



PAKISTAN  
**FOOD SECURITY CLUSTER**  
*Strengthening Humanitarian Response*



**PCMA**

**PRE-CRISIS MARKET ANALYSIS**

## **Goat 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 30<sup>th</sup> 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<sup>1</sup>, 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.

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. Livestock in general and goats in particular are significant in Sindh and for Pakistan – as of 2006, Sindh contained 23% of the nation’s nearly 60 million goats.<sup>2</sup> 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; **for those households goats are their single major asset from which they derive nutrition and income.** The three districts studied contain different livelihoods zones and bear different levels of risk for chronic drought and sudden-onset emergency, affecting the markets for goats, fodder, and water. When possible, the PCMA illustrates what is broadly applicable to the goat market system across the three districts. When necessary, discussion of the findings disaggregates and picks out points salient particularities. To briefly summarize findings and recommendations:

**The functionality of the goat market is strong in normal times, but times are not normal:** goats are the most widely kept animals across all wealth groups, and are especially favoured by poor and very poor households. Fodder in different forms and goats can be readily purchased from a variety of market actors across the districts, and regional and urban markets maintain a steady turnover. However, ‘normal’ times have proved elusive over the years; after a major drought in 2013-2015, all of Tharparkar and much of Umerkot are again facing drought conditions. For a herd of goats to be financially viable, households must have access to foraged fodder for much of the year, reducing the need to rely on the market. Drought conditions decrease the volume and quality of natural fodder available, weakening goat health and raising disease susceptibility. Outbreak of disease is widespread, thinning herds and compelling pastoralists that can’t access veterinary medicines to make distressed sales of their livestock assets, which increases supply in the market exerts downward pressure on market prices.

<sup>1</sup> *Household Economy Analysis: Drought Impact 2015: Jamshoro, Umerkot & Tharparkar Districts of Sindh Province*, Food Security Cluster, Pakistan, 2016

<sup>2</sup> Pakistan Bureau of Statistics, “Agriculture Statistics of Pakistan 2010-11”, table 120, [http://www.pbs.gov.pk/sites/default/files/agriculture\\_statistics/publications/Agricultural\\_Statistics\\_of\\_Pakistan\\_201011/table s/120.pdf](http://www.pbs.gov.pk/sites/default/files/agriculture_statistics/publications/Agricultural_Statistics_of_Pakistan_201011/table%20s/120.pdf), accessed 27 December 2016

**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, accompanied by investment in water infrastructure, improved animal husbandry practices, and training, education and alternative livelihoods programming to reduce climate change risk. Absent the will to address such complex, deeply rooted issues, technical assistance can make great gains in food security and livelihoods for vulnerable agro-pastoralists and pastoralists in Sindh, through programs such as those in this short, illustrative list: stocking and de-stocking programs, mass animal vaccination, improved breeding and selection techniques, chilling stations for milk, improved cold storage and animal processing improved expansion and improvement of irrigation and water management infrastructure designed for pastoralism, debt relief and affordable microfinance for agro-pastoralists, expanded rural mobile networks, 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 agro-pastoral households for 1-5 months while floodwaters recede and households strive to recover. Recovery in the period immediately after flooding requires direct and in-kind intervention. A range of market-sensitive programming options is appropriate after flood waters recede:

- **Cash and vouchers are appropriate for resilience, mitigation and emergency response.** Even when not actively affected by emergency conditions, 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.<sup>3</sup> 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, fodder, goats, and other markets for key goods and services are strong, and households have a market orientation for their 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.<sup>4</sup> 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."<sup>5</sup> In the event of a chronic drought emergency, market-sensitive programming can be

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

<sup>4</sup> 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](http://fscluster.org/sites/default/files/documents/Training%20report%20-%20Basic%20Course%20on%20Cash%20Transfer%20Programming%20(Peshawar%20and%20Hyderabad).pdf)

<sup>5</sup> "Meta Evaluation of ACF Fresh Food Voucher Programmes", ACF, CaLP, ECHO, January 2012, page 17

used to halt and reverse negative coping mechanisms, restore animal health through access to nutrition and medicines, and allow restocking through reproduction.

To reduce the human impacts of possible impact of future floods, this report makes the following recommendations:

- **Conduct targeting and sensitization.** By design, 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.<sup>6</sup> 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 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 end line 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.<sup>7</sup>

Targeting and sensitization should also yield actionable information about the appropriate delivery methods for cash, given limited mobile networks in rural areas, widespread illiteracy<sup>8</sup> and inexperience with cash cards and ATMs.<sup>9</sup> 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.<sup>10</sup>

- **Pursue achievable, low-tech solutions to strengthening pastoralist resilience:** most of the tools required to make pastoralists and their goats more resilient are already present and being used to a certain extent by the government of Pakistan and helping actors. Large-scale vaccinations, improved breeding selection, de-stocking/re-stocking programs, goat food supplement and fattening programs, low-tech rainwater harvesting and water storage techniques can be undertaken as disaster risk reduction and/or emergency response programming. While the government of Pakistan is correctly pursuing higher profile, complex programs with its international partners, local NGOs and their international partners, in collaboration with relevant government actors can expand agricultural extension programming to improve practices and outcomes at the ground level.

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<sup>6</sup> 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.

<sup>7</sup> 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

<sup>8</sup>According to UNICEF, the total adult literacy rate, 2008-2012 is 54.9%.

[https://www.unicef.org/infobycountry/pakistan\\_pakistan\\_statistics.html](https://www.unicef.org/infobycountry/pakistan_pakistan_statistics.html)

<sup>9</sup> 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](http://www.cashlearning.org/downloads/resources/casestudies/oxfam-gb_pakistan-flood-response-piloting-cash-transfers-through-prepaid-debit-cards.pdf)

<sup>10</sup> 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

## 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 the arid areas of Umerkot,



Photo 1: A fodder storage building in Umerkot

Tharparkar, and Jamshoro, and the risk of seasonal (occasionally catastrophic) flooding along the Indus River in Jamshoro district. Anticipated continued climate change-related degradation of crop yields and food security 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.<sup>11</sup>

### 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 staff and FSC 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. The teams then conducted data collection, finding relevant actors in the randomly selected sub-districts

<sup>11</sup> 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



and villages. A day of travel back to Karachi was followed by 2 days of analysis there and 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 questionnaires, Government Food Officer Key informant interviews, focus group discussion guides, and semi-structured market actor interviews 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 3<sup>rd</sup>, conducted data collection December 4<sup>th</sup> to 8<sup>th</sup>, and departed their field accommodations December 9<sup>th</sup>, arriving in Karachi that afternoon.

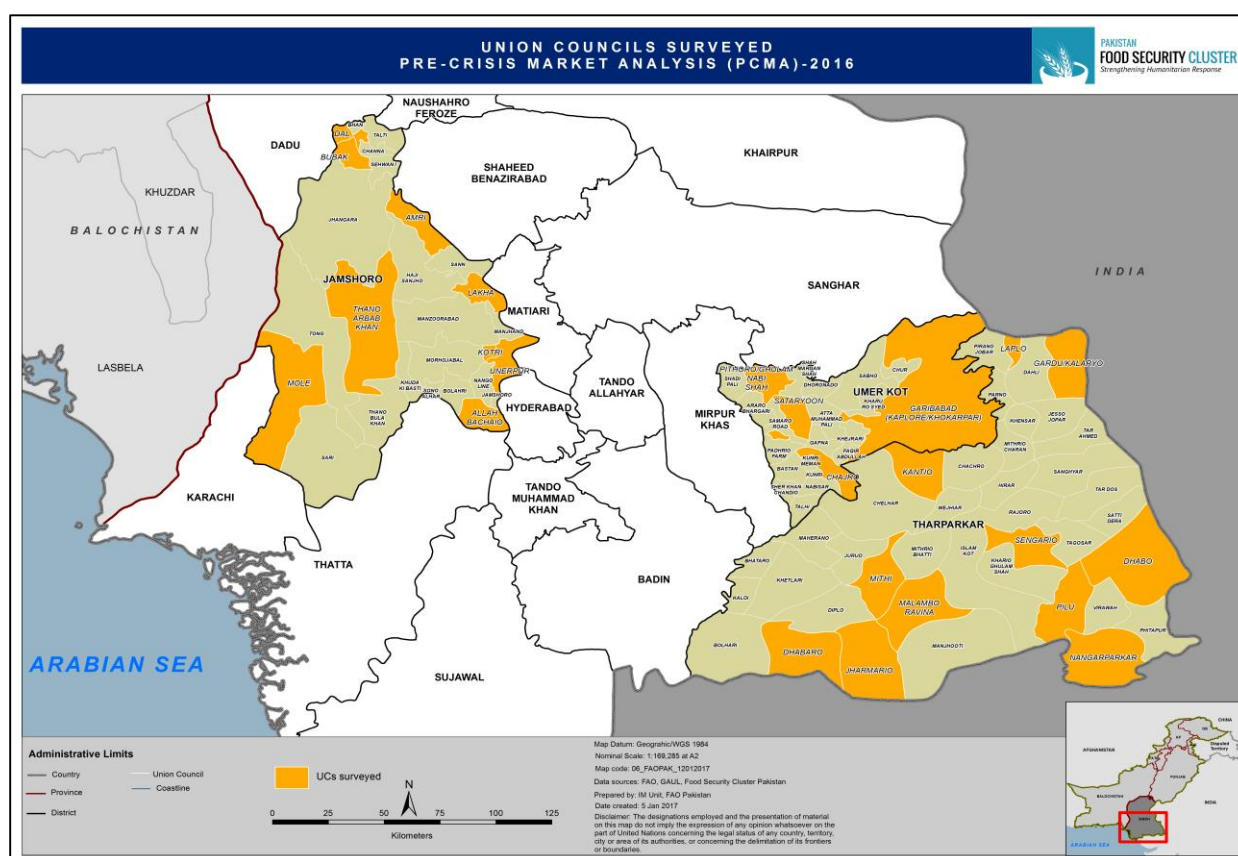


Figure 1: Map of Union Councils surveyed for PCMA in Jamshoro, Umerkot, and Tharparkar districts of Sindh province

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.<sup>12</sup> The PCMA used

<sup>12</sup> 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

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 December 9<sup>th</sup> and 10<sup>th</sup>, with a preliminary presentation of findings made to INGO, NGO, and government stakeholders in the morning of December 11<sup>th</sup>. 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. Because of Tharparkar's large size and often difficult road conditions, the teams from Umerkot District spent one of their field days collecting data in Tharparkar. A table featuring more detailed description of the PCMA steps is in Annex C and the composition of the field teams can be found in Annex B.

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

Very few households across the two wealth groups in the 3 districts own land and except the very poor households in Jamshoro, between 60-86% of the very poor and poor households cultivate land. 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.

	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 cultivate land

Majority of poor and very poor households in Jamshoro are tenants or sharecroppers (78%) while in the arid areas of Tharparkar and Umerkot, fewer households are tenant/sharecroppers (55% and 61% respectively), and the rest rely on livestock. Complementarity between cropping and livestock indicates that households that do not cultivate crops, and rely exclusively or heavily on livestock are more insecure in their livelihoods and nutrition. That is, the less diverse are the productive assets of a household, the more those households must rely on seasonal casual and agricultural labour for income, and unreliable weather to support sufficient natural forage for their livestock.



