below.

4. **What is the role of the government in the critical market system in the baseline and emergency scenarios?**

The government of Pakistan plays an important role in the wheat flour market system, in both 'normal' times and in emergency scenarios. In wheat producing areas, via government procurement centres, the government purchases approximately 10% of local wheat production, which it bags in 100 kg sacks and stores in warehouses. In response to an emergency, the government may release wheat into the market via the Revenue Department to ensure a certain level of available supply, or to be distributed to needy households, via large flour mills.

Two prices for wheat of roughly similar quality create complexity in the market system, and winners and losers on the production side. The government only purchases wheat packaged in 100 kg sacks stamped with an official government logo. Who distributes and receives the sacks is a process that has

been captured and commoditized in the political economy of Sindh: politicians distribute the sacks to large landowners in exchange for a small fee (anecdotal evidence indicates 100-300 PKR per sack), and their support. Subsequently, each maund of wheat sold to the government Food Department earns the seller a significantly higher return than a maund sold at open market rates. Poor and very poor households, who do not have the political capital or financial resources, are excluded from the opportunity to sell to the government procurement system.

J. Main response recommendations

Response option	Feasibility	Consideration of the response and its likely effects on the market system and target group	Timing
Distribution of wheat or wheat flour directly to households	Feasible with road access. Faster with prepositioning of stocks and verification of viability of wheat that has been in storage for more than 1 year	Rapidly meet basic food needs. Would largely bypass market, except program-related involvement of market actors such as transporters and large millers.	Immediately after needs assessment following emergency. Response duration 4-12 weeks, depending on needs and local conditions. Once markets regain functionality, direct distribution should be phased out in favor of market-sensitive programming.
Unconditional cash distribution to households	Feasible through various delivery mechanisms. Pre-crisis sensitization and targeting increases viability and speed.	Cash maximizes HH choice, protects HH productive assets and strengthen HH purchasing power, stimulating markets at local the level and in supply areas. Disruptions in supply to meet demand stimulated by cash may cause local price inflation. Key indicators to monitor are changes in trends of expenditures, (increase spending on health care, decrease spending on food), rather than types of expenditure[39]	It should be given after 4 week till 2 months
Wheat flour vouchers	Feasible. Feasibility and efficiency increase if sensitization and vetting activities are undertaken pre-crisis.	Vouchers utilize existing local market capacity for wheat flour; expand availability of wheat flour during and after an emergency: affected-populations use the sources they already know and trust.	Immediately whenever market functionality is adequate to respond to demand stimulated by vouchers
Support to government and private sector to improve storage	Feasible. More impactful if done as partnership between gov't, private sector, and aid/development actors	Infrastructure at scale is costly and politically complex. Such a programme would require extensive consultation with the spectrum of stakeholders on everything from location to design to operation. The effect of improved and expanded storage would be a reduction in the loss of wheat and wheat flour in heavy rains/flooding, greater and more reliable availability of wheat in the market in the event of emergency, and therefore less need for distributions.	A given storage facility should be commenced 4 or more months before rains/floods are expected. The full rollout of storage facility infrastructure projects in Sindh would require at least 2 years, from consultations to completion.
Provision of wheat seed and	Feasible: Wheat is the main staple	The agriculture inputs could increase the yield per acre from 2.5 or 3 metric tonnes	In Rabi (summer) season: flooding hits

[39] Incorporating a lesson learned, captured in *Meta Evaluation of Fresh Food Voucher Programmes*, ACF 2012, page 38.

fertilisers to poor and very poor farming HH)	food and main crop in Rabi. Many organizations have distributed agriculture aid packages in the region to improve the HH food security through wheat production	per hectare to up to 6 metric tonnes per hectare,[40] improving food security and farmers' livelihoods.	during the kharif crop in the region so the land is physically available for the poor and very poor HH during Rabi.
Provision of millet seed and fertilizers to drought affected population of three districts	Feasible: millet is the main staple food and main crop in the desert used as replacement of wheat. It can be utilized both for food and cash in the drought-affected areas.	In the desert poor and very poor HH use low quality wheat flour, and normal wheat cultivation is not possible. They normally use millet as staple food for 4 months in the lean period of wheat. Millet can be cultivated in desert, and used as food, reducing dependency on the wheat flour from the market for three to four months.	Millet is cultivated during July-August and harvested during September-October.
School feeding	Feasible: WFP has a working model of school feeding active in FATA that "aims to increase enrolment and stabilize attendance in primary schools, with specialized focus on increasing access for girls."[41]	Every $1 spent on school feeding yields a return of $3 to $10 when those beneficiaries become working adults.[42] Further, 21% of the overall benefit of school feeding consists in the transfer of additional income to the household.[43] Market actors may benefit from involvement in the sourcing, transportation and delivery of wheat and wheat flour for school feeding programmes.	Immediately whenever market functionality is adequate to respond to demand stimulated by vouchers

[40] United Nations Food and Agriculture Organization, "Pakistan: Review of the wheat sector and grain storage issues", 2013, page vii.
[41] WFP Pakistan Country Brief, September 2016, http://reliefweb.int/report/pakistan/wfp-pakistan-country-brief-september-2016.
[42] *Cost-Benefit Analysis School Feeding Investment Case*, World Food Programme, January 2016, http://documents.wfp.org/stellent/groups/public/documents/resources/wfp281517.pdf
[43] ibid

Annex A: Additional Tables

District	Source of Livelihood		Main Sources of Livelihood (Normal Period)		District	Source of Livelihood		Main Sources of Livelihood (Emergency Period)	
			Very poor	Poor				Very poor	Poor
Jamshoro	First	Agricultural wage labour	50%	67%	Jamshoro	First	Agricultural wage labour	50%	0%
		Non-agricultural wage labour	25%	33%			Non-agricultural wage labour	25%	100%
		Handicrafts	25%	0%			Handicrafts	25%	0%
	Second	Handicrafts	33%	50%		Second	Handicrafts	25%	0%
		Charity/Zakat/Gifts/BISP	33%	50%			Charity/Zakat/BISP	50%	100%
		Others	33%	0%			Others	25%	0%
Tharparkar	First	Sale of vegetables/fruits	0%	20%		Third	Handicrafts	0%	0%
		Agricultural wage labour	60%	20%			Charity/Zakat/BISP	0%	0%
		Non-agricultural wage labour	40%	20%	Tharparkar	First	Agricultural wage labour	40%	20%
		Small business (self-employed)	0%	20%			Non-agricultural wage labour	40%	20%
		Sale of livestock	0%	20%			Small business (self-employed)	0%	40%
	Second	Agricultural wage labour	25%	0%			Sale of livestock	0%	20%
		Non-agricultural wage labour	0%	25%			Sale of animal products	20%	0%
		Small business (self-employed)	0%	25%		Second	Agricultural wage labour	25%	50%
		Handicrafts	50%	25%			Non-agricultural wage labour	25%	50%
		Sale of livestock	0%	25%			Handicrafts	25%	0%
		Sale of animal products	25%	0%			Sale of animal products	25%	0%
	Third	Sale of livestock	100%	0%		Third	Sale of vegetable/fruits	0%	100%
Umerkot	First	Sale of food/cash crops	20%	0%			Handicrafts	50%	0%
		Agricultural wage labour	60%	71%			Sale of livestock	50%	0%
		Non-agricultural wage labour	20%	14%	Umerkot	First	Agricultural wage labour	0%	33%
		Others	0%	14%			Non-agricultural wage labour	100%	50%
	Second	Non-agricultural wage labour	100%	80%			NGO/Private Employee	0%	17%
		Others	0%	20%		Second	Non-agricultural wage labour	0%	100%
	Third	Handicrafts	0%	50%			Sale of livestock	100%	0%
		Sale of livestock	100%	50%		Third	Handicrafts	0%	50%
Overall	First	Sale of food/cash crops	7%	0%			Sale of livestock	100%	50%
		Sale of vegetables/fruits	0%	7%	Overall	First	Agricultural wage labour	29%	21%
		Agricultural wage labour	57%	53%			Non-agricultural wage labour	57%	50%

