# USAID-GAIN

## Pakistan Regional Food Fortification Project

## Industry Assessment Tool – Wheat Flour Mills: January 2017

# Contents

# Executive Summary

The Industry Assessment started in the month of November 2016 and ended in January 2017, the assessment covered 109 flour mills in three provinces out of 153 mills, 44 mills were either closed or did not share their data, or were not at all interested in fortification as in case of two mills.

Regarding the wheat flour industry, the assessment found that negligible amount of wheat flour is fortified due to lack of capacities of flour mills as most millers do not have access to adequate equipment and related services such as installation and calibration, premix, trained production and laboratory staff. Most millers exporting wheat flour to Afghanistan do not fortify their products. Based on the assessment the following next steps have been recommended:

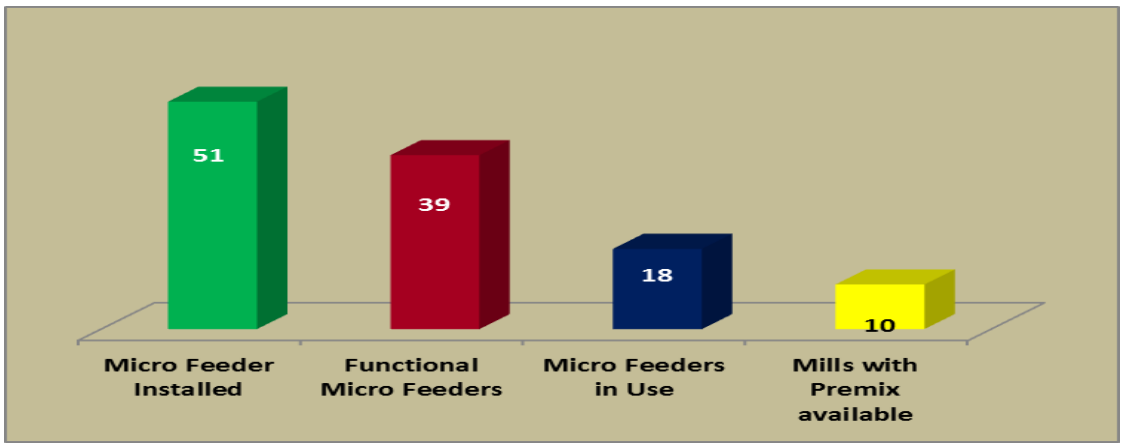
- Facilitating the equipment and related services by servicing & calibrating the micro feeders
- Facilitating the supply of premix

The Industry assessment mapped the production & technical capacity of the flour mills. The data collected will give an overview on the current strength and weakness of the industry, and will pave a way for GAIN to work with the Industry in capacity building and fortification. The summary of premix and micro feeder related indicators is as follows:

- 51 mills have micro feeder installed, out of which micro feeders of 39 mills are functional.
- 18 Mills are currently using micro feeders showing that 5 of the mills are fortifying.
- 23 Mills have fortified in past using their micro feeders but now are no longer fortifying either because of damaged micro feeder or functional but not properly calibrated.
- 10 mills have premix available; the quantity is 1,195 kg in total.
- The mills with premix available have combined export potential of 134,600 MT
- The mills with installed micro feeder have export potential of 225,280 MT
- The mills with functional micro feeder have export potential of 144,480 MT
- The mills that are currently fortifying have export potential of 52,900 MT