	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

Across all three districts, a minority of those who cultivate crops own the land that they cultivate (22 to 23% across the 3 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

Households in the arid, agro-pastoral areas of Tharparkar and Umerkot use the land primarily for grazing. Households that keep buffalo tend to be in proximity to irrigation infrastructure, while households that keep goats exclusively tend to be in arid areas beyond easy reach of most water infrastructure.<sup>13</sup> Households in arid, non-irrigated areas are less likely to keep sheep – interviews with households revealed that drought and near-drought conditions over the years have precipitated a pivot away from sheep, which are less hardy in dry conditions, and towards goats, which are hardier in drought conditions in part because they are more willing to eat a wider variety of things found while foraging.

<sup>13</sup> 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, page 26

	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**

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.

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 6. 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<sup>14</sup> and thousands of livestock each year. The floods of 2010 were used as one emergency scenario, 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.<sup>15</sup>

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 floods of 2010 continue to cast a long shadow over Sindh province, and many of the very poor and poor households have not yet been able to return their total household assets returned to pre-flood levels.

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 Tharparkar, 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

<sup>14</sup> World Food Programme, "Pakistan Food Security Bulletin, Issue 4: July 2015 – June 2016, published September 2016, page 10

<sup>15</sup> Loreto Palmaera, "Emergency Market Mapping and Analysis: Pakistan Flood Response, 7-28 September 2010", ECHO, 2010, page 3.

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.”<sup>16</sup>

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



Photo 2: Perished goats from disease in Tharparkar

<sup>16</sup> 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

Figure 2 (below) shows the flood-affected areas in Jamshoro for the floods of 2010, 2011, and 2012 and 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).

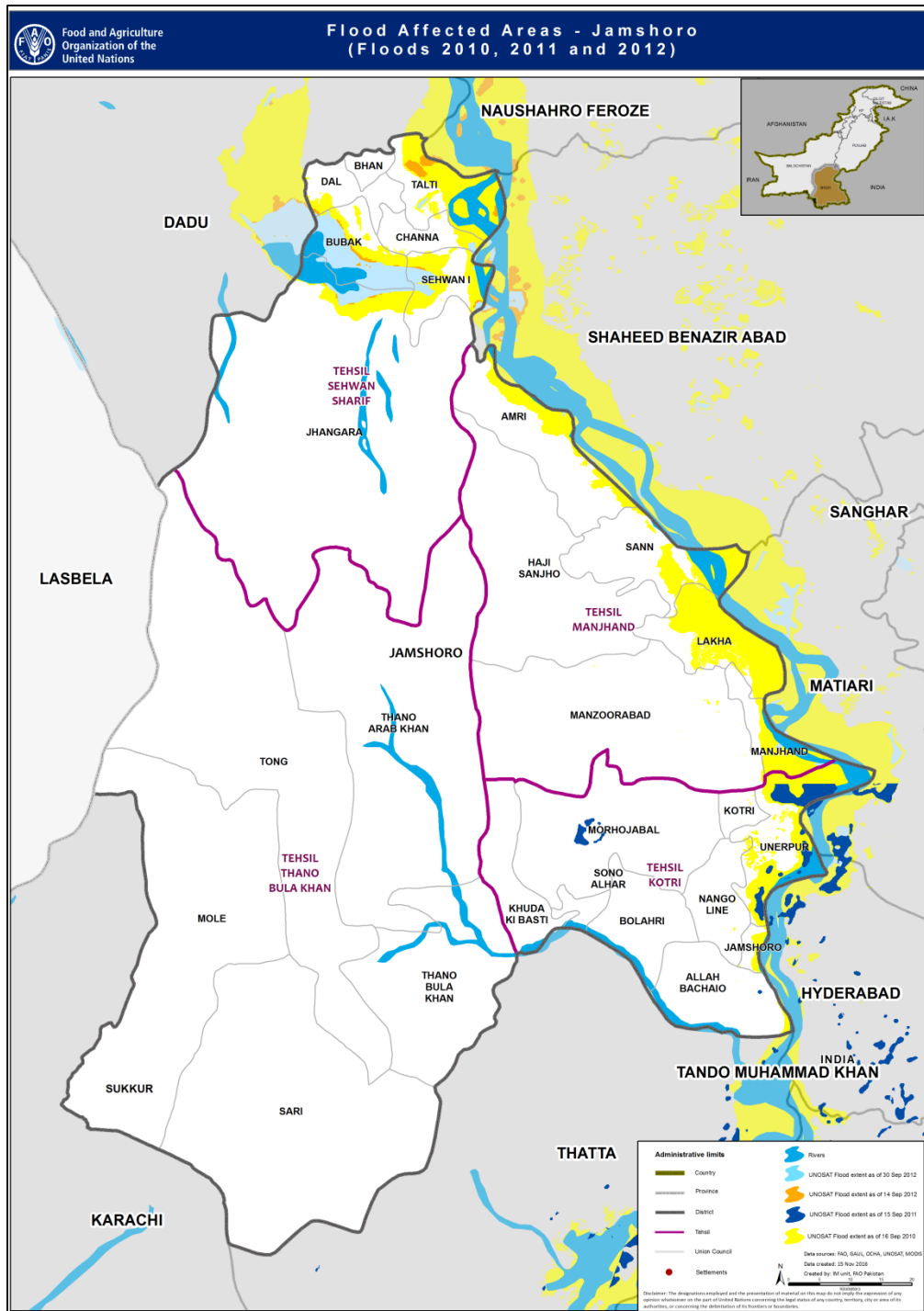


Figure 1: Map of flood-affected areas in Jamshoro in 2010, 2011, and 2012



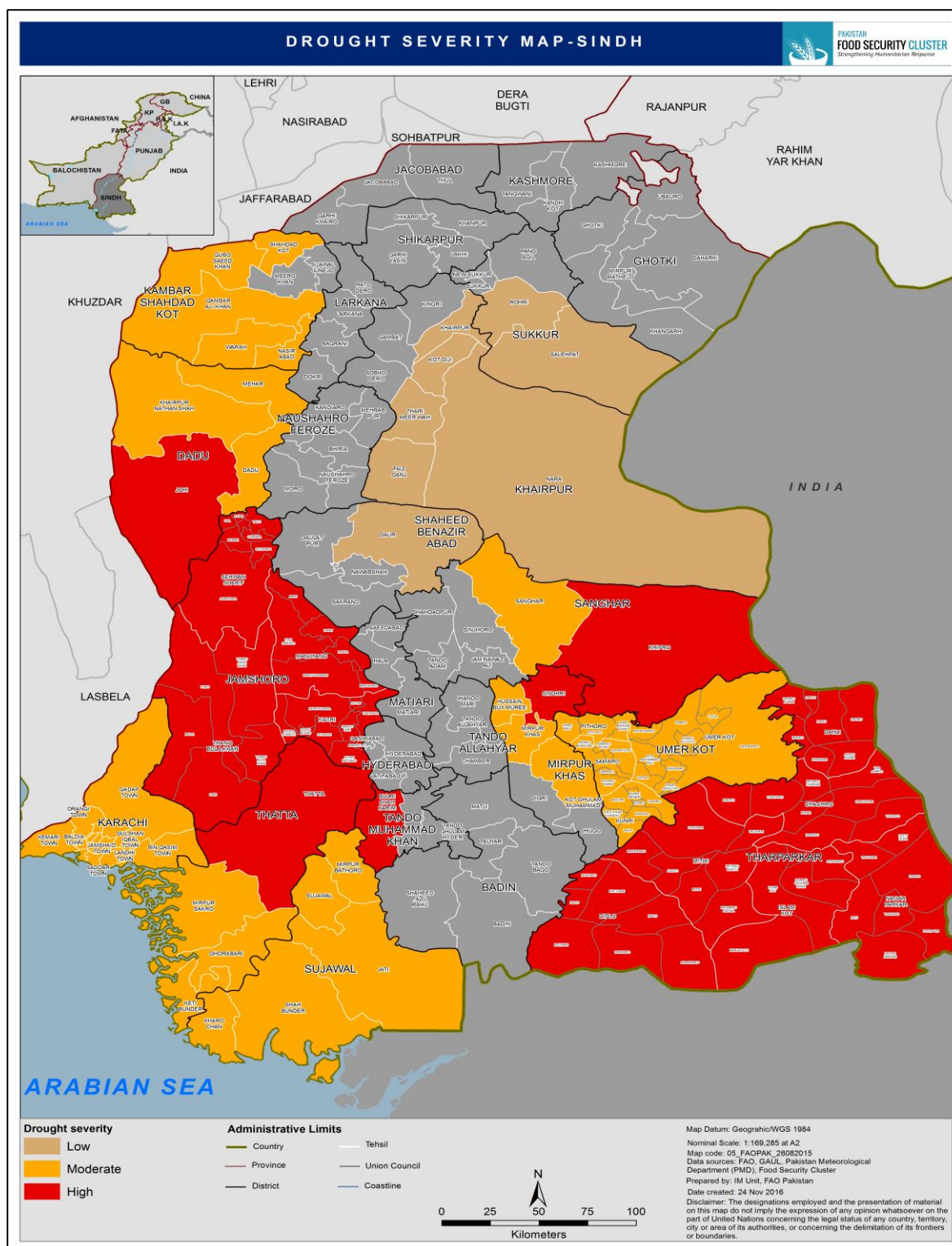


Figure 3: Map of severity of drought in Sindh province, November 2016

## 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<sup>17</sup>. 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,<sup>18</sup> and represent both an important source of nutrition (milk) and income through selling goats and their offspring.

### a. Seasonal calendar

Seasonality is a key factor in the goat market system, as are religious holidays: in a given year, Eid al Adha causes the largest spikes in the sale of goats. Religious holidays aren't documented in the seasonal calendar below, as they follow lunar cycles, not seasons. Seasonal migration is undertaken for large ruminants only; not goats.

Seasonal Calendar for Goats												
Factor/Activity	J	F	M	A	M	J	J	A	S	O	N	D
Goat fertility trend												
Rains and flood risk												
High milking period												
High goat mortality trend												
Outbreak of seasonal diseases												
Goat vaccination												
Selling of animals as coping mechanism												
Selling animals for high prices												
Availability of fodder												
Shortage of fodder												
Availability of drinking water												
Shortage of drinking water												

Umerkot+Tharparkar	Jamshoro	All 3 Districts

A typical seasonal cycle of temperature and rainfall is depicted in figure showing the peak of rainfall and temperature in the monsoons in the middle months. That is, when high temperatures stimulate greater need for water for plants and livestock, the monsoon increased water supply. When

<sup>17</sup> 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 29<sup>th</sup>, 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.

<sup>18</sup> *Household Economy Analysis: Drought Impact 2015: Jamshoro, Umerkot & Tharparkar Districts of Sindh Province*, Food Security Cluster, Pakistan, 2016, pages 18-19

monsoons are late, as they have been for the majority of the last 6 years, it strains the plant and water ecosystems on which goats rely, undermining their health, milk productivity, and market value.