		Non-agricultural wage labour	29%	20 %			Small business (self-employed)	0%	14%
		Small business (self-employed)	0%	7%			NGO/Private Employee	0%	7%
		Handicrafts	7%	0%			Handicrafts	7%	0%
		Sale of livestock	0%	7%			Sale of livestock	0%	7%
		Other	0%	7%			Sale of animal products	7%	0%
	Second	Agricultural wage labour	10%	0%		Second	Agricultural wage labour	11%	20%
		Non-agricultural wage labour	30%	45 %			Non-agricultural wage labour	11%	60%
		Small business (self-employed)	0%	9%			Handicrafts	22%	0%
		Handicrafts	30%	18 %			Sale of livestock	11%	0%
		Sale of livestock	0%	9%			Sale of animal products	11%	0%
		Sale of animal products	10%	0%			Charity/Zakat/BISP	22%	20%
		Charity/Zakat/Gifts/BISP	10%	9%			Others	11%	0%
		Other	10%	9%		Third	Sale of vegetable/fruits	0%	33%
	Third	Handicrafts	0%	50 %			Handicrafts	33%	33%
		Sale of livestock	100 %	50 %			Sale of livestock	67%	33%

District	Main Reasons for Taking Loan during Normal Period	Very poor	Poor
Jamshoro	Purchase wheat flour	33%	67%
	Purchase other food items	100%	0%
	Health Expenses	33%	67%
	Education expenses	33%	0%
	Buy agricultural Inputs/ tool	33%	0%
Tharparkar	Purchase wheat flour	100%	100%
	Purchase other food items	100%	100%
	Health expenses	60%	100%
Umerkot	Purchase wheat flour	100%	100%
	Purchase other food items	100%	67%
	Health expenses	50%	0%
	Social event/ ceremonies	0%	33%
	Pay interest	0%	33%
	Buy agricultural Inputs/ tool	50%	33%
	Buy non-agricultural equipment/ tools	0%	33%

District	Main Reasons for Taking Loan during Emergency Period	Very poor	Poor
Jamshoro	Purchase wheat flour	0%	50%
	Purchase other food items	100%	50%

	Health expenses	100%	50%
Tharparkar	Purchase wheat flour	100%	100%
	Purchase other food items	100%	100%
	Health expenses	60%	100%
Umerkot	Purchase wheat flour	50%	140%
	Purchase other food items	100%	60%
	Health Expenses	50%	20%
	Social Event/ Ceremonies	0%	20%
	Buy Agricultural Inputs/ tool	50%	20%

	Duration of Own Stock of Wheat (Avg. No of Months)		
District	**Period**	**Very poor**	**Poor**
Jamshoro	Normal	0	5
	Emergency	0	0
Tharparkar	Normal	0	0
	Emergency	0	0
Umerkot	Normal	0	3
	Emergency	0	1
Overall	**Normal**	**0**	**3**
	Emergency	**0**	**1**

Avg. Number of Months Households were in Need of Food Assistance after the Emergency (Flood/Drought)		
District	**Very poor**	**Poor**
Jamshoro	3	4
Tharparkar	7	5
Umerkot	5	4
Overall	5	4

	Sources of Buying Wheat Flour		
District	**Markets**	**Very poor**	**Poor**
Jamshoro	Local/village market	75%	33%
	Sub-district market	25%	67%
	District market	0%	0%

Tharparkar	Local/village market	20%	25%
	Sub-district market	0%	75%
	District market	80%	0%
Umerkot	Local/village market	20%	17%
	Sub-district market	40%	50%
	District market	40%	33%
Overall	Local/village market	36%	23%
	Sub-district market	21%	62%
	District market	43%	15%

	Accessibility of Nearby Markets				
District	**Accessibility**	**Normal Period**		**Emergency Period**	
		Very poor	**Poor**	**Very poor**	**Poor**
Jamshoro	Easily accessible	50%	67%	25%	33%
	Accessible but face problems	50%	0%	75%	33%
	Inaccessible/ unavailable	0%	33%	0%	33%
Tharparkar	Easily accessible	40%	25%	20%	0%
	Accessible but face problems	60%	75%	80%	100%
Umerkot	Easily accessible	20%	0%	0%	0%
	Accessible but face problems	80%	100%	100%	100%
Overall	Easily accessible	36%	21%	14%	7%
	Accessible but face problems	64%	71%	86%	86%
	Inaccessible/ unavailable	0%	7%	0%	7%

Annex B: PCMA Team

Name	Organization	Role in PCMA
Angeliki Dimou	FAO	Overall Guidance/Supervision
Shah Nasir	WFP	Overall Guidance/Supervision
Benjamin Barrows	Consultant	Consultant/PCMA Leader