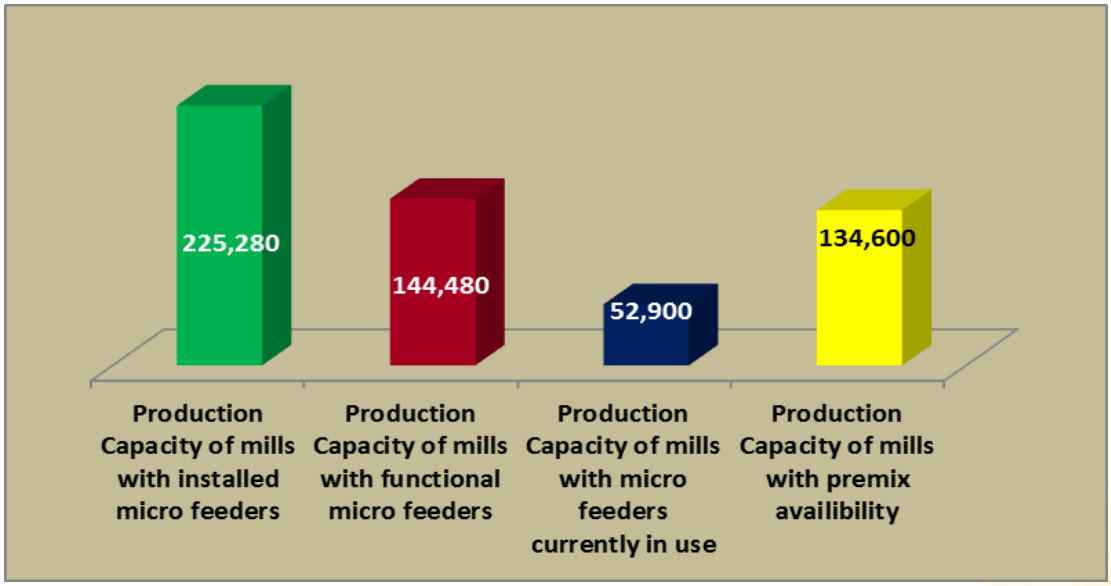
The summary graphs are as follow:

***Micro feeder & Premix availibility – number of mills***



***Production capacity of mills with Micro feeders - MT***

The following sections in detail explain the major aspects of the Industry capacity from production to export keeping in view the fortification.



# Industry Assessment

# Background

Undernutrition affects most countries in Central and South Asia. In Afghanistan and Pakistan, there is a severe vitamin and mineral deficiency problem, including deficiencies in vitamin A, vitamin D, iron, folate and zinc. This program aims to engage industry in fortification of exports of wheat flour and edible oils, facilitate an enabling environment for food fortification and use evidence-based research to guide programming. The objectives of the project are to improve industry and economic performance of target exporters, strengthen policies, regulations and enforcement of fortified foods and, conduct research to determine fortified foods consumption patterns to assess compliance with mandatory oil fortification requirements and to obtain a better understanding of aflatoxin contamination among wheat flour exports as well as for local consumption.

In order to effectively mobilize the industry and initiate the production of fortified wheat flour as per Afghan requirements, an industry assessment was conducted during November and December 2016. The questionnaire/tool used to collect data for the assessment was both open and close ended. The 6 sections discussed in detail in the proceeding sections were the General profile, Production, Quality, Equipment, Fortification and Export. The basic objective of the study was to analyze the current fortification state of the Pakistan Flour mill Industry, their strengths and issues where they need support. The main emphasis was on the fortification equipment and capacity, on the bases of the study, GAIN would be able to single out the mills that are ready to fortify and have the necessary capacity to carry on fortification at the earliest.

The present scenario of the wheat flour industry in Pakistan depicts an almost complete absence of fortification; most of the flour mills are not equipped with the required equipment, availability of laboratories and trained human resources. Beside the requirement of proper training to the flour mill staff, the mills with micro feeders need their equipment to be either serviced or repaired. Previously, World Food Program (WFP) while implementing their Food Security and distribution projects provided Micro Feeders to various mills in KPK and Baluchistan.