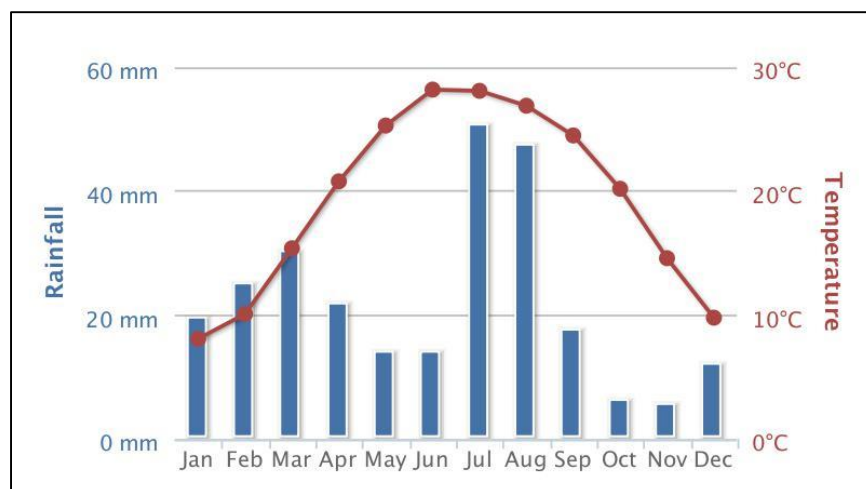


Figure 4: Average monthly rainfall and temperature for Pakistan, 1900-2012.  
Source: World Bank Group

## 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.

**Poor and very poor agro-pastoral households** rely on livestock for nutrition (milk) and income. That the health and value of the livestock in turn relies on access to fodder and water means that major household's decisions are determined by access, volume, and quality of fodder and water. In normal times, agro-pastoral households will rely on a mixture of wild forage and fodder purchased from the market. For water, households rely on a mixture of sources during normal and emergency times, including access to boreholes for which a modest price is paid. In times of drought, the number and quality of water sources diminish, while the distance travelled to water sources might increase. In the Thar and agro-pastoral areas of Jamshoro and Umerkot, households which keep goats as their only livestock rarely migrate for fodder; instead their coping mechanism in drought conditions is to sell goats and to 'share' them with other pastoralists. A sharing arrangement is one in which the management and feeding of an animal is taken on by another party, in exchange for a percentage of the proceeds from the eventual sale of the animal. Adult goats are divided  $\frac{3}{4}$  for the original owner,  $\frac{1}{4}$  for the surrogate. Proceeds from the sale of goat kids (males only) are split 50/50.

As producers, very poor and poor households are not well-organized, wield little market power, and face less felicitous terms in market interactions than large traders that operate with superior market information, economies of scale, and the wherewithal to buy or sell counter-cyclically. Those household-level producers are takers of local spot prices as they often sell to generate cash to support immediate

needs. Their herds usually grow through seasonal breeding, rather than through acquisition in the market.

**Goat Milk:** Agro-pastoral households derive a significant amount of their nutrition from milk. Those households with herds that produce more milk than is consumed by the household sell the milk for income. Retailers of goat, cow, and/or buffalo milk were seen in most rural and in all urban markets, selling unpasteurized and otherwise untreated milk. Supply of milk is generally lower than demand, particularly during

summer months,<sup>19</sup> and in drought emergency conditions milk production for the household declines dramatically. Milk productivity per household declines in drought partly because each animal becomes less productive when not consuming

		Mean Liters of Milk Produced by Herd per Day		
		All	Poorest	Poor
Jamshoro	Normal	3	2	Unknown
	Emergency	2	Unknown	Unknown
Tharparkar	Normal	2	1	1
	Emergency	2	1	0
Umerkot	Normal	3	3	2
	Emergency	1	2	1
Overall	Normal	2	1	1
	Emergency	1	1	1

Table 8: Mean volume of milk produced by household herd per day

sufficient nutrients, and also because households often are forced to reduce their number of animals through destocking or ‘sharing’ the animal with another household, which may take whatever milk produced by those shared animals. As seen in Table 8 in a drought emergency, milk production declines, meaning households will have to seek other foods in greater volume to obtain the same number of kilocalories in a given day. In the arid areas that cover much of Umerkot, Tharparkar, and Jamshoro, purchasing food on the market is the only other option, although financial access is problematic or even impossible without borrowing or buying on credit. The volume of milk produced by herds owned by poor and middle-income households in Jamshoro is not included in Table 8 because review of the data collected deemed it unreliable.

**Water:** Women and children are the primary collectors of water for their households. Proper water treatment is not commonly practiced in very poor and poor households: cloth filtration is by far the most widely used ‘treatment’. No treatment is given to water consumed by goats and other animals: in most cases goat are herded to their various water sources, rather than pastoralists bringing the water to their goats. In normal times, poor and very poor households rely on a variety of water sources: even in arid Tharparkar, households report using at least three different sources. In emergency times, households in all three districts will mostly continue using the same sources.

<sup>19</sup> Shahzad Safdar, *Rapid Appraisal of Livestock Markets In Punjab and Sindh*, United States Agency for International Development, March 2011, page 44.

District	HH Sources of Drinking Water	Very poor		Poor	
		Normal	Emergency	Normal	Emergency
Jamshoro	Water Supply scheme	17%	33%	17%	0%
	Tube Well	25%	33%	25%	33%
	Bore Hole	33%	100%	0%	0%
	Protected Hand Pump	20%	33%	20%	0%
	Treatment Plant	50%	0%	0%	0%
	Water Tank/ Bladders	0%	100%	0%	0%
	Canal, Ponds, River	50%	0%	50%	0%
	Unprotected Spring	0%	0%	0%	20%
	Other	100%	100%	0%	0%
Tharparkar	Tube Well	0%	50%	100%	100%
	Bore Hole	17%	33%	17%	0%
	Protected Hand Pump	0%	0%	0%	20%
	Protected Well	100%	100%	0%	0%
	Unprotected Spring	0%	0%	33%	33%
	Unprotected Well	29%	30%	11%	11%
Umerkot	Water Supply Scheme	25%	17%	50%	67%
	Canal, Ponds, River	35%	29%	18%	25%
	Unprotected Well	0%	0%	50%	44%
	Unprotected Hand Pump	0%	0%	43%	50%
	Rain Water Catchment	33%	0%	0%	0%
	Bottled Water	0%	0%	0%	50%
	Other	100%	50%	0%	0%

Table 9: Household sources of water during normal and emergency period

For very poor and poor households, the volume of water consumed does not vary significantly between normal and emergency times.



District	Average Household Water Consumption Per Day (Liters)		
	Period	Very Poor	Poor
Jamshoro	Normal	15	Unknown
	Emergency	14	Unknown
Tharparkar	Normal	18	11
	Emergency	18	10
Umerkot	Normal	7	6
	Emergency	7	6
Overall	Normal	13	9
	Emergency	12	8

Table 10: Average daily household water consumption

**Goat retail and wholesale markets** Agro-pastoralists buy and sell goats in a number of places, but most commonly at regional goat markets on weekly market days. The owners may take the goats to market



Photo 2: Collection of water for from a reverse osmosis (RO) plant in Umerkot for transport in inner tubes

themselves, or sell them via a middleman who collects the goats from local villages. Goats of the most common breeds<sup>20</sup> typically weigh between 25 and 30 kg, and fetch a price between 4,000 and 7,000 PKR. Livestock owners with the resources and inclination may also pool their resources to pay for transport to Karachi, where the price is currently 4,000 to 5,000 more for a large, healthy goat. Transport is costly but remunerative: for example, the 4-5 hour journey from the goat market in Sehwan to Karachi costs about 18,000 PKR, for 200-250 goats. Goat prices typically

increase before and during religious holidays, as suppliers know that households are compelled to buy, a sign of inelastic demand.

Buying or selling of goats happens most often at regional goat markets, which typically have one or two 'market days' per week, in which goats are bought and sold wholesale and retail. Prices in the regional markets reflect price dynamics in the rural livestock production areas: during the major floods in 2010 the prices in the regional goat market went down about 50%, and down 25%-30% in Karachi. In times of drought, the regional market price for goats goes down about 30%, with much smaller

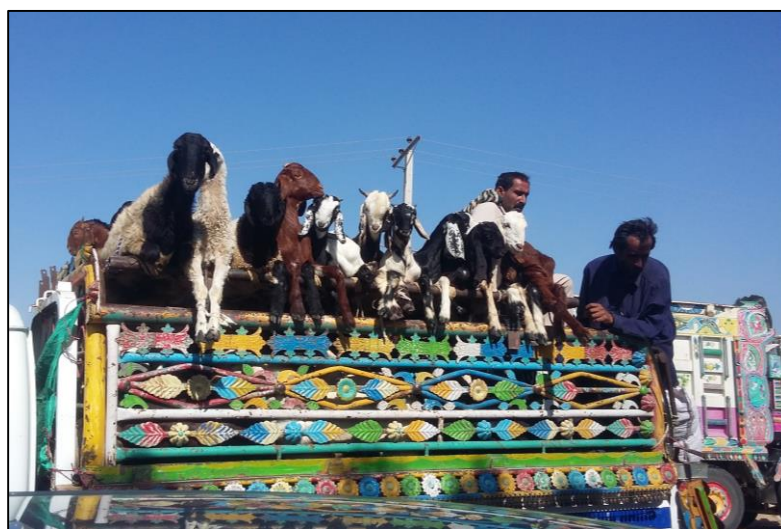


Photo 5: goats awaiting sale at a market in Tharparkar

<sup>20</sup> e.g. Bari, Bugri, Chappar, Tharki.

decreases in Karachi and other urban markets<sup>21</sup> The difference in price per goat between the regional goat markets and major urban centres like Karachi illustrates an inequality in opportunity between agro-pastoralist households of different wealth groups: poorer households get low local prices, while traders and others with access to Karachi can fetch significantly higher per unit prices

**Fodder growers** vary in their characteristics and activities across wealth groups. Following the PCMA focus on poor and very poor households, this report looks at: 1) Small holder growers, who are tenant farmers without livestock that sell all of the fodder they produce immediately after harvest, 2) small holder agro-pastoralists that use the fodder they produce for their own livestock but supplement by purchasing fodder in the market, and 3) small holder agro-pastoralists that consume their own fodder and sell fodder into the market. “Fodder” is a general term for crops and agricultural by-products that are reprocessed or repackaged for animal feed. Fodder can be wheat straw, maize stalks, onion stalks, Sudan grass hybrids, berseem (Egyptian clover), sugar cane stalks, sorghum plants, rice stalks, cluster bean stalks (guar), and various brassicas. According to the HEA household profile, fodder-producing households that own no livestock are often the poorest. Small-holder tenant farmers categorized as poor will strike a subjective balance between selling their fodder to realize income necessary for servicing debt and purchasing essentials, and keeping fodder for their own livestock’s consumption. Some poor, small-holder tenant farmers may keep all of their fodder and also purchase fodder on the market when all of their fodder is consumed. In any case, the market is an important aspect of fodder growers’ livelihoods.



Photo 6: a tenant farmer harvests clover for livestock fodder near Kotri, Jamshoro district

**Fodder traders** traverse rural fodder production areas, collecting unprocessed fodder and selling to wholesalers and retailers in market areas. Some fodder traders may also have the capacity to store fodder, so that they can hold inventory until prices are high; usually during the first 6 months of the year until the monsoon. During the winter months leading up to the harvest, wheat straw, which is the preferred fodder material becomes less plentiful and more expensive, so market actors and households turn to maize and sugar cane stalks, and other by-products.

**Fodder storage.** The most common fodder storage technique is mounding wheat straw on the open ground, rounding the top of the mound and covering it in a layer of mud. The mud prevents the fodder from blowing away, and protects from light rain, but affords no protection from flooding.

**Local water collectors** typically use donkey carts to transport water in 20 litre jerry cans. Local water collectors can be found in urban, peri-urban and rural areas, transport the water less than 5 km, and charge between 25 and 40 PKR for each jerry can, depending on the distance travelled.

**Water tankers**, also referred to as a bowser, are widely available across the three districts. Tankers fill up at a large water source, and charge their customers according to transport costs, rather than per litre.