Raja Jahangeer	FAO	PCMA Local Leader/Training Co-facilitator
Ahmed Khan	FAO	Administration/Logistics Support Officer
Jamshoro District		
Ishfaque Solangi	BoS-Sindh	District/Team Leader
Muhammad Afzal	FAO	Team Leader
Shahnawaz Shaikh	FAO	Team Member
Murk Samoon	SIF	Team Member
Shahida Samoon	ACF	Team Member
Janib Jatoi	ACF	Team Member
Sanam Naz	APEX	Team Member
Tharparkar District		
Majid Shah	FAO	District/Team Leader
Saifa Asif	FAO	Team Leader
Saki Ladho	BoS Sindh	Team Member
Ali Dino	WHH	Team Member
Saad Talpur	PDMA-Sindh	Team Member
Allah Bachayo	Plan International	Team Member
Saima Parveen Soomro	Gorakh Foundation	Team Member
Irshaad Abbasi	BISP	Team Member
Umerkot District		
Habib Wardag	FAO	District/Team Leader
Sajan Das	IRC	Team Leader
Moazzam Rind	BoS Sindh	Team Member
Kalimullah Abbasi	BoS Sindh	Team Member
Mehnaz	BEST	Team Member
Mithi Laghari	Mott MacDonald Pakistan	Team Member
Tania Laghari	Mott MacDonald Pakistan	Team Member
Data Analysis/Database Development/Maps Designing		
Raja Jahangeer	FAO	Data Analyst
Khadim Shah	WFP	Data Analyst
Muhammad Kazim	BoS-Sindh	Data Analyst
Muhammad Afzal	FAO	Database Developer
Mehwish Ali	FAO	Maps Developer

Annex C: PCMA Methodology

The assessment used the methodology in the PCMA guidance document, comprising 15 steps.

Step	Step Description	Comments
1. Understanding the context.	Identify the likely crisis scenario, target population needs and profiles.	A drought emergency scenario for poor and very poor households in Umerkot, Tharparkar, and Jamshoro districts in Sind Province were pre-identified by the members of the Food Security Working Group.
2. Setting scope and objectives.	Set objectives and operational questions for PCMA; identify knowledge gaps; ensure relevance of PCMA.	Established: basic PCMA timeline, team sizes, placement within larger strategic context for Food Security Working Group.
3. Ensuring organizational and managerial buy-in.	Determine composition of assessment team, including Market Focal Point; identify and confirm availability of in-country resources needed for assessment; secure country team management approval of the exercise and resulting potential response strategies; confirm that results will be integrated into contingency planning.	Necessary logistics, operational considerations, and approvals for exercises were secured by FAO over the course of October and November, 2016. The size and composition of the assessment team was determined by FAO and the PCMA leader in mid-November.
4. Critical market selection and key analytical questions.	Pre-selection of critical market-systems; identification of draft key analytical questions for each system; select geographic area to be covered by the assessment.	A short list of critical market systems was identified by the PCMA leader in consultation with local leader prior to deployment. Final selection of critical markets was reserved until after consultation meetings with key stakeholders in Islamabad on November 28 and in Karachi on November 29. Draft key analytical questions were derived from PCMA pilots conducted in Sindh in August, 2015.
5. Mapping and gathering existing information	Gather information on selected critical markets, target groups, livelihoods in assessment areas; identify information gaps	Secondary sources were identified and reviewed by the PCMA leader in two days of home-based desk study. Additional existing information resources were also contributed by stakeholders at consultation meetings in Islamabad and Karachi.
6. Preparation and planning for the market assessment and analysis.	Confirm team composition; develop timeframe and draft agenda; set budget; finalize TOR .	FAO staff and the PCMA leader identified district and team leaders, and finalized the basic timing for data collection. A brief ToR for District Leaders was sent via email on the first full day of data collection, following the pilot.
7. Finalizing the frame of the analysis.	Review and validate steps 1-6 with full assessment team; finalize assessment locations with team; identify markets to visit and market actors to interview with	The PCMA leader gave the District Leaders the data collection locations chosen in the randomized selection process.

	team.	
8. Preliminary analysis and mapping.	Production of initial profiles, seasonal calendars, maps of the market-system; identification of key informants or leads.	Initial baseline and emergency maps were produced during the training in Karachi. During data collection, District Leaders and Team Leaders worked with other members of the market team to revise market maps for wheat flour, goats, fodder, and water.
9. Data collection.	Develop questionnaires; conduct fieldwork activities and regular debriefings.	Fieldwork was conducted according to plan.
10. Final mapping	Finalize baseline & emergency maps, seasonal calendars; description of key features, bottlenecks, constraints.	Maps were finalized in the analysis period in Karachi following the completion of field work.
11. Gap and market analysis.	Comparison of household economic profiles, analysis of priority needs, access and gaps.	The PCMA leader led a formal training on documenting the gap for households in normal, and emergency times.
12. Selection of response options.	Exploration of response options, cash and other intervention feasibility; response recommendations and their logic.	The PCMA leader led a formal training on developing response options and formatting them according to PCMA practices.
13. Market monitoring.	Determine different market indicators to monitor; develop monitoring plan.	No monitoring plan was developed. PCMA reports contain recommendations on populations, market dynamics, and other relevant information for further analysis.
14. Communication of results.	Prepare and disseminate results via report and in-person presentation(s).	Preliminary findings were presented to stakeholders in Karachi during a 2 hour meeting supported by a power point presentation displaying freshly cleaned and analysed data.
15. Updating a PCMA.	Conduct follow-up assessments as needed.	The next step after completion of the PCMA is the SRAF, which will decide and design any necessary follow up.

Annex D: List of Tools Administered and Sub-Districts (Talukas) Surveyed during PCMA

JAMSHORO							
Sub-districts							
Tools	**Kotri**	**Manjhand**	**Sehwan**	**Thano Bula Khan**			**Total**
HH	6	4	4	4			18
FGD				4			4
Semi-structured market actors	7	7	6	8			28
Key Informants			1				1
THARPARKAR							
Sub-districts							
Tools	**Chachro**	**Dahli**	**Diplo**	**Islamkot**	**Mithi**	**Nangarparkar**	**Total**
HH	2	2	10	9	6	7	36
FGD			4	4	4	4	16
Semi-structured market actors	10		3	4	10	3	30
Key Informants					1		1
UMERKOT							
Sub-districts							
Tools	**kunri**	**Pithoro**	**Samaro**	**Umerkot**			**Total**
HH	4	2	6	8			20
FGD				2			2
Semi-structured market actors	4	4	3	11			22
Key Informants				1			

Annex D: Data Collection Tools

PCMA | Jamshoro, Umerkot, and Tharparkar Districts of Sindh Province | Pakistan
December 2016
Semi-Structured Interview Data Recording Sheet

District	UC Name of location	Name of Business Type of Business	Business Contact Number
Team Leader	Enumerator Name	Critical Market Item: **Wheat Flour/ Fodder/Goats/Water**	Date

Questions	**BASELINE**			**EMERGENCY**		
	Dec-Mar 2012/13 for drought August-Sep 2012 for flood			**Dec-Mar 2014/15 for drought Aug-Sep 2010 for flooding**		
	Quantity	**Units**	**Periodicity (daily, weekly, monthly)**	**Quantity**	**Unit**	**Periodicity (daily, weekly, monthly)**
1. How much wheat flour/fodder/goats/water did you sell during the period?						
2. What is the selling price of wheat flour/fodder/goats/water	**Price**	**Unit**		**Price**	**Unit**	

	BASELINE	EMERGENCY	Data Entry Notes
	Dec-Mar 2012/13 for drought Aug-Sep 2012 for flood	**Dec-Mar 2014/15 for drought Aug-Sep 2010 for flooding**	
3. How much/many wheat flour/fodder/goats/water did you have in stock during the times specified?			Unit is kilograms/maund/liters/ number
4. How frequently did you need to re-order your stock?			Unit is days
5. How long did it take to get the same wheat flour/fodder/water stock you were already maintaining?			Unit is days or weeks
6. Would it be possible for double or triple stock if needed? If yes, how quickly? If not why?			Unit is days or weeks
7. Where did you purchase your supply (from who, where?)			
8. From where do you obtain credit for purchasing inventory/stocks, and about how much debt were you carrying per month?			
9. Who are your customers and where they are from?			