# 1. General Profile

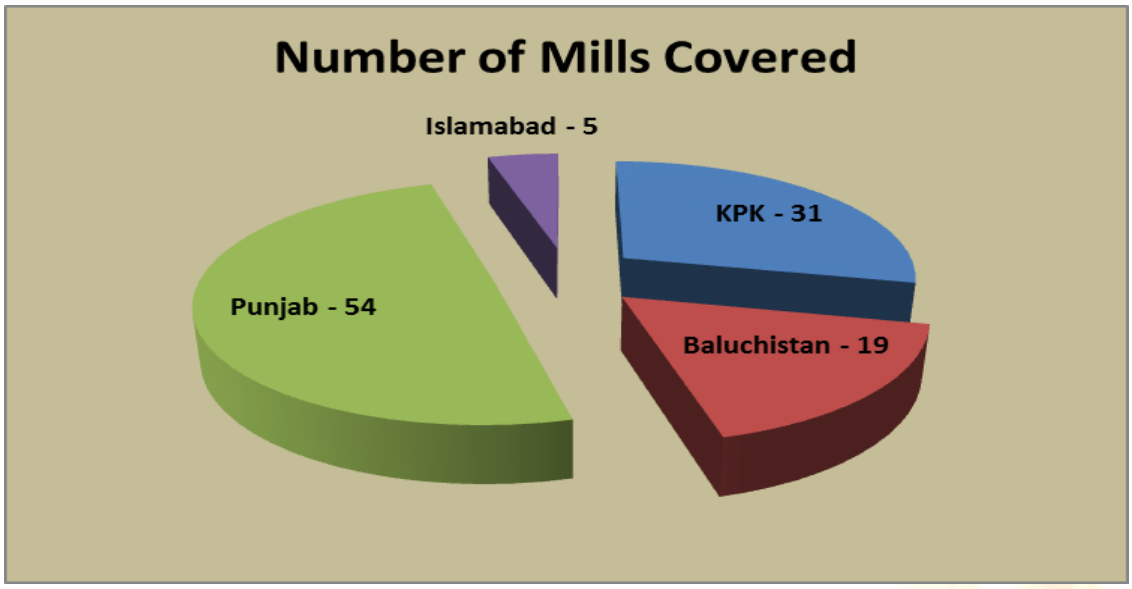
## 1.1 Sample Size

The selected mills are based on the list provided by the Pakistan Flour Mills Association (PFMA), the list includes the mills that are exporting wheat flour to Afghanistan. The coverage area of the Assessment was in three provinces of KPK, Baluchistan and Punjab; the details are in the following table:

| Province | District | Flour Mills |
|---|---|---|
| KPK | Charsadda | 3 |
| | Mardan | 4 |
| | Nowshera | 5 |
| | Peshawar | 19 |
| **Total** | | **31** |
| Baluchistan | Pishin | 5 |
| | Quetta | 14 |
| **Total** | | **19** |
| Punjab | Bahawalpur | 1 |
| | Gujranwala | 4 |
| | Gujrat | 3 |
| | Khushab | 1 |
| | Lahore | 9 |
| | Rahim Yar Khan | 15 |
| | Sahiwal | 2 |
| | Sargodha | 1 |
| | Sheikhupura | 1 |
| | Wazirabad | 1 |
| | Faisalabad | 2 |
| | Vihari | 1 |
| | Multan | 3 |
| | Muzzafargarh | 2 |
| | Rawalpindi | 6 |
| | Attock | 2 |
| **Total** | | **52** |
| **Islamabad** | Islamabad | **5** |
| **GRAND TOTAL** | | **107** |

The Sample size of KPK is 31 Mills, Baluchistan is 19 Mills, Punjab is 54 Mills and Islamabad is 5 Mills, total number is 109