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<sup>21</sup> Interview with government of Pakistan Livestock Officer, Sehwan, 07

### *The market environment*

**Government Livestock Department for Sindh.** The livestock department supports farmers to help them “realize the dividends of livestock farming by...deploying public investments in core public goods [and] inducing private capital...in the sector for poverty alleviation [and] food security.”<sup>22</sup> In practice the Livestock Department undertakes a variety of activities and initiatives, both independently and with the support of international partners: the Department has recently established diagnostic laboratories, a veterinary hospital, a sustainable livestock project with JICA (Japan International Cooperation Agency), and is in the process of working with the World Bank to install 153 milk chillers across Tharparkar, Mirpurkhas, and Hyderabad districts.<sup>23</sup>



**Photo 7: A fodder processing machine at a retail shop in Thanu Bula Khan, Jamshoro district**

### *Key infrastructure and inputs*

**Roads** Agriculture-related market activities rely on roads as crucial farm to market infrastructure. Road quality varies in the three districts, but roads are generally narrow and of poor quality in the remote areas of Jamshoro, Tharparkar and Umerkot. Road conditions may increase transport fees that are passed on in the price that households pay for fodder. In flooding emergencies, roads in the main fodder production areas around the Indus River may be unusable for weeks at a time.

**Fodder processing** is often done at retail or wholesale locations, where fodder collected

from production areas is received in its raw form – e.g. green-cut corn stalks, wheat straw, and other forms of green fodder. Processing includes shredding and pressing via gas-operated machines and sale to livestock owners in required quantities usually in KGs

**Government and I/NGO vaccination programs:** The level of need for vaccination and veterinary services generally outstrips the capacity of the government: in Tharparkar, for example, there are 124 veterinary centres, 9 veterinary hospitals and 2 mobile units for more than 6.5 million livestock spread across the district.

**Government Water Facilities:** The number of reverse osmosis water filtration plants using reverse osmosis has increased since the 2010 floods: the government of Sindh plans to install 750 in Tharparkar alone,<sup>24</sup> which will address the brackishness that characterizes much of the groundwater found in arid areas of the three districts. The government is also building the largest desalinization plant in Asia in Mithi. Once completed, it will be able to produce up to 8 million litres of water per day, benefitting Mithi city and 100 nearby villages.<sup>25</sup>

<sup>22</sup> Livestock and Fisheries Department of the Government of Sindh, <http://www.livestocksindh.gov.pk/>, accessed 27 December 2016

<sup>23</sup> Livestock and Fisheries Department of the Government of Sindh, <http://www.livestocksindh.gov.pk/recent-activities.php>, accessed 27 December 2016

<sup>24</sup> Z. Ali, “750 RO plants to be set up in Thar by June”, *The Express Tribune*, 08 January 2015, <http://tribune.com.pk/story/818576/750-ro-plants-to-be-set-up-in-thar-by-june/>, accessed 10 January 2017

<sup>25</sup> *The Nation*, “Asia’s largest desalinization plant set up”, 08 January 2015, <http://nation.com.pk/national/08-Jan-2015/asia-s-largest-solar-desalinization-plant-set-up>, accessed 10 January 2017.



**Butchers** generally purchase goats from the weekly regional markets or middleman who procure goats from villages. Butchers generally sell the meat to urban consumers with some sales to well-off rural consumers as well. However, there are sanitation, cold storage and food safety related issues in the surveyed districts: lack of infrastructure and food safety practice may lead to the sale and consumption of contaminated meat.

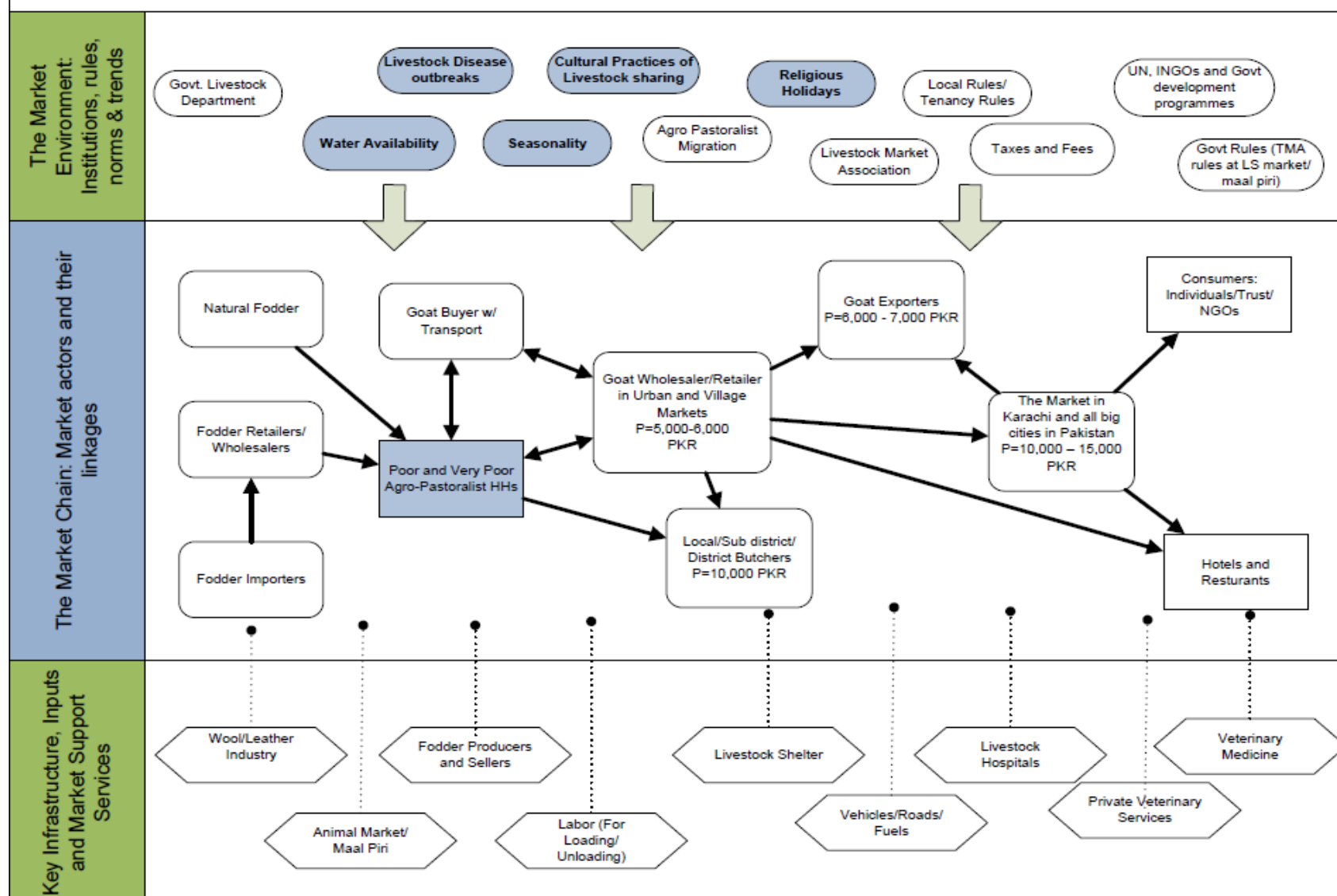


Photo 8: A household focus group discussion in Tharparkar

## G. Market maps for goats, water, and fodder

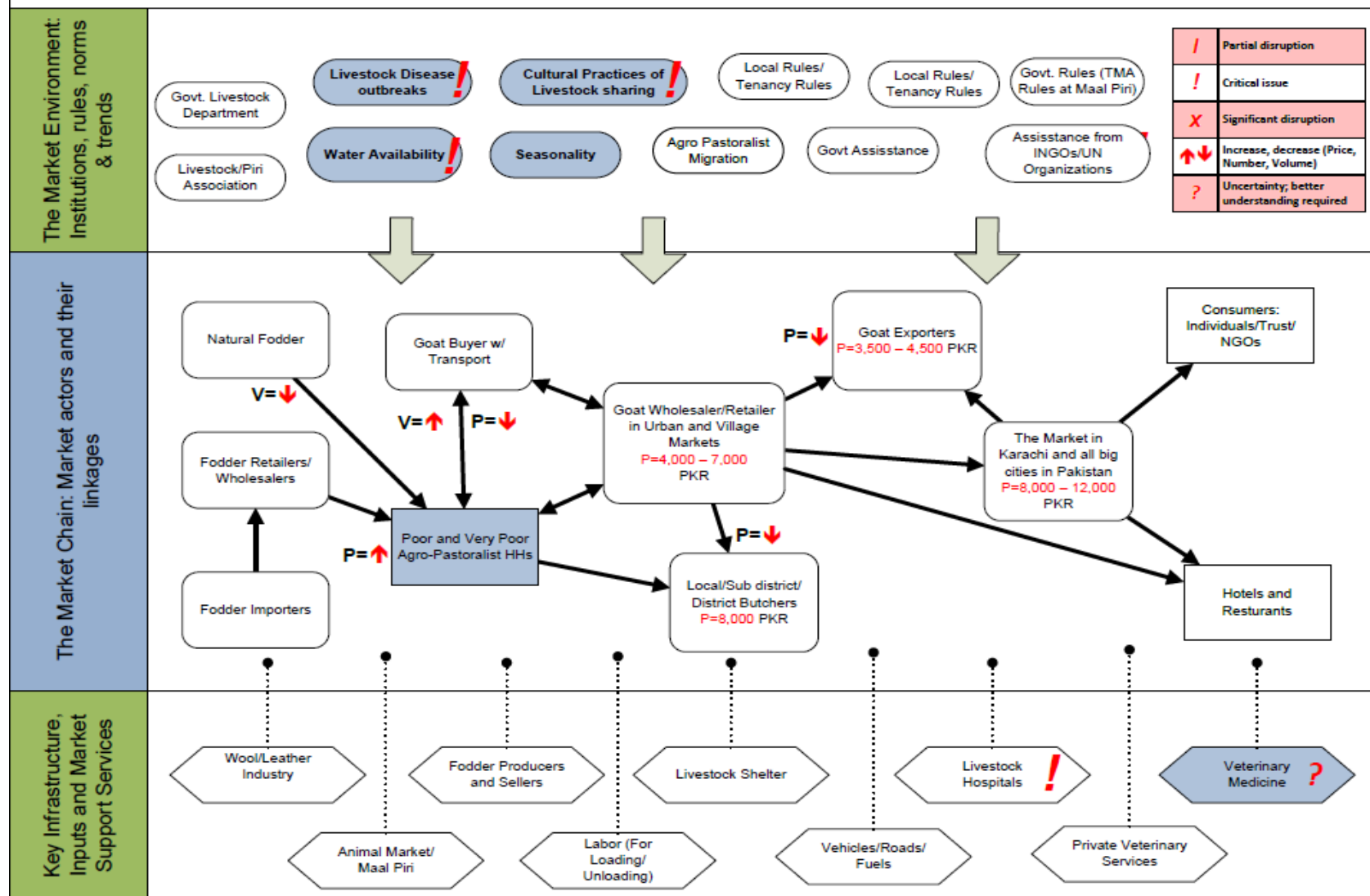
Based on inputs from local experts and findings of PCMA, following baseline and emergency maps for goat, water and fodder have been prepared. The maps list actors in the market chain; key infrastructure, inputs and market support services, and the market environment: institutions, rules, norms and trends.