Pre-Crisis Market Analysis in Sindh

Household Questionnaire

Consent of the respondent:

Assalam-o-Alaikum, My name is _____ we are conducting a Pre-Crisis Market Analysis in drought affected areas to assess the impacts of 2013-2015 floods. Your household has been chosen for interview. I would appreciate if you could answer the following questions and share your knowledge and experience. Your household's participation is important but voluntary and you can choose not to answer any or all of the questions. Your participation does not guarantee future assistance in any way. However, please note that your participation is of great value to this study. The research team will keep all your responses confidential. The survey usually takes 40 minutes to complete. Do you have any questions? May we begin now?

Signature of Enumerator:_____Signature of Team Leader_____

SECTION 1-HOUSEHOLD REGIONAL INFORMATION

1.1	Enumerator's name		1.2	Interview date	
1.3	Enumerator's Gender 1=Male, 0=Female		1.4	District Name	
1.5	Tehsil /Taluka Name		1.6	Union Council Name	
1.7	Village Name		1.8	Gender of Respondent	1=Male, 0=Female
1.9	Respondent Name		1.10	What is the relationship of the respondent to the head of HH? **(choose code from below)** 1=Self, 2=Wife/ Husband, 3=Daughter/ Son, 4=Parent, 5=Brother/ Sister, 6=Other relative	

SECTION 2- HOUSEHOLD COMPOSITION AND EDUCATION

2.1	What is the gender of the **head of household**? 1= Male , 0 = Female			2.2	**How many children and adults** are currently living and eating in this household		
		Men	**Women**			**Men**	**Women**
2.3	Children < 2 years	I_____I	I_____I	2.4	Children 2-4 years	I_____I	I_____I
2.5	Children 5-9 years	I_____I	I_____I	2.6	Children 10-17 years	I_____I	I_____I
2.7	Adults 18-60 years	I_____I	I_____I	2.8	Elderly (>60 years)	I_____I	I_____I
2.9	No of disabled children (<18)	I_____I	I_____I	2.10	No of disabled Adults (>18)	I_____I	I_____I
2.11	No. of Pregnant and lactating women						I_____I

SECTION 3-AGRICULTURE

3A-Land Ownership and Crop Cultivation

3.1	Do you normally cultivate land?				1= Yes 0= No**>>>3.7**
3.2	How much land do you cultivate? *(write number of acres if none record 0)*				|_____| Acres
3.3	What are sources of irrigation of land you cultivate? *(Write **%** of land cultivated by each source)*	3.3.1	Canal I_____I	3.3.3	Rain-fed I_____I
		3.3.2	Tube well I_____I	3.3.4	Others I_____I
3.4	What is the type of ownership of the land you cultivate? *(choose one option)*		1=Owner, 2=Tenant/Sharecropper, 3= Owner and tenant, 4 = Leased the land, 5= Other specify _____		I_____I
3.5	If owner, how much cultivatable land do you own? *(write number of **acres** if none record 0)*				I_____I
3.6	If tenant, what **share** of the wheat harvest do you usually get from the landowner?		1= <25%, 25-50%, 3=>50%		I_____I

		Normal period (Dec-Mar 2012-13)	**Emergency period (Dec-Mar 2014-15)**
3.7	How many **acres** of land did you cultivate for **wheat** during *Rabi* seasons? *(write number of acres)*	I_____I Acres	I_____I Acres

3.8 What were **three main food/cash crops** did you grow? *(choose up to three crops, use codes below, order according to the value and area)*

	Rabi season			**Kharif Season**		
Normal Year (Dec-Mar 2012-13)	3.8.1	Crop 1 I_____I	I_____I Acres	3.8.9	Crop 1 I_____I	I_____I Acres
	3.8.2	Crop 2 I_____I	I_____I Acres	3.8.10	Crop 2 I_____I	I_____I Acres
	3.8.3	Crop 3 I_____I	I_____I Acres	3.8.11	Crop 3 I_____I	I_____I Acres
Emergency Year (Dec-Mar 2014-15)	3.8.4	Crop 1 I_____I	I_____I Acres	3.8.12	Crop 1 I_____I	I_____I Acres
	3.8.5	Crop 2 I_____I	I_____I Acres	3.8.13	Crop 2 I_____I	I_____I Acres
	3.8.6	Crop 3 I_____I	I_____I Acres	3.8.14	Crop 3 I_____I	I_____I Acres

1 = Wheat, 2 = Rice, 3 = Barley, 4 = Maize, 5 = Millet, 6 = Sunflower, 7= Cluster beans (Guar), 8=Sugarcane, 9= Cotton, 10=Chillies, 11= Onions 12= Tomatoes 13= Mong beans 14= Moth beans, 15 =Others (specify)_____

3.9	What was the situation of availability of water for agriculture activities as compared to normal period?	1=Not available at all, 2= very less available (25%) 3= To some extent (50%), 4= less shortage (75% available), 5= No shortage	|_____|

3B-Wheat Production and Consumption

		Harvest in (Mar-Apr 2012) before the normal period	Harvest in (March-April 2014) before the emergency period
3.10	How much did your HH produce (Maund)?		
3.11	Of the wheat that you produced, how much did you keep for own consumption?		
3.12	If you are a tenant farmer: of the wheat you produce, how much did you give to your landlord (percentage)?		
3.12	Of the wheat you produced, how much did you sell?		
3.13	What price do you get per 40 kg of wheat at harvesting time?		
3.14	Did you have a secure place to store the harvest?		
3.15	How long did your own stock of wheat last?		