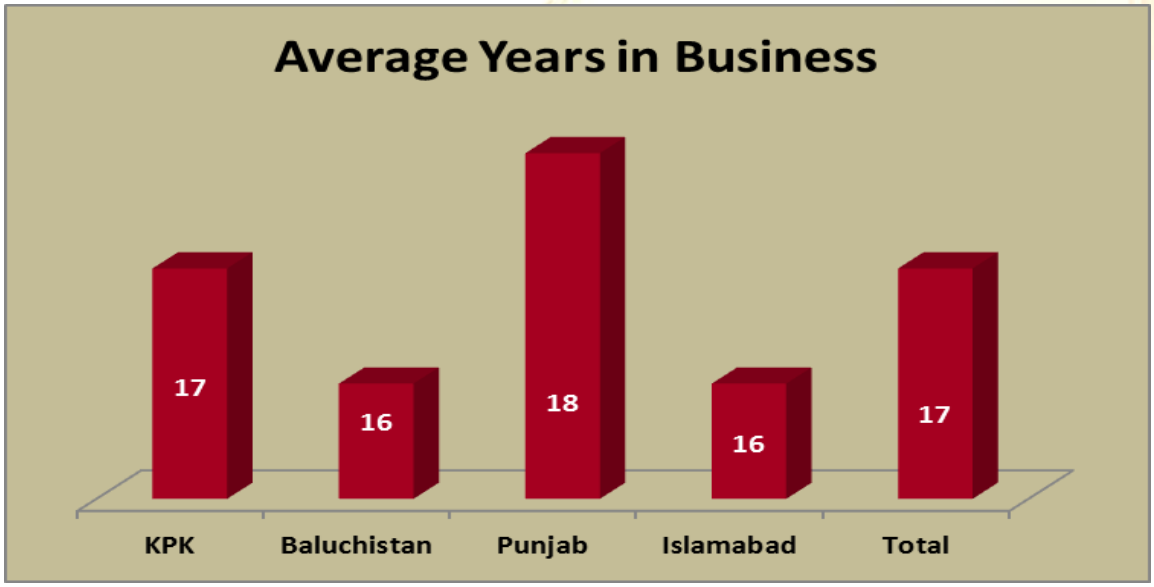
Following graph depict the sample size of flour mills according to the provincial breakup:

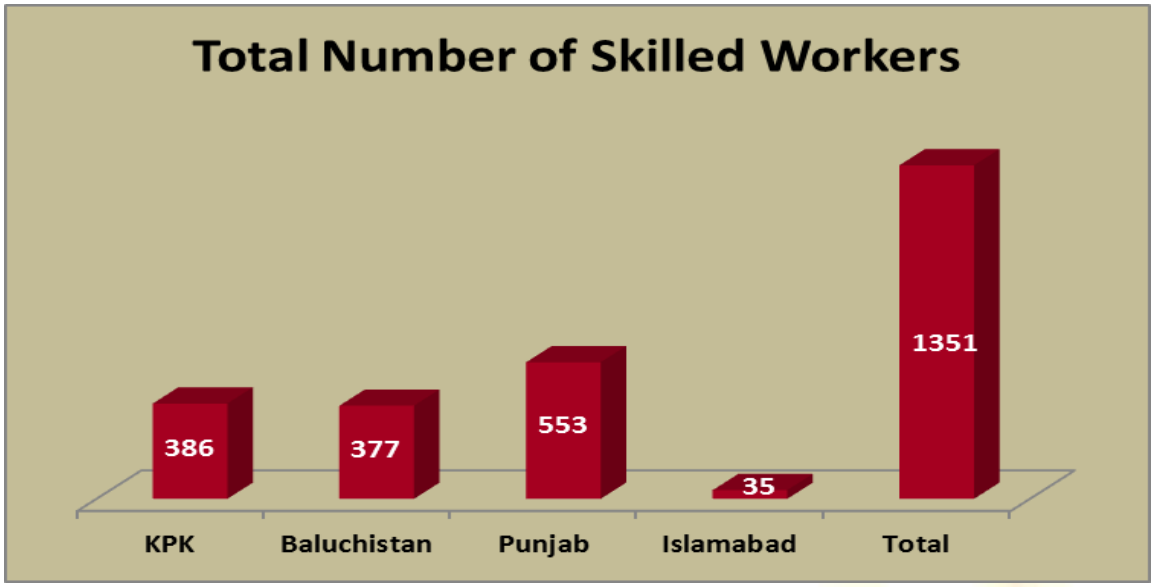



## 1.2 Years in Business and Number of Skilled/Technical Workers

The following table explains the average years of the assessed flour mills in business, the total number of all mills by province and cumulative and the average number of skilled workers.

| Provinces | Average Years in Business | Total Number of Skilled Workers | Average number of skilled workers/Mill |
|---|---|---|---|
| KPK | 17 | 386 | 13 |
| Baluchistan | 16 | 377 | 20 |
| Punjab | 18 | 553 | 11 |
| Islamabad | 16 | 35 | 7 |
| **Total** | **17** | **1351** | **12** |