## Goat Market System Map - Baseline

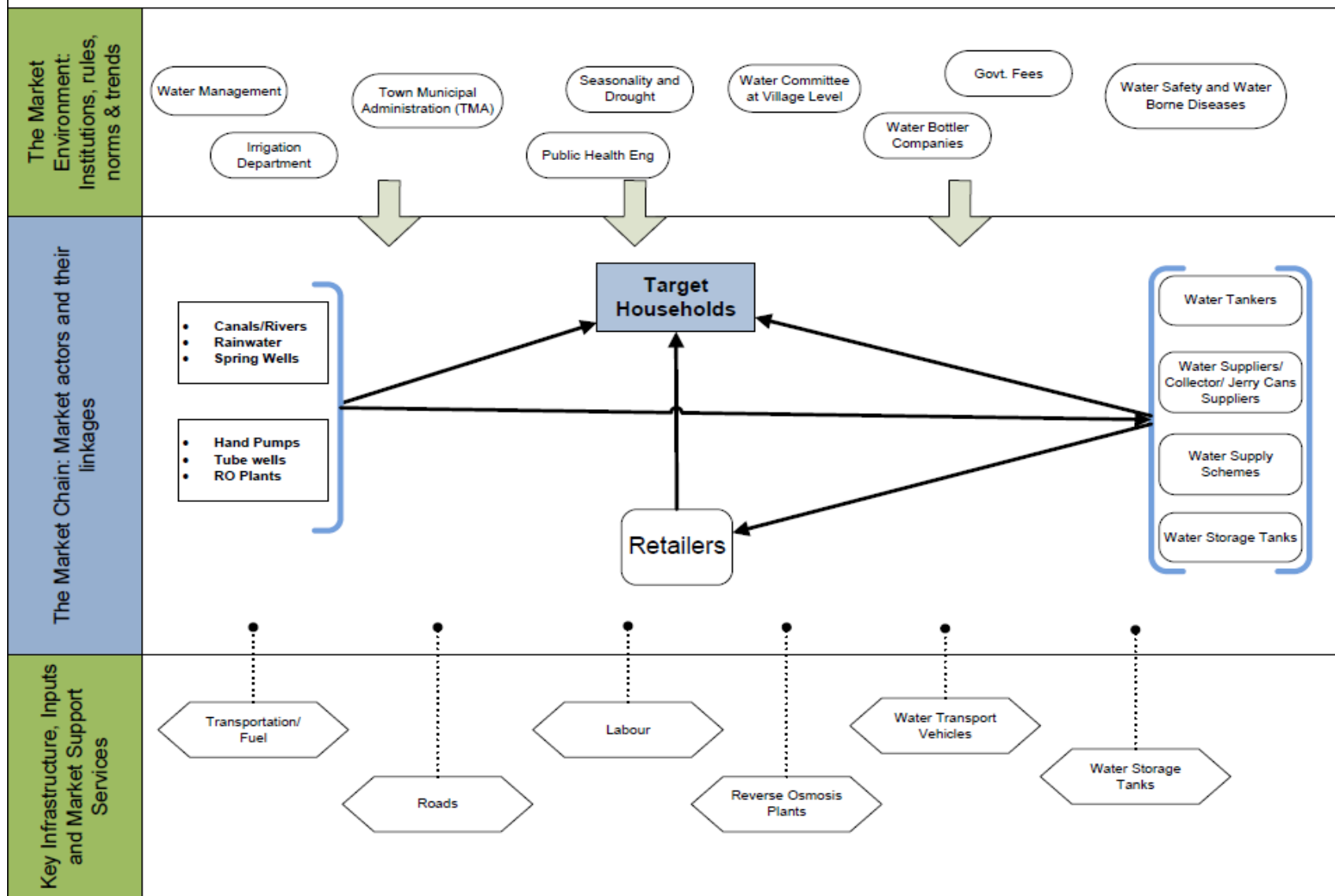




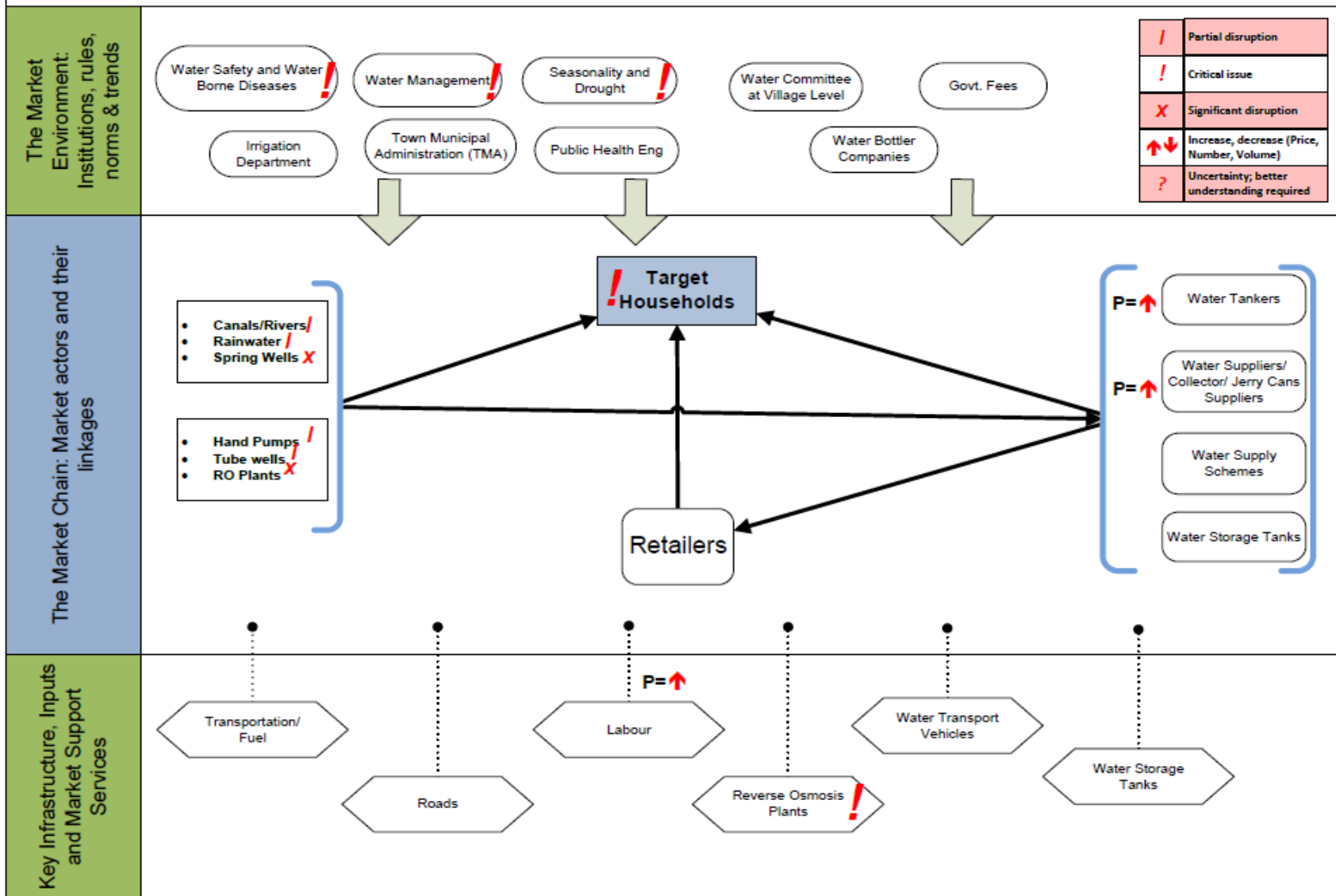
## Goat Market System Map – Emergency (Drought)