3C-General Questions about Wheat Flour *(do not consider normal or emergency period in this section)*

3.16	Which are the months when you don't have any stocks at home?	I_____I	3.17	How much wheat flour does your HH require in an average month?	I_____I
3.18	Is your HH able to access the amount of wheat flour it needs as and when required through your own resources (producing, buying, trading)?	I_____I	3.19	If not, during what months does this happen?	I_____I
3.20	How much more wheat flour would you need to get the full amount that your HH requires?	I_____I	3.21	If you sometimes purchase wheat flour, what is the price?	I_____I
3.22	How does the price vary depending on the time of year?	I_____I	3.23	If your HH buys wheat flour, from whom do you buy it? Where is this actor located?	I_____I
3.24	Did you have stocks of wheat/wheat flour at home when the (floods in 2010 for Jamshoro) drought in Dec 2014-Mar 2015 for Umerkot + Tharparkar) started?	I_____I	3.25	For how many months were you in need of food assistance following the flood of 2010 or drought in 2014-15 (even if you did not receive any assistance)?	I_____I
3.26	If a similar flood or drought were to happen in the future and once again your HH did not have enough food, how would you prefer to receive food assistance? (In-kind, cash, vouchers) and why?	I_____I	3.27	If you would prefer in-kind, would you prefer flour or wheat grains?	I_____I

		Normal period (Dec-Mar 2012-13)			Emergency period (Dec-Mar 2014-15)			
3.28	How much did you spend on agriculture inputs for **wheat** in normal and emergency period? (Rs)	3.28.1	Seeds	I_____I	3.28.6	Seeds	I_____I	
		3.28.2	Fertilizer	I_____I	3.28.7	Fertilizer	I_____I	
		3.28.3	Agriculture tools	I_____I	3.28.8	Agriculture tools	I_____I	
		3.28.4	Machinery	I_____I	3.28.9	Machinery	I_____I	
		3.28.5	Water	I_____I	3.28.10	Water	I_____I	
3.29	**What would be your most important agriculture needs** (in order of importance) in **drought scenario**? *(choose not more than four options, use code below) and do not mention the list of responses*				3.29.1	First I_____I	3.29.2	Second I_____I
					3.29.3	Third I_____I	3.29.4	Fourth I_____I

1 = Water, 2= Seeds, 3 = Fertilizer, 4 = Tools, 5 = Repair of irrigation canals, 6= Agricultural services, 7 = Credit, 8 = Draught animals, 9= Repair of tube wells, 10 = Agriculture training, 11=Diesel, 12=Other specify_____

SECTION 4-LIVESTOCK

4A-Livestock Ownership

Normal period (Dec-Mar 2012-13)

	4.1	4,2	4.3	4.4	4.5	4.6	4.7
	No. of animals owned in normal period	Of these, how many were shared in normal period?	No. of animals lost/died in normal period	Of these lost/died how many were shared in normal period?	No. of animals sold in normal period	Of these sold, how many were shared in normal period?	What was average sale price of **an animal** in normal period (Rs.)
Cows							
Buffalos							
Camels							
Goats							
Sheep							
Donkeys							
Poultry							

Emergency period (Dec-Mar 2014-15)

	4.8	4,9	4.10	4.11	4.12	4.13	4.14

	No. of animals owned in emergenc y period	Of these, how many were shared?	No. of animals lost/died in emergency period	Of these lost/died, how many were shared?	No. of animals sold in emergency period	Of these sold,how many were shared?	What was average sale price of **an animal** in emergency period (Rs.)
Cows							
Buffalos							
Camels							
Goats							
Sheep							
Donkeys							
Poultry							

4B- Sale/Purchase of Goats (Ask these questions only for goats)

			Normal period (Dec-Mar 2012-13)			Emergency period (Dec-Mar 2014-15)		
4.15	What were three **main sources** of acquiring/buying goat from?	1. Relatives/Neighbours 2. Gift from family/relative/ community 3. Assistance 4. Sharing 5. Local goat market 6. Broker 7. Others (_____)	I_____I	I_____I	I_____I	I_____I	I_____I	I____I
			At what price?	At what price?	At what price?	At what price?	At what price?	At what price?
			I_____I	I_____I	I_____I	I_____I	I_____I	I____I
4.16	Who did you sell goat to?	1. Relatives/Neighbours/Commu nity 2. Local goat market 3. Broker 4. Wholesaler/Retailer 5. Meat shop/butcher 6. Others (_____)	I_____I	I_____I	I_____I	I_____I	I_____I	I____I
			At what price?	At what price?	At what price?	At what price?	At what price?	At what price?
			I_____I	I_____I	I_____I	I_____I	I_____I	I____I

		Normal period (Dec-Mar 2012-13)	Emergency period (Dec-Mar 2014-15)
4.17	How many litres of milk did you get from **your flock per day?**	I_____I	I_____I
4.18	Estimated **price of one litre** of goat milk (Rs.)	I_____I	I_____I
4.19	What **(%)** of the milk that you get from your flock did you consume per day?	I_____I	I_____I

4C- Fodder/Feed for Goats (Ask these questions only for goats)

	4.20	4.21	4.22	4.23	4.24

	What were **three** main sources of feed for goat? (Use codes below) 1. Fodder 2. Wheat grain 3. Other grain 4. Plants/bushes 5. Others (_____)	What **proportion (%)** of livestock diet was met by this source?	What was price of this source per **Kg**?	How much amount of feed **(in KG)** was consumed by goat in a week?	What were the **two main** sources of these items? *See codes below*	
Normal period **(Dec-Mar 2012-13)**	I_____I	I_____I	I_____I	I_____I	I_____I	I____I
	I_____I	I_____I	I_____I	I_____I	I_____I	I____I
	I_____I	I_____I	I_____I	I_____I	I_____I	I____I
Emergency period (Dec-Mar 2014-15)	I_____I	I_____I	I_____I	I_____I	I_____I	I____I
	I_____I	I_____I	I_____I	I_____I	I_____I	I____I
	I_____I	I_____I	I_____I	I_____I	I_____I	I____I

4.24 Sources of feed for goats: 1= Own produced, 2=Purchased from relatives/friends/neighbour/community, 3=Purchased from wholesaler/retailer, 4=Gift/assistance from relatives/friends/neighbour/community, 5=Grazing in open lands, 6=Others _____)

4D-Diseases/medication of goats

	Normal period (Dec-Mar 2012-13)		**Emergency period (Dec-Mar 2014-15)**	
	4.25	4.26	4.27	4.28
	How many of your goats were affected by diseases?	How much did you spend on medication of diseases-affected goats	How many of your goats were affected by diseases?	How much did you spend on medication of diseases-affected goats
	I_____I	I_____I	I_____I	I_____I