In KPK the Average area of the flour mill in KPK is 93,391 sq/ft, the average years in business is 17 years, total number of skilled workers are 386 (13 per mill). In Baluchistan the average area for each mill is 67,252 sq/ft with 16 years as average time in business and total number of skilled workers are 377 (20 per mill). In Punjab the average mill area is 102,760 sq/ft, average years for each mill in business is 18 years and the total number of skilled workers are 553 (11 per mill). In Islamabad the average mill area is 36,036 sq/ft, average years for each mill in business is 16 years and the total number of skilled workers are 35 (7 per mill)

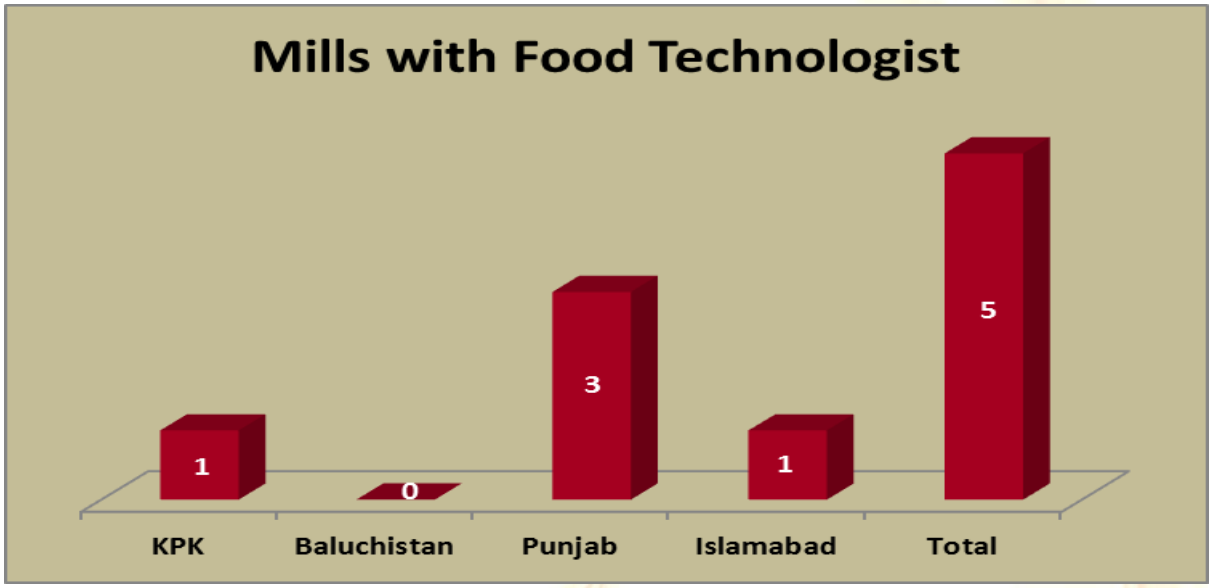
The data suggest that most of the mills have ten years or more in their experience, with time the mills develop market linkages and customers, and have necessary information and resources to manage the exports. The large area of mills around the mills is used for open storage once the crop arrives and the production is finished.

Every mill has skilled workers; their skills are mostly related to mechanics, and technicalities of flour production. The mills lack trained personal on fortification and need training before they start exporting fortified flour.

## 1.3 Food Technologist

Food technologists research and develop new food and beverage products and/or improve the quality of existing products. They may also develop or improve the processing, packaging, storage, and safety of food in line with government and industry standards. Only three of the assessed mills from all provinces have a food technologist formally employed, one of the mills is in Nowshera-KPK and one in Gujranwala and one in Lahore.

| Provinces | Mills with Food Technologist | % of mills with Food Technologist |
|---|---|---|
| KPK | 1 | 3% |
| Baluchistan | 0 | 0% |
| Punjab | 3 | 6% |
| Islamabad | 1 | 20% |
| **Total** | **5** | **5%** |




For KPK millers 13% reported that they already have experienced staff, 71% said they do not feel the need to engage a food technologist, 3% said it is not feasible or affordable, 6% said that the quality is supervised by the Food Department and WFP, while only 3.2% of the mills (one mill) reported that they have hired a food technologist. There is no food technologist hired in Baluchistan. Out of 44 Mills responded from Punjab, 2% termed the food technologist as unaffordable, 20% said they do not require one, 57% reported that it is not feasible, 9% have not enough information on the food technologist, 2% in process of hiring, 2% are looking for one, 2% have availability of food technologist mostly from adjacent mills (edible oil mill) and in 5% of mills the mill management is not comfortable with the mill. 20% of the Islamabad mills covered (1 mill), the rest informed that they do not need a food technologist.