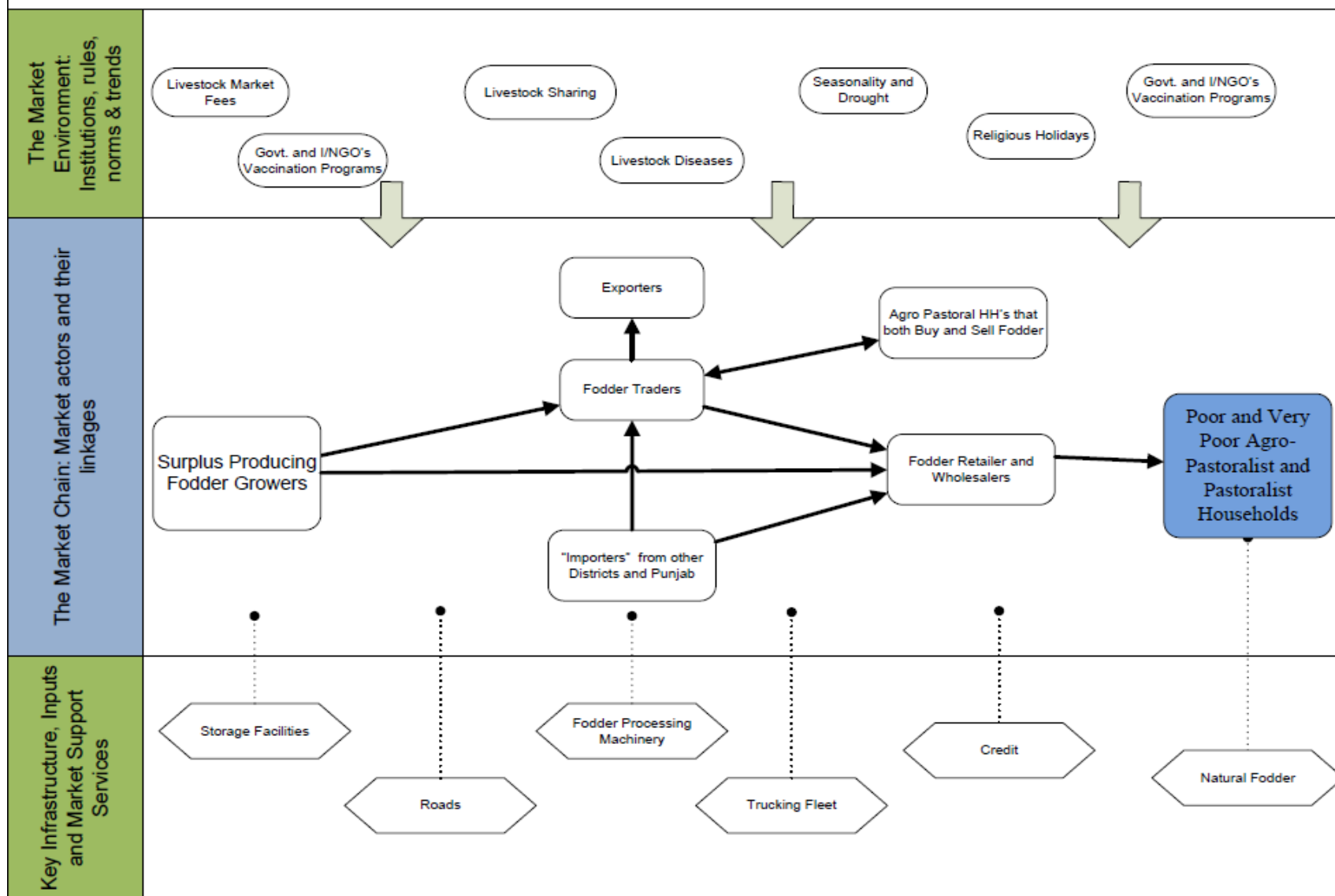
## Water Market System - Baseline



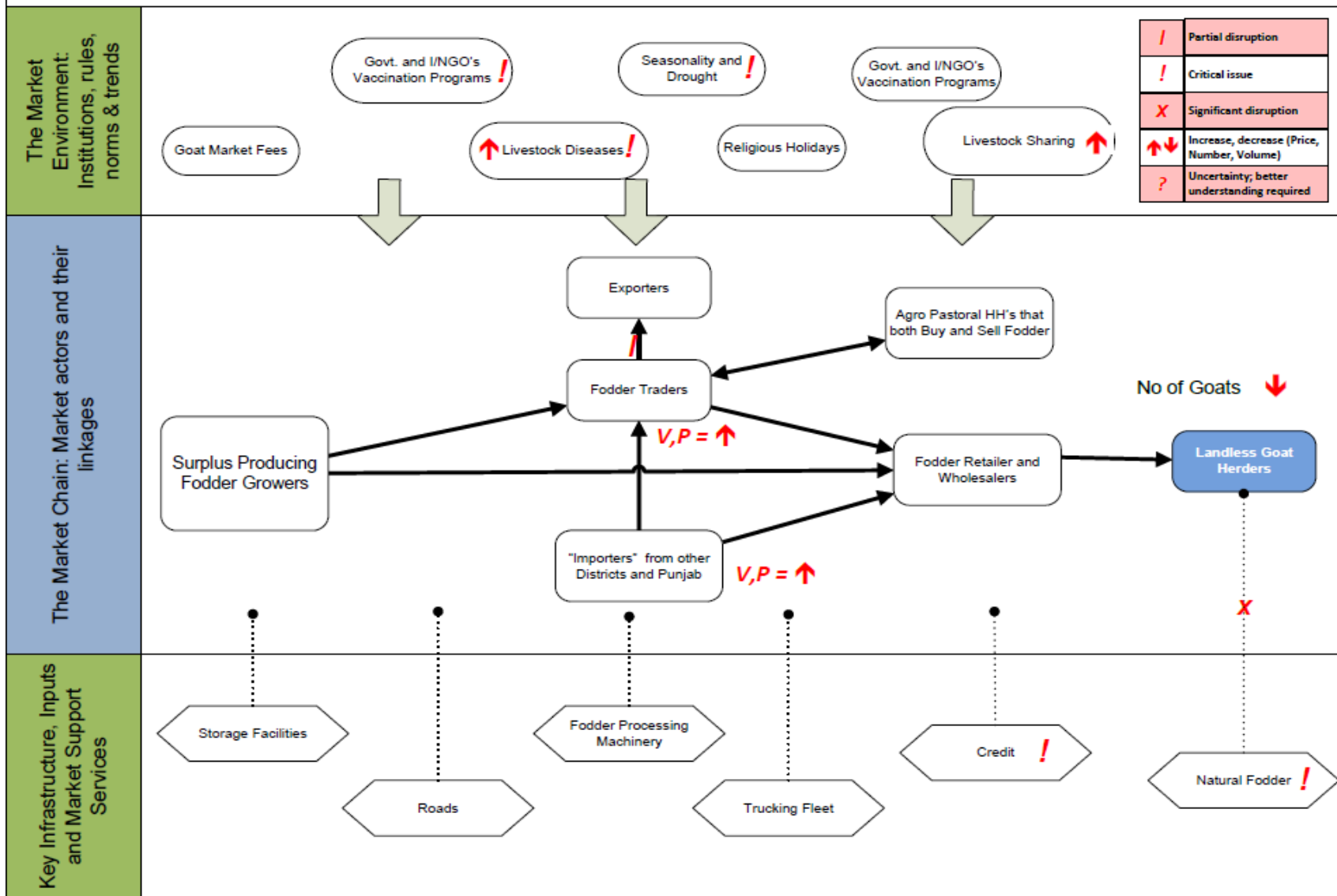
## Water Market System - Emergency



## Fodder Market System - Baseline



## Fodder Market System - Emergency





## H. Summary of key findings

Key actors	Key findings	Implications for response
Landless pastoralist HHs	Chronic drought has lowered food security and resilience for pastoralist households and threatens the viability of goats, their key asset class. Supporting goat survival and health in the short and medium term requires addressing needs for fodder, water, and veterinary medicines.	Poor and very poor HHs have needs that constitute a humanitarian emergency, even absent additional exogenous shocks like floods or more severe drought. Programming for resilience and DRR should begin as soon as practicable to mitigate the impact of future disaster events.
		Humanitarian response to droughts and flooding should take into account HH preferences for which the forms of fodder that are preferred.
Small –scale producers, (tenant farmers and small holders that also keep goats)	Agro-pastoralist tenant farmers live in perpetual debt to landowners, vendors, and creditors. Structural iniquity in the feudalistic rural agriculture economy and natural disasters (most notably the floods of 2010 and recent drought in 2014-15) 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 agro-pastoralists.	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.
	Wealthier agro-pastoralist households have an additional drought coping mechanism for their livestock: they may migrate large ruminants to different locations where natural fodder is available.	
Fodder Retailers and wholesalers	Small scale fodder retailers are available across all areas of Jamshoro, Umerkot, and Tharparkar.	Smaller market actors will be particularly vulnerable to exclusion through market-indifferent programming: every effort should be made to enhance or protect their status through market-sensitive programming, when appropriate.

Lesson	Implication(s) for Response
The combined response to the flooding in 2010 neither met HH needs nor was continued for long enough, leaving households vulnerable: even though markets can recover relatively quickly from a large scale emergency such as the floods of 2010, such an emergency has left a long tail of vulnerability for poor and very poor households through subsequent stressors, such as chronic drought	Market-based programming is not appropriate until a critical mass of market functionality is restored, meaning initial responses should be in-kind, but market-based programming should quickly be undertaken to support market recovery.
	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 physical and financial access in an emergency and in the subsequent months of recovery.
	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.
Drought has created humanitarian emergency conditions across Tharparkar, and threaten Umerkot and Jamshoro	Per person and per household rations must be increased, and those larger rations must be made available until no longer needed.
	While building a strategic vision through SRAF and ongoing coordination mechanisms is necessary and worthy of resource allocation, it is imperative that helping actors should move quickly to establish and expand programming for agro-pastoral households that are being affected by drought.

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

In irrigated areas following the Indus river, there is no significant fodder or water gap for goats, as sufficient crop residue and forage is available. In the arid areas of Umerkot and Tharparkar currently facing chronic drought, the estimated gap is 8.4 kg of fodder per week for poor households. For very poor households the gap is 12.6 Kg of fodder per week. In an acute emergency scenario, the fodder gap per week will rise to approximately 28 kg and 25 kg for poor and very poor households respectively. The **fodder gap period in Tharparkar and Umerkot is 5 months**, from March to July, during which time the markets remain robust and able to respond to demand.

Household	Average amount of fodder required per goat per day	Average amount of own produced fodder/purchased from the market per goat per day (kg)	Total Gap per goat per day (kg)	Total fodder gap per HH per week (kg)
Poor (avg. of 4 goats)	Normal			
	2 Kg	1.7	0.3	8.4
	Emergency			
	2 kg	1	1	28
Very Poor (avg. of 3 goats)	Normal			
	2 kg	1.4	0.6	12.6
	Emergency			
	2 kg	0.8	1.2	25.2

Table 11: household's primary and secondary sources of fodder in normal and emergency times

The volume and quality of naturally available forage will decline further, increasing reliance on the market for fodder, and increasing the vulnerability of households that cannot afford to purchase adequate amounts of food for their goats.

		Sources of Fodder					
		Jamshoro		Tharparkar		Umerkot	
	Sources	Normal	Emergency	Normal	Emergency	Normal	Emergency
Primary	Fodder	100%	75%	50%	52%	27%	76%
	Wheat Grains	0%	0%	3%	0%	0%	0%
	Other Grains	0%	0%	23%	11%	0%	0%
	Plants	0%	25%	17%	30%	73%	19%
	Others	0%	0%	7%	7%	0%	5%
Secondary	Fodder	0%	25%	12%	17%	20%	21%
	Wheat Grains	0%	25%	50%	39%	0%	5%
	Other Grains	17%	25%	12%	17%	0%	0%
	Plants	83%	25%	23%	22%	80%	74%
	Others	0%	0%	4%	4%	0%	0%

Table 12: household's primary and secondary sources of fodder in normal and emergency times

Table 12 above displays the sources of fodder for agro-pastoralist households. In Jamshoro, which is a major agriculture production area, the fodder in the market is plentiful and cheap: 100% of households described it as their primary source of food for their animals. But in emergency times, when fodder prices increase, those households reduced their fodder purchases by 25%, replacing it with foraged plants. In Umerkot, where in normal times pastoralist households graze their livestock, a drought emergency that reduces the availability and quality of naturally foraged fodder pushes up the market as a source of fodder from 27% to 76%. The probable 'gap' in an emergency is not necessarily with the market, but instead with household financial access to the market, as they struggle to meet the costs of tripling the volume of fodder they must purchase in the market, whilst also facing the challenge of fewer kilocalories from milk and possibly an increased need for purchasing livestock drugs.

Water Use	Liters per day	Variables
Survival needs: water	2.5 to 3	Depends on climate and individual physiology
Basic hygiene practices	2 to 5	Depends on social and cultural norms
Basic cooking needs	3 to 6	Depends on food type, social as well as cultural norms
<b>Total basic water needs per person per day</b>	<b>7.5 to 15</b>	

Table 13 depicts the SPHERE minimum standards for water supply.<sup>26</sup> Of the households interviewed in the 3 districts, only 11% of households in Jamshoro reported that the volume of water they needed for themselves, agriculture, and livestock is 'fully available'. As such, the vast majority of the 1,188,928 poor and very poor households in the three districts are facing varying degrees of severity of water shortage.

Table 13: SPHERE standards for volume of 1

#### a. Key analytical questions

Data gathering and analysis for the goat PCMA was structured around 2 key analytical questions. The key analytical questions and the responses to those questions as evidenced by the data gathered and analysed by the PCMA Sindh team are:

- 1. How the goat market system is behaves during normal period, and how will it behave during a drought emergency?**
  - a. Is it supplying the appropriate volume/quality of goods?**

The market system remains highly functional in normal times, and through chronic drought and drought emergency: the demand for goats in urban areas like Hyderabad and Karachi remains high, even when drought is affecting goat production areas. On the market and consumer side, the increase of fodder prices due to drought ends up lowering the price of goats in the market: because pastoralists are price sensitive to fodder, they end up dumping their goats, raising supply in the market and exerting downward pressure on the price. Although demand is somewhat elastic, the exception to that elasticity is for the religious holidays (Eid-ul-Azha) each year, during which both the price and volume of purchases spike significantly. On the producer side, drought affects the health, size, and desirability of a goat, reducing its market value. Agro-pastoralists sell their goats to destock so that their remaining herd might survive during drought increases supply in the market, which exerts downward pressure on prices.

<sup>26</sup> The Sphere Project, Minimum standards in water supply, sanitation and hygiene promotion, page 64

As a result, households selling their goats (distressed sale of assets) as a coping mechanism in an emergency scenario receive less money than they would in normal times. Overall, the terms of trade between a goat and a staple food such as wheat flour becomes less desirable for agro-pastoralists in a drought scenario: chronic shortages of natural fodder, financially inaccessible veterinary drugs in a context of disease outbreaks makes restocking even more challenging; shifting the relationship with the market to one of just selling goats and buying fodder.

**b. To what extent can the goat, fodder, and water markets respond to an increase in demand?**

Markets can respond to increases in demand for fodder and goats. Fodder market actors have well-established linkages across sub-districts, all three districts studied, and the Punjab. Except in cases where flooding affects physical access and market linkages, there is no gap in the ability of the market to respond to an increase in demand: when demand exceeds local supply, the market reacts quickly by sourcing fodder from elsewhere in the district, from production areas in other districts, or from outside of Sindh Province—most usually the Punjab. Despite drought conditions, irrigation reservoir levels are adequate, and the 2017 Pakistan *rabi* wheat crop is expected to be around 26 million tonnes, which is a 2% increase from the 2016 harvest, and a new record.<sup>27</sup> However, despite expected availability of commercial fodder and a strong, responsive market, the on-going drought in Tharparkar and Umerkot has shown that the low and dwindling purchasing power of very poor and poor households has thinned goat herds, decreased milk production, and greatly increased vulnerability at the household level. As such, the challenge more with the vulnerable households, than with the ability of the market to respond to demand. Nevertheless, to avoid unforeseen market distortion, further study of supply and price for fodder is recommended before undertaking any large-scale projects that stimulate demand.