		Normal period (Dec-Mar 2012-13)			**Emergency period (Dec-Mar 2014-15)**		
4.29	What was the status of availability of following items for goats? 1= Sufficiently available, 2= Less than sufficient available, 3= Least/not available	4.29.1	Water	I_____I	4.29.5	Water	I_____I
		4.29.2	Shelter	I_____I	4.29.6	Shelter	I_____I
		4.29.3	Fodder	I_____I	4.29.7	Fodder	I_____I
		4.29.4	Medication	I_____I	4.29.8	Medication	I_____I
4.30	What were three types of goat related supports did you need most (in order	**Normal period (Dec-Mar 2012-13)**			**Emergency period (Dec-Mar 2014-15)**		
		1st	2nd	3rd	1st	2nd	3rd

	of importance)? 1= Water, 2=Straw/green fodder, 3= Concentrated feed, 4= Vaccination/deworming, 5= Minerals, 6= Medicines, 7= Livestock restocking, 8= Shelter for animals, 9=Other specify _____	|_____|	|_____|	|_____|	|_____|	|_____|	|_____|

SECTION 5-FOOD CONSUMPTION, LIVELIHOOD, ACCESS TO MARKETS								
5A-Food Consumption								
How much did you spend on average on food and other items? (Rs.)								
	Food Items		**Normal period (Dec-Mar 2012-13)**		**Emergency period (Dec-Mar 2014-15)**			
5.1	Food	One week	5.1.1	|_____|	5.1.2	|_____|		
5.2	Wheat flour (out of total food expenditure)	One week	5.2.1	|_____|	5.2.2	|_____|		
5.3	Agriculture inputs (seeds, fertilizer etc)	Six months	5.3.1	|_____|	5.3.2	|_____|		
5.4	Livestock inputs (fodder, feed)	One month	5.4.1	|_____|	5.4.2	|_____|		
5.5	Water for agriculture	Six months	5.5.1	|_____|	5.5.2	|_____|		
5.6	Water for goats	One month	5.6.1	|_____|	5.6.2	|_____|		
5.7	Water for domestic use	One month	5.7.1	|_____|	5.7.2	|_____|		
5.8	Misc. expenses (housing,clothing,debt,ceremonies,transport,health,education etc)	One month	5.8.1	|_____|	5.8.2	|_____|		
5.9	How many meals were eaten by….. per day?			**Adults (Male)**	**Adults (Female)**		**Children**	
Normal period (Dec-Mar 2012-13)			5.9.1	|_____|	5.9.2	|_____|	5.9.3	|____|
Emergency period (Dec-Mar 2014-15)			5.10.1	|_____|	5.10.2	|_____|	5.10.3	|_____|

5B-Household Livelihoods						
		Normal period (Dec-Mar 2012-13)		**Emergency period (Dec-Mar 2014-15)**		
5.11	What were **three main sources of <u>livelihood</u>** <u>for your</u>	5.11.1	**Primary** |_____|	5.11.4	**Primary** |_____|	

	household**?** *(use codes below)*	5.11.2	**Secondary**|_____|	5.11.5	**Secondary** |_____|
		5.11.3	**Tertiary** |_____|	5.11.6	**Tertiary** |_____|

Livelihood sources for household/women: 1 = Sale of food/cash crops, 2= Sale of vegetables/fruits, 3 = Agricultural wage labour, 4 = Non-agricultural wage labour, 5 = Small business (self-employed), 6 = Government employee, 7 = NGO/private employee, 8= Handicrafts, 9 = Sale of livestock, 10 = Sale of animal products, 11 = Petty trade, 12 = Pension/ allowances, 13 = Remittances (domestic/foreign), 14 = charity/zakat/gifts, BISP, 15 = Other (specify)_____, 99 = No 2nd source of income

		Normal period (Dec-Mar 2012-13)		**Emergency period (Dec-Mar 2014-15)**	
5.12	How many women in your household did work?	5.12.1	|____|	5.12.2	|____|
5.13	How many men in your household did work?	5.13.1	|____|	5.13.2	|____|
5.14	If any woman worked, what was the **women's main** source of income/livelihood**?** *(choose from code above)*	5.14.1	|____|	5.14.2	|____|
5.15	How much was your **average monthly income** of your household from all sources? (write in PKR)	5.15.1	|____|	5.15.2	|____|
5.16	How much was your **average seasonal income** of your household from all sources? (write in PKR)	5.16.1	|____|	5.16.2	|____|

5C-ACCESS TO MARKETS

			Normal period (Dec-Mar 2012-13)		**Emergency period (Dec-Mar 2014-15)**	
5.17	What were the two main markets for meeting daily food needs? *(Write names of the markets)*		_____		_____	
			_____		_____	
5.18	What was the accessibility of nearby markets? *(Use the following codes)*	1=Easily accessible, 2=Accessible but face problems to reach, 3=Inaccessible/unavailable	Market 1	|____|	Market 1	|____|
			Market 2	|____|	Market 2	|____|
If answer is 2 or 3, then , what are the two main problems you are facing while accessing the each market? *(Use codes below)*			Market 1	|____| |____|	Market 1	|____| |____|
			Market 2	|____| |____|	Market 2	|____| |____|

1=Market was far away, 2=Market was not functioning, 3=Access roads were destroyed, 4=Security issues

5=Cost of transportation was very high, 6= Transport is not often available, 7=Others (specify)_____

SECTION 6-COPING STRATEGIES

6A-Food Based Coping Strategies

	How many days in an average week did your household employ one of the following strategies due to problems in **meeting food needs**?	**Frequency (number of days from 0 to 7)**	**Frequency (number of days from 0 to 7)**
		Normal period (Dec-Mar 2012-13)	**Emergency period (Dec-Mar 2014-15)**
6.1	Relied on less preferred/expensive food	| _____ |	| _____ |
6.2	Purchased food on credit	| _____ |	| _____ |
6.3	Borrowed food or relied on help from friends/relatives	| _____ |	| _____ |
6.4	Reduced the number of meals eaten per day	| _____ |	| _____ |
6.5	Reduced portion size of meals	| _____ |	| _____ |
6.6	Female reduced their portion size of meals for children	| _____ |	| _____ |
6.7	Went an entire day without eating any food	| _____ |	| _____ |
6B-Livelihood Based Coping Strategies			
	During an average month, did anyone in your household have to engage in any of the following livelihood based coping strategies due to **problem in meeting food needs**? 1 = No, because I did not face a shortage of food, 2 = No, because I already sold those assets or have engaged in this activity and cannot continue to do it, 3= Yes, 99=Not applicable		
		Normal period (Dec-Mar 2012-13)	**Emergency period (Dec-Mar 2014-15)**
6.8	Sold household assets/goods (radio, furniture, refrigerator, television, jewellery etc.)	| _____ |	| _____ |
6.9	Reduced non-food expenses i.e. health and education, clothing/shoes etc	| _____ |	| _____ |
6.10	Sold productive assets or means of transport (sewing machine, wheelbarrow, bicycle, car, productive livestock, etc.)	| _____ |	| _____ |
6.11	Spent savings	| _____ |	| _____ |
6.12	Borrowed money from a formal lender / bank	| _____ |	| _____ |
6.13	Sold house or land	| _____ |	| _____ |
6.14	Withdrew children from school	| _____ |	| _____ |
6.15	Rented a room of the house	| _____ |	| _____ |
6.16	Consumed seed stock held for the next season	| _____ |	| _____ |
6.17	Begging	| _____ |	| _____ |
6.18	Sold more animals (non-productive) than usual	| _____ |	| _____ |
6.19	Migrated to look for livelihood opportunities	| _____ |	| _____ |
6C-Household Debt			