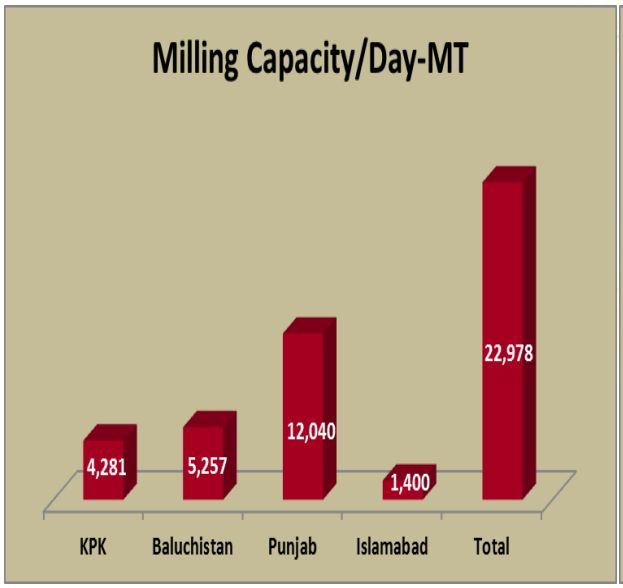
Many of the mills reported that they do not thing a food technologist is required and if in the case they need one, they simply hire a specialist on food technology for a short time. The food technologist was also termed as expensive, and is hired on need basis.