**c. Will poor and very poor households be able to continue to access the needed volume and quality of fodder, water, and medicine in an emergency?**

No. Reduced availability of natural fodder from on-going stressed and drought conditions compel very poor and poor households in the non-agricultural and rain fed agricultural areas of all three districts to undertake negative coping mechanisms to meet their needs even in baseline times. Those households are forced to borrow money or purchase fodder and food on credit, reduce herd size, and ‘share’ their animals. Although the lack of natural forage is in a sense a physical challenge, the real challenge of access is financial, not physical; if agro-pastoral households had sufficient purchasing power, the market could ably respond with supply adequate to meet demand. Physical and financial access to veterinary drugs is a serious challenge for pastoralists – drugs are expensive, not available in large quantities locally, and are sometimes ineffective counterfeits.<sup>28</sup> Pastoralists are also challenged by little technical knowledge of diseases and drug therapy practices.

**2. 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?**

Helping households meet their basic food needs would mitigate the negative coping mechanism of distressed sale of (livestock) assets. 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. The provision of fodder, medicines and water through vouchers is highly recommended, as is direct cash grants to households, which provides superior flexibility and choice. Cash and/or vouchers for

<sup>27</sup> Food and Agriculture Organization of the United Nations, GIEWS - Global Information and Early Warning System, Pakistan Country Brief, 30 November 2016, <http://www.fao.org/giews/countrybrief/country.jsp?code=PAK>, accessed 03 January 2017.

<sup>28</sup> Pakistan Animal Welfare Society, “Veterinary Treatment of Livestock at Khorwah, Sindh”, 29 November 2011, <http://pawspakistan.org/2011/11/29/veterinary-treatment-of-livestock-at-khorwah-sindh/>, accessed 10 January 2017



humanitarian programming to stabilize households could be complemented by longer term, resilience-building efforts: improving de-stocking/restocking practices, access to medicines, meat and milk processing, storage, and transportation are all useful and potentially effective opportunities for collaboration between the government of Pakistan and international and national helping actors.

The well-functioning goat market also presents an opportunity for innovation: structured finance - for example through the advance of funds to pastoralists to finance inputs such as fodder and medicines through factoring or forward contracting could provide the structure, security, and liquidity necessary for pastoralists grow and sell healthy goats without resorting to usurious piecemeal borrowing or negative coping mechanisms to keep their herds alive until sale. There are a number of proven sharia-compliant deferred obligation financial instruments available.<sup>29</sup>

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 for them to meet basic food needs, without having to eat, 'lend', or sell any goats. Flooding may also damage storage facilities and destroy inventory kept by fodder traders. In such circumstances market support activities would be appropriate: subsidized restocking, guaranteeing patronage and stimulating demand through a voucher program. Response options and recommendations can be found in greater detail in the "Response Recommendations" section, below.

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<sup>29</sup> *murabaha* (a cost-plus arrangement wherein the buyer and seller agree on the markup), *bai muajjal* (a deferred payment sale contract in which the parties agree to a specific payment amount and date), *bai salam* (in which the buyer pays (a goat) to be delivered at a certain date in certain specific conditions, i.e. weight, health, location), and *arbun* (deposit up front and the remainder upon delivery) are popular sharia-compliant financial instruments

## J. Main response options

Activities	Risks & Assumptions	Timing Issues	Effects on Market and Target Population	Indicators
Livestock medication and vaccination voucher program for goats	<p><b>Risk:</b> Physical access issues may limit the voucher program.</p> <p><b>Assumption:</b> Adequate number of local veterinary practitioners and doses are available in the target areas.</p>	Five months before the drought (lean period) starts.	Chances of high mortality rates of goats will be minimized in the area. Market actors involved in transporting and vending medications will benefit	<p>Number of goats administered vaccination/medication</p> <p>Number of vouchers distributed</p> <p>Goat mortality rates</p>
Provision of fodder vouchers to poor and very poor communities	<p><b>Risk:</b> Market committees may influence for fixed rates, more benefits and selection of appropriate suppliers.</p> <p><b>Assumption:</b> Fodder supply to the market is intact: no significant local or regional price increases will be caused by the vouchers. Suppliers are happy to work with the intervention.</p>	First two months of lean period	<p><b>Market:</b> Market will be strengthened through stimulating demand/purchasing power</p> <p><b>Target population:</b> Poor and very poor population will have access to sufficient fodder for their goats during lean period.</p>	<p>Number of vouchers distributed</p> <p>Volume of fodder distributed via vouchers</p> <p>Total value of vouchers/fodder</p>
Cash Transfer Programming for goat owners	<p><b>Risk:</b> Massive floods or other physical disruption to markets. Insecurity may raise risks for certain beneficiaries.</p> <p><b>Assumption:</b> Market is functional and communities have physical access</p>	Last three months of the lean period.	Poor and very poor households affected by drought conditions. Communities have cash available which they may use it as per their choice.	<p># of households targeted</p> <p>Value, number and duration of transfers</p> <p>Total value of transfers</p>
De-stocking:	<b>Risk:</b> conditions for restocking will not	Destocking should be	Increased income and	Number of goats

purchase of livestock from vulnerable HHs	naturally occur (i.e. drought conditions continue/worsen). <b>Assumptions:</b> destocking is accompanied by other assistance to ensure food security and livelihoods; conditions and timing for restocking as the other 'bookend' of the cycle are in program design and clearly communicated to beneficiaries.	completed before upward trend in HH distressed sale of livestock.	purchasing power for target households mitigate other negative coping mechanisms. Market actors participating in destocking are stimulated. Fodder sellers will have decreased demand in some areas while herds are destocked.	procured in de-stocking. Overall value of destocking. Income per HH from destocking. In the event of restocking: number of goats stocked, number of HH targeted. Number of goats per HH
Technical support and training: livestock management	<b>Risk:</b> 'it's too late.' Effects of drought have done too much damage to pastoralist livelihoods/resilience <b>Assumption:</b> Pastoralists do not have necessary knowledge to be more drought resilient (i.e. the issue is knowledge rather than financial resources or geography).	Piloting should begin as soon as possible in Tharparkar and Umerkot; over 2-4 years, go to scale with simple effective techniques honed in pilot.	Increased goat health/value and reduced mortality. Higher quality goats benefit all value-adding market actors, but greatest benefit felt by HH producers.	Avg. sales value of goats Goat mortality rates Goat birth rates Number of trainings conducted Number of HH's targeted.

Table: Response Options 1

<b>Response Recommendation</b>	<b>Feasibility</b>	<b>Likely effect of the intervention on the market system and target group</b>	<b>Timing</b>
Medication voucher program for goats	Highly feasible: private veterinary practitioners are available in or near most towns.	Private veterinary service providers have business opportunities. Business of veterinary medicine providers will be strengthened. There will be positive impact on the business of local transport providers. Anticipated losses to goat wholesale business will be minimized. Risk of high mortality rates of goats will be minimized in case of anticipated drought disaster.	Before lean period (Feb to March)
Building resilience of communities through awareness program.	Highly feasible, communities are willing to learn modern techniques to manage their goats in case of any drought crisis	Communities will build their resilience to the up-coming drought situations.	Before lean period (April to May)
Provision of in-kind fodder assistance for goats.	Highly feasible: fodder markets are intact, maintaining supply by sourcing locally and from nearby districts.	Market will be strengthened. Target group will have easy access to fodder to sustain their goats.	During first two months of the lean period (i.e. June to July)
Structured finance: Protect goat producers through hedging using futures/factoring			
Cash transfer programming (CTP) for poor and very poor communities	Highly feasible, communities will have opportunity to fulfill their prioritized needs as per their choice.	Purchasing power of communities will be increased and communities will have choice to spend the cash as per their choice.	During last two months of the lean period (i.e. Aug to Sept)

## Annex A: Additional Tables

Household	Average amount of fodder required per goat per day	Average amount of own fodder/purchased from the market per goat per day (kg)	Total Gap per goat per day (kg)	Total fodder gap per HH per week (kg)	Total gap in arid, rain-fed areas per week (kg)	Total gap for a 5 month period of need (kg)	Value (PKR)	Value (PKR)
Poor (avg. of 4 goats)	Normal							
	2 Kg	1.7	0.3	8.4	3,972,043	79,440,864	397,204,319	3,792,650
	Emergency							
	2 kg	1	1	28	13,240,144	264,802,880	1,324,014,398	12,642,166
Very Poor (avg. of 3 goats)	Normal							
	2 kg	1.4	0.6	12.6	7,068,890	141,377,809	706,889,043	6,749,631
	Emergency							
	2 kg	0.8	1.2	25.2	14,137,781	282,755,617	1,413,778,086	13,499,262

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%	Tharparkar	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%		Second	Sale of livestock	0%	20%
		Non-agricultural wage labour	0%	25%			Sale of animal products	20%	0%
		Small business (self-employed)	0%	25%			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%
							Sale of livestock	100%	50%
					Overall	First	Agricultural wage labour	29%	21%
Overall	First	Sale of food/cash crops	7%	0%			Non-agricultural wage labour	57%	50%
		Sale of vegetables/fruits	0%	7%			Small business (self-employed)	0%	14%
		Agricultural wage labour	57%	53%			NGO/Private Employee	0%	7%
		Non-agricultural wage labour	29%	20%			Handicrafts	7%	0%
		Small business (self-employed)	0%	7%			Sale of livestock	0%	7%
		Handicrafts	7%	0%			Sale of animal products	7%	0%
		Sale of livestock	0%	7%		Second	Agricultural wage labour	11%	20%
		Other	0%	7%			Non-agricultural wage labour	11%	60%
	Second	Agricultural wage labour	10%	0%			Handicrafts	22%	0%
		Non-agricultural wage labour	30%	45%			Sale of livestock	11%	0%
		Small business (self-employed)	0%	9%			Sale of animal products	11%	0%
		Handicrafts	30%	18%			Charity/Zakat/BISP	22%	20%
		Sale of livestock	0%	9%			Others	11%	0%
		Sale of animal products	10%	0%		Third	Sale of vegetable/fruits	0%	33%
		Charity/Zakat/Gifts/BISP	10%	9%			Handicrafts	33%	33%
		Other	10%	9%			Sale of livestock	67%	33%
	Third	Handicrafts	0%	50%					
		Sale of livestock	100%	50%					

Sources of Acquiring/Buying Goats in Normal Period				
District		Sources	Very poor	Poor

Jamshoro	First	Gifts from family/Relatives/ Community	100%	0%
		Broker	0%	100%
	Second	Local Goat Market	100%	0%
Tharparkar	First	Relatives/Neighbours/ Community	20%	50%
		Gifts from family/Relatives/ Community	40%	0%
		Sharing	20%	0%
		Local Goat Market	20%	25%
		Broker	0%	25%
	Second	Gifts from family/Relatives/ Community	0%	33%
		Local Goat Market	0%	33%
		Broker	100%	33%
Umerkot	First	Relatives/Neighbours/ Community	60%	86%
		Gifts from family/Relatives/ Community	20%	0%
		Local Goat Market	20%	14%
	Second	Relatives/Neighbours/ Community	50%	0%
		Sharing	0%	25%
		Local Goat Market	0%	75%
		Broker	50%	0%