		Normal period (Dec-Mar 2012-13)			Emergency period (Dec-Mar 2014-15)		
6.20	Did your household take any credit/loan during the **reference period?** Yes=1 No=0	|____|			|____|		
6.21	What were the **three main** sources of loan? 1=Relative/friend/neighbour, 2=Shopkeeper, 3=Landowner, 4=Government bank, 5=Cooperative bank, 6=Villagers/ Money lender, 7=Other (specify____) 8=NGO	|__|	|__|	|_|	|_|	|_|	|_|
6.22	What were the **three main** reasons for taking loan? 1**=**Purchase wheat flour, 2=Purchase other food items, 3=House repairing / building, 4=Health expenses, 5=Education expenses, 6=Social event/ceremonies, 7=Pay interest, 8=Purchase of livestock/inputs, 9=Buy agricultural inputs/tools, 10=Buy non-agricultural equipment/tools, 11=for business, 12=Other (specify)_____	|__|	|__|	|_|	|__|	|_|	|_|
6.23	What was the total amount of outstanding loan? (Rs.)						

6D-Migration

			Normal period (Dec-Mar 2012-13)		Emergency period (Dec-Mar 2014-15)	
6.24	For how long did you/household members migrate to any other area?	1=Not migrated, 2=Less than a week, 3=1-2 weeks, 4=3-4 weeks, 5=More than a month	|___|		|___|	
6.25	If migrated, what were the two main reasons? *(see codes below)*		|___|	|___|	|___|	|___|

1=Less livelihood opportunities in the area, **2=**Loss of livelihood

3=lack of drinking water **4=**lack of fodder/grazing land for livestock **5=**Diseases/illness of household member **6=**Non availability of the irrigation water, 7= Other (specify)_____

SECTION 7-ASSISTANCE

7A- Assistance Received and Source of Assistance

7.1	**During the emergency period (Dec-Mar 2014-15)**, did your household receive **any type of assistance?** *(Choose one option for each type of assistance)* 1= Yes 0= No	7.2	If yes, **main** source of assistance 1=Govt, 2 = NGO, 3= UN, 4 = Religious organization, 5=Relatives/Friends/Neighbour/community members, 6=other_____

7.1.1	Free food	[_____]	7.2.1	[_____]
7.1.2	Government compensation (cash)	[_____]	7.2.2	[_____]
7.1.3	Cash/food for work/training	[_____]	7.2.3	[_____]
7.1.4	Drinking water	[_____]	7.2.4	[_____]
7.1.5	Nutritional support	[_____]	7.2.5	[_____]
7.1.6	Agricultural inputs/training (seeds, fertilizers, tools)	[_____]	7.2.6	[_____]
7.1.7	Livestock support (Fodder, veterinary services)	[_____]	7.2.7	[_____]
7.1.8	Irrigation repair	[_____]	7.2.8	[_____]
7.1.9	Other cash grants (non-government and non-conditional)	[_____]	7.2.9	[_____]
7.1.10	Other (specify)	[_____]	7.2.10	[_____]

7.3	Have you received any wheat/wheat flour support during the **emergency period**?			1= Yes 0= No				|___|
7.4	Who did you receive it from? ***(Report two main sources)***	1=Govt, 2 = NGO, 3= UN, 4 = Religious organisation, 5= Relative/Friend/Neighbour/Community member, 6=other (specify)_____		7.4.1	|___|		7.4.2	|__|
7.5	How much quantity of wheat/wheat flour (maunds) did you receive during the Emergency period (Dec-Mar 2014-15)?							|_____|
7.6	How much cash support did you receive during Emergency period (Dec-Mar 2014-15)?	1= Less than 3000, 2= 3000-6000, 3= 6000-10,000, 4= 10,000-20,000, 5= 20,000-50,000, 6= More than 50,000						|_____|
7.7	How did you utilise the cash? ***(Report three uses)***	1= Buying wheat flour, 2=Buying other food items, 3= Buying household items, 4=Health / medical care, 5=Buying animal fodder, 6=Buying seeds / fertilizers, 7=Paying debts, 8=Rebuilding damaged houses, 9=Other (specify)_____	7.7.1	|__|	7.7.2	|__|	7.7.3	|__|

7B- Household Needs in Future Emergency Scenario							
7.8	If drought strikes in future, what would your household need most to cope with the drought i**n short term (1 – 2 months)** *(choose 3 options in order of their importance from below)*	7.8.1	|____|	7.8.2	|____|	7.8.3	|____|
7.9	If drought strikes in future, what would your household need most to cope with drought in medium term (3 – 6 months) *(choose four options in order of their importance from below)*	7.9.1	|____|	7.9.2	|____|		
		7.9.3	|____|	7.9.4	|____|		

1 =Drinking water, 2= cash grants, 3=Food aid, 4= Water for crops and livestock, 5=credit, 6=health services, 7=functioning schools, 8=Crop seeds, 9= Fertilizer 9=Employment/job, 11= rehabilitation of irrigation structures, 12 = Reestablishment of agricultural / livestock services, 13 = Purchase of livestock, 15 = Purchase of farm machinery, 16=other, specify: _____

SECTION 8– WATER

		Normal period (Dec-Mar 2012-13)		Emergency period (Dec-Mar 2014-15)	
8.1	What were the three **main sources** of drinking water for your household? 1= Water supply scheme, 2= Tube well, 3=Bore hole, 4= Protected hand pump, 5=protected spring water, 6=Protected well, 7=Treatment plant, 8=bottled water, 9=water tanks/bladders, 10=Unprotected spring, 11= Canal, Ponds, River, 12=Unprotected Spring, well, 13=Unprotected hand pump, 14=Rain water catchment, 15=Other, _____	8.1.1		8.1.2	
8.2	How far away was the **main drinking water source**? (Meters)	8.2.1	|____|	8.2.2	|____|
8.3	Who **mainly** collected the water? 1= Men, 2= Women, 3= Children	8.3.1	|____|	8.3.2	|____|
8.4	How much water did you consume per day? (Liters/day)	8.4.1	|____|	8.4.2	|____|
8.5	Did you purchase water? 1=Yes, 0=No	8.5.1	|____|	8.5.2	|____|
8.6	If so, how much per liter did you pay? (Rs.)	8.6.1	|____|	8.6.2	|____|
8.7	From whom did you purchase water? 1= Water tanker, 2=local water collector, 3=local shop, 4= Others_____	8.7.1		8.7.2	
8.8	**How often** did you purchase water during an **average month**? *(Number of times)*	8.8.1	|____|	8.8.2	|____|
8.9	Did you take any measures to improve the quality of drinking water? Yes=1, No=0	8.9.1	|____|	8.9.2	|____|
8.10	If yes, what **three** measures?	8.10.1		8.10.2	

	1= Chlorination, 2= Cloth filtration, 3= Boiling, 4=Simple sand filtration, 5= Sun exposure, 6= Others_____								
8.11	What were the three **main** sources of drinking water for goats?	8.11.1				8.11.2			
8.12	How far away was the **main drinking water source** for your goats (Meters)	8.12.1	|____|			8.12.2	|____|		
8.13	Who **mainly** collect water for the goats? 1= Men, 2= Women, 3= Children	8.13.1	|____|			8.13.2	|____|		

PCMA | Sindh | Pakistan

December 2016

Household Focus Group Discussion Questions

District	UC Name of location	Focus Group Description (*Gender composition, are they heads of household, livelihood type, etc.)*	
Team	Enumerators Names	Number of people in focus group	Date

WHEAT/AGRICULTURE/AID/GENERAL HOUSEHOLD ECONOMICS
1. When you purchase wheat flour for eating, how much do you typically purchase at a time, and how long does it last?
2. If you have wheat, where do you grind it? Where are the mills located?
3. What is the cost of grinding and transportation to the mill?
4. If your household experiences a gap in its ability to meet its needs, what do you do?
5. Did the shock of drought or flood alter the type of products purchased, and the timing? How? Why?
6. How would your purchase behavior change if purchase prices were 25% lower, or higher?
7. What commodities (including animals) do you normally sell most, per period (harvest, pre-lean season, lean season)?
8. Did the shock alter the type of commodities sold, and the timing? How? Why?
9. How would your sales behavior change if sales prices were 25% lower or higher?
10. How much flour do you receive from the government in an average month?
a. For the floods in 2010 or the drought in 2014-2015, how much flour did you receive from the government per month, and in total?
11. Does the wheat selling price vary depending on the time of year, and if so, how much?
12. If you sometimes purchase wheat flour, what is the price? How does the price vary depending on the time of year?
13. Did you have stocks of wheat/wheat flour at home when the (floods in 2010 for Jamshoro) (drought in Dec 2014-Mar 2015 for Umerkot + Tharparkar) started? If yes, how much did you have, and what happened to those stocks? Did you have goats? If so, how many, and what happened to them
14. During the one month right after the [flood: Jamshoro in2010] / [drought: Tharparkar and Umerkot in, Dec-Mar 2014-2015] how much wheat flour did your HH consume?
15. Of the wheat flour that your HH consumed in that time, how much came from your own production?
16. Of the wheat flour that your HH consumed in that month, how much did you buy?
17. If you bought wheat flour during that month, from where did you buy it?
18. Did your HH receive food aid during the month after the flood? If yes, what kind of food aid did you receive, and how much was it? For how many months you got this?
19. For how many months were you in need of food assistance following the flood (even if you did not receive any assistance)?
20. If you did not receive food assistance after the flood or during the drought, how did your HH access wheat flour?
21. If you would prefer in-kind, would you prefer flour or wheat grains?
22. If a similar flood were to happen in the future and once again your HH did not have enough food, how would you prefer to receive food assistance? (In-kind, cash, vouchers) and why?
GOATS
23. If you have to migrate to find water or fodder for your goats, where do you go?

When you don't have enough money to provide all of your goats with water, feed, and drugs, what do you do? If you have shared goats in your flock, how long do you typically keep them?
24. What form and amount of payment do you typically receive for hosting shared goats? What do you pay somebody to host your goats?
25. In a normal year, how many of your goats to expect to get sick? What about in a drought or flood time?
FODDER
26. When does naturally available fodder start running low?
27. Is there a time period in which your goats are eating both naturally available and purchased fodder? If so, what is that time period?
28. How much does fodder cost (per mun) at different times of the season (before the harvest, after the harvest, etc)
WATER
29. How do you treat the water you drink? If you don't, why not?
30. During drought periods over the last few years, have you ever displaced yourselves to another place to live so that you could have easier access?
31. What do you do when nearby water sources like a borehole are dry or too dirty for the water to be consumable?
32. How often do people in your household get sick from waterborne diseases?

PCMA | Sindh | Pakistan

December 2016

Questionnaire for Food Department District Officer of the Government of Pakistan

District	Interview Location	
Team	Enumerator Name	Date

1. Overall, how does the wheat market system work at district level – what is the structure of the supply chain of wheat/wheat flour? **enumerator, please feel free to draw a 'mini map' of the process and actors*

2. During normal year, how much wheat you procure/receive and distribute to the wheat flour mills:

3. During drought year, how much wheat you procured/receive and distribute to the wheat flour mills: Will you do anything different in case of any future drought?

4. What was demand and supply status of the wheat in your district in normal year (i.e. what was demand in the district and how much demand you covered during the normal year)

Demand of wheat/wheat flour in the district	Supply of wheat (done by Food Department)

5. What was demand and supply status of the wheat in your district in severe drought year (i.e. what was demand in the district and how much demand you covered during the normal year)

Demand of wheat in the district	Supply of wheat (done by Food Department)

6. Do you have storage facilities for procured wheat?

#	Storage facility name	Storage capacity	Type of storage facility (constructed, open space)	Condition of storage facility (i.e. good condition, repairable etc.)
1				
2				
3				
4				
5				

7. What are the 3 main sources and associated volume of the wheat that you procure?

	Source 1	Source 2	Source 3
Name/Location			

Volume			
Price per unit			

8. Please share basic information about the 5 largest government procurement centers for wheat in your district

Location/ name of procurement center	Volume of wheat flour procured (in maunds)			
	2012 or 2012/2013 (Normal)	# of HHs targeted	Dec-Mar 2014/15 (drought emergency) or Aug-Sep 2010 (flood emergency)	# of HHs targeted
1.				
2.				
3.				
4.				
5.				

9. How long was the average duration of wheat distribution to flour mills (in number of distributions OR months)

Dec-Mar 2012/13 normal lean season	
Dec-Mar 2014/15 Drought emergency lean season	

Aug-Sep Flood normal lean season 2012	
Aug-Sep Flood emergency lean season 2010	

10. Who sets prices for wheat and wheat flour? What is your role in setting prices for wheat?

11. What is collaboration mechanism between you and PASSCO

12. Any suggestions/recommendations on the basis of emergency response