Sources of Acquiring/Buying Goats in Emergency Period				
District		Sources	Very poor	Poor
Jamshoro	First	Gifts from family/ Relatives/Community	100%	0%
		Broker	0%	100%
Tharparkar	First	Relatives/Neighbours/Community	0%	67%
		Gifts from family/Relatives/Community	67%	0%
		Local Goat Market	33%	33%
	Second	Gifts from family/Relatives/Community	0%	50%
		Local Goat Market	0%	50%
		Broker	100%	0%

Umerkot	First	Relatives/Neighbours/Community	67%	33%
		Local Goat Market	33%	67%
	Second	Local Goat Market	0%	50%
		Broker	100%	50%

## 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
Ajmal Jahangeer	FAO	Local Leader/Training Co-facilitator
Ahmed Khan	FAO	Administration/Logistics Support Officer
<b>Jamshoro District</b>		
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
<b>Tharparkar District</b>		
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
<b>Umerkot District</b>		
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
<b>Data Analysis/Database Development/Maps Designing</b>		
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 FAO and ECHO.
2. Setting scope and objectives	Set objectives and operational questions for PCMA; identify knowledge gaps; ensure relevance of PCMA.	Set objectives and operational questions for PCMA; identify knowledge gaps; ensure relevance of PCMA.
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 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	Senior 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 team	The PCMA leader gave the District Leaders the data collection locations chosen in the randomized selection process.
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, chronic 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 finds 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

<b>District</b>	<b>UC Name of location</b>	<b>Name of Business</b>			<b>Business Contact Number</b>	
		<b>Type of Business</b>				
<b>Team Leader</b>	<b>Enumerator Name</b>	<b>Critical Market Item: Wheat Flour/ Fodder/Goats/Water</b>			<b>Date</b>	
<b>Questions</b>		<b>BASELINE</b>			<b>EMERGENCY</b>	
		<b>Dec-Mar 2012/13 for drought August-Sep 2012 for flood</b>			<b>Dec-Mar 2014/15 for drought Aug-Sep 2010 for flooding</b>	
	<b>Quantity</b>	<b>Units</b>	<b>Periodicity (daily, weekly, monthly)</b>	<b>Quantity</b>	<b>Unit</b>	<b>Periodicity (daily, weekly, monthly)</b>
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	<b>Price</b>	<b>Unit</b>		<b>Price</b>	<b>Unit</b>	

	<b>BASELINE</b>	<b>EMERGENCY</b>	<b>Data Entry Notes</b>
	<b>Dec-Mar 2012/13 for drought Aug-Sep 2012 for flood</b>	<b>Dec-Mar 2014/15 for drought Aug-Sep 2010 for flooding</b>	
3. How much/many wheat flour/fodder/goats/water did you have in stock during the times specified?			Unit is kilograms/mound/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? <b>(choose code from below)</b> 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 <b>head of household</b> ? 1= Male , 0 = Female		2.2	How many children and adults are currently living and eating in this household	
		<b>Men</b>	<b>Women</b>		
2.3	Children < 2 years	____	____	2.4	Children 2-4 years
2.5	Children 5-9 years	____	____	2.6	Children 10-17 years
2.7	Adults 18-60 years	____	____	2.8	Elderly (>60 years)
2.9	No of disabled children (<18)	____	____	2.10	No of disabled Adults (>18)
2.11	No. of Pregnant and lactating women				____

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   _____	3.3.3	Rain-fed   _____	
		3.3.2	Tube well   _____	3.3.4	Others   _____	
3.4	What is the type of ownership of the land you cultivate? ( <u>choose one option</u> )			1=Owner, 2=Tenant/Sharecropper, 3= Owner and tenant, 4 = Leased the land, 5= Other specify   _____		
3.5	If owner, how much cultivatable land do you own? (write number of <b>acres</b> if none record 0)					_____
3.6	If tenant, what <b>share</b> of the wheat harvest do you usually get from the landowner?			1= <25%, 25-50%, 3=>50%		_____
3.7		Normal period (Dec-Mar 2012-13)		Emergency period (Dec-Mar 2014-15)		
	How many <b>acres</b> of land did you cultivate for <b>wheat</b> during Rabi seasons? ( <u>write number of acres</u> )		_____   Acres		_____   Acres	
3.8	What were <b>three main food/cash crops</b> did you grow? ( <u>choose up to three crops, use codes below, order according to the value and area</u> )					
	Rabi season			Kharif Season		
Normal Year (Dec-Mar 2012-13)	3.8.1	Crop 1   _____	_____   Acres	3.8.9	Crop 1   _____	_____   Acres
	3.8.2	Crop 2   _____	_____   Acres	3.8.10	Crop 2   _____	_____   Acres
	3.8.3	Crop 3   _____	_____   Acres	3.8.11	Crop 3   _____	_____   Acres
Emergency Year (Dec-Mar 2014-15)	3.8.4	Crop 1   _____	_____   Acres	3.8.12	Crop 1   _____	_____   Acres
	3.8.5	Crop 2   _____	_____   Acres	3.8.13	Crop 2   _____	_____   Acres
	3.8.6	Crop 3   _____	_____   Acres	3.8.14	Crop 3   _____	_____   Acres
1 = Wheat, 2 = Rice, 3 = Barley, 4 = Maize, 5 = Millet, 6 = Sunflower, 7= Cluster beans (Guar), 8=Sugarcane, 9= Cotton, 10=Chilies, 11= Onions 12= Tomatoes 13= Moong 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	____
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### 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?	____	3.17	How much wheat flour does your HH require in an average month?	____
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)?	____	3.19	If not, during what months does this happen?	____
3.20	How much more wheat flour would you need to get the full amount that your HH requires?	____	3.21	If you sometimes purchase wheat flour, what is the price?	____
3.22	How does the price vary depending on the time of year?	____	3.23	If your HH buys wheat flour, from whom do you buy it? Where is this actor located?	____
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?	____	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)?	____
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?	____	3.27	If you would prefer in-kind, would you prefer flour or wheat grains?	____

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

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 <b>an animal</b> 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 emergency 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 <b>an animal</b> 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 <b>main sources</b> 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 (_____)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
			At what price?	At what price?	At what price?	At what price?	At what price?	At what price?
			<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4.16	Who did you sell goat to?	1. Relatives/Neighbours/Community 2. Local goat market 3. Broker 4. Wholesaler/Retailer 5. Meat shop/butcher 6. Others (_____)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
			At what price?	At what price?	At what price?	At what price?	At what price?	At what price?
			<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

		Normal period (Dec-Mar 2012-13)	Emergency period (Dec-Mar 2014-15)
4.17	How many litres of milk did you get from <b>your flock per day</b> ?	<input type="text"/>	<input type="text"/>
4.18	Estimated <b>price of one litre</b> of goat milk (Rs.)	<input type="text"/>	<input type="text"/>
4.19	What (%) of the milk that you get from your flock did you consume per day?	<input type="text"/>	<input type="text"/>

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

	4.20	4.21	4.22	4.23	4.24
--	------	------	------	------	------

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

**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		
		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
		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	<input type="text"/>	4.29.5	Water	<input type="text"/>
		4.29.2	Shelter	<input type="text"/>	4.29.6	Shelter	<input type="text"/>
		4.29.3	Fodder	<input type="text"/>	4.29.7	Fodder	<input type="text"/>
		4.29.4	Medication	<input type="text"/>	4.29.8	Medication	<input type="text"/>
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/dewormi ng, 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 <b>three main sources of livelihood</b> for your	5.11.1	Primary  ____	5.11.4	Primary  ____	

	household? <i>(use codes below)</i>	5.11.2	Secondary   ____	5.11.5	Secondary   ____	
		5.11.3	Tertiary   ____	5.11.6	Tertiary   ____	
<b>Livelihood sources for household/women:</b> 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 2 <sup>nd</sup> 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 <b>women's main</b> source of income/livelihood? <i>(choose from code above)</i>	5.14.1	____	5.14.2	____	
5.15	How much was your <b>average monthly income</b> of your household from all sources? (write in PKR)	5.15.1	____	5.15.2	____	
5.16	How much was your <b>average seasonal income</b> 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? <i>(Write names of the markets)</i>	_____		_____		
		_____		_____		
5.18	What was the accessibility of nearby markets? <i>(Use the following codes)</i>	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? <i>(Use codes below)</i>			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 <b>meeting food needs</b> ?	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	____	____
<b>6B-Livelihood Based Coping Strategies</b>			
	<b>During an average month, did anyone in your household have to engage in any of the following livelihood based coping strategies due to <b>problem in meeting food needs</b>?</b>  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	____	____
<b>6C-Household Debt</b>			

			Normal period (Dec-Mar 2012-13)	Emergency period (Dec-Mar 2014-15)
6.20	Did your household take any credit/loan during the <b>reference period</b> ? Yes=1 No=0		__	__
6.21	What were the <b>three main</b> 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 <b>three main</b> 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.)			
<b>6D-Migration</b>				
			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? <i>(see codes below)</i>		__   __	__   __
<b>1=Less livelihood opportunities in the area, 2=Loss of livelihood</b> <b>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)_____</b>				
<b>SECTION 7-ASSISTANCE</b>				
<b>7A- Assistance Received and Source of Assistance</b>				
7.1	<b>During the emergency period (Dec-Mar 2014-15), did your household receive any type of assistance?</b>  <i>(Choose one option for each type of assistance )</i> 1= Yes 0= No	7.2	If yes, <b>main</b> 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 <b>emergency period</b> ?			1= Yes 0= No	[ ]			
7.4	Who did you receive it from? <i>(Report two main sources)</i>	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? <i>(Report three uses)</i>	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 in <b>short term (1 – 2 months)</b> <i>(choose 3 options in order of their importance from below)</i>	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) <i>(choose four options in order of their importance from below)</i>	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 <b>main sources</b> 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 <b>main drinking water source</b> ? (Meters)	8.2.1	____		8.2.2	____	
8.3	Who <b>mainly</b> 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	<b>How often</b> did you purchase water during an <b>average month</b> ? <i>(Number of times)</i>	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 <b>three</b> 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 <b>main</b> sources of drinking water for goats?	8.11.1				8.11.2		
8.12	How far away was the <b>main drinking water source</b> for your goats (Meters)	8.12.1	____			8.12.2	____	
8.13	Who <b>mainly</b> collect water for the goats? 1= Men, 2= Women, 3= Children	8.13.1	____			8.13.2	____	

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
<b>WHEAT/AGRICULTURE/AID/GENERAL HOUSEHOLD ECONOMICS</b>			
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 in 2010] / [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?			
<b>GOATS</b>			
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?			

<b>25.</b> In a normal year, how many of your goats do you expect to get sick? What about in a drought or flood time?
<b>FODDER</b>
<b>26.</b> When does naturally available fodder start running low?
<b>27.</b> Is there a time period in which your goats are eating both naturally available and purchased fodder? If so, what is that time period?
<b>28.</b> How much does fodder cost (per mun) at different times of the season (before the harvest, after the harvest, etc)
<b>WATER</b>
<b>29.</b> How do you treat the water you drink? If you don't, why not?
<b>30.</b> 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?
<b>31.</b> What do you do when nearby water sources like a borehole are dry or too dirty for the water to be consumable?
<b>32.</b> How often do people in your household get sick from waterborne diseases?



December 2016

## Questionnaire for Food Department District Officer of the Government of Pakistan

District	Interview Location	
Team	Enumerator Name	Date

- 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*
- During normal year, how much wheat you procure/receive and distribute to the wheat flour mills:
- 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?
- 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)

- 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)

- 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				

- 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

**Thank You**