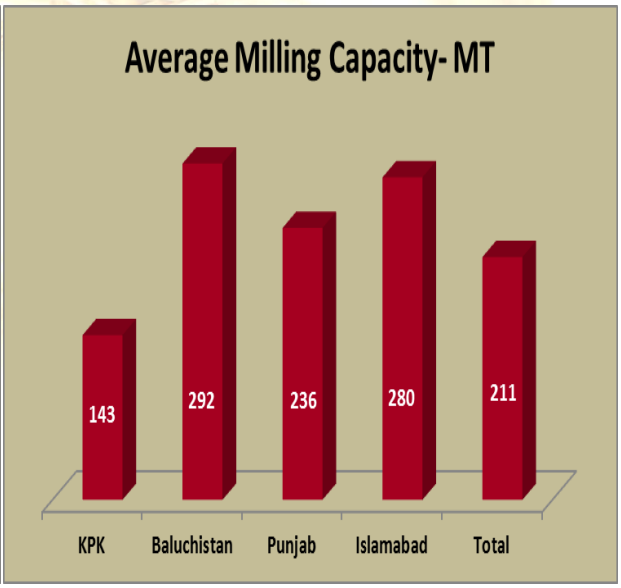
## 1.4 Milling Capacity and Storage

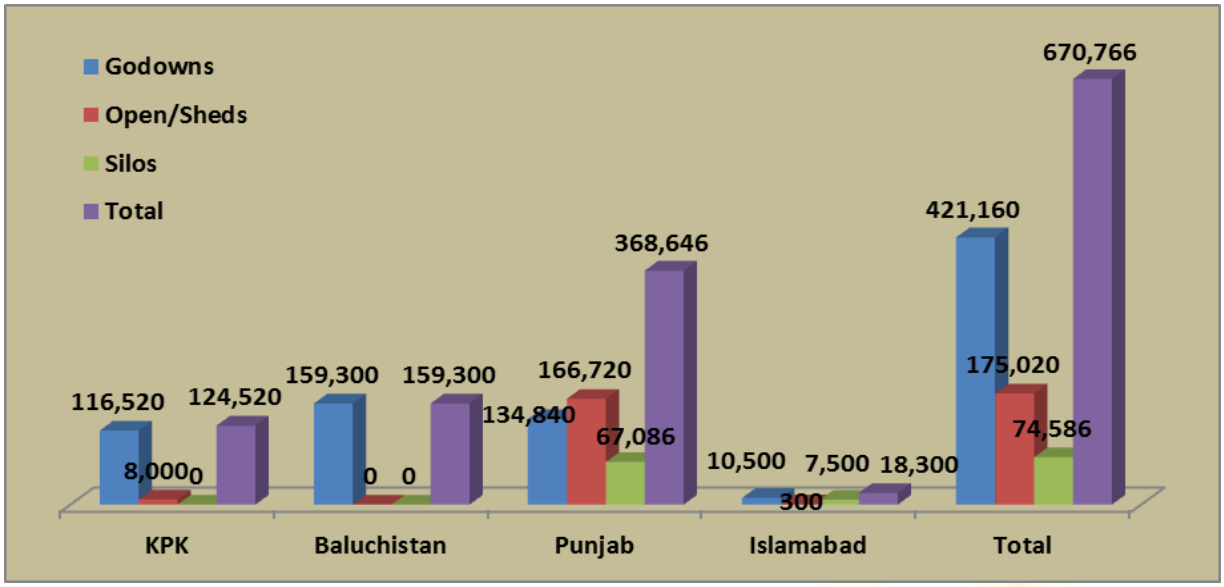
Milling refers to the process of breaking down, separating, sizing, or classifying aggregate material, and to remove or separate contamination or moisture from aggregate. In the process used to produce flour in a mill the grain is gradually reduced in particle size by running it between a series of pairs of rotating steel rollers and is separated from the bran and germ by running it over sieves. The rolls turn in opposite directions, toward each other, pulling the stock between them.

Following table explains the per day milling capacities along with the storage trends

| Provinces | Milling Capacity/Day-MT | | Storage Capacity-MT | | | |
|---|---|---|---|---|---|---|
| | Total | Average | Godowns | Open/Sheds | Silos | Total |
| KPK | 4,281 | 143 | 116,520 (4,161 average) | 8,000 | 0 | 124,520 |
| Baluchistan | 5,257 | 292 | 159,300 (8,384 average) | 0 | 0 | 159,300 |
| Punjab | 12,040 | 236 | 134,840 (3,746 Average) | 166,720 | 67,086 | 368,646 |
| Islamabad | 1,400 | 280 | 10,500 (2,100 Average) | 300 | 7,500 | 18,300 |
| **Total** | **22,978** | **211** | **421,160** | **175,020** | **74,586** | **670,766** |
| **Percentage of Various Storage types** | | | **63%** | **26%** | **11%** | |






Most of the mills are using either Godowns (Closed weather proofed storage spaces) or open/sheds to store their wheat; in scattered mills in Punjab the Silos (a tall tower or pit on a farm used to store grain) are also being used.

In KPK total daily milling capacity of the mills is 4,281 MT and 143 MT per day per mill is the average, a total of 28 mills are using godowns for storage with combined capacity of 116,520 MT (4,161 MT on average per mill), only one mill is using open/shed storage. The total storage capacity is 124,520 MT. Preferred method of storage in KPK is godowns. In Baluchistan total daily milling capacity of the mills is 5,257 MT and 292 MT per day per mill is the average, a total of 19 mills are using godowns for storage with combined capacity of 159,300 MT (8,384 MT on average per mill). Preferred method of storage in Baluchistan is godowns. In Punjab total daily milling capacity of the mills is 12,040 MT and 236 MT per day per mill is the average, a total of 36 mills are using godowns for storage with combined capacity of 134,840 MT (3,746 MT on average per mill), only one mill is using open/shed storage. In Islamabad total daily milling capacity is 1,400 MT (280 MT Daily Average), 5 mills are using godowns with a capacity of 10,500 MT, 300 MT in open/sheds and 7,500 MT in Silos. Preferred method of storage in Punjab is open/shed storage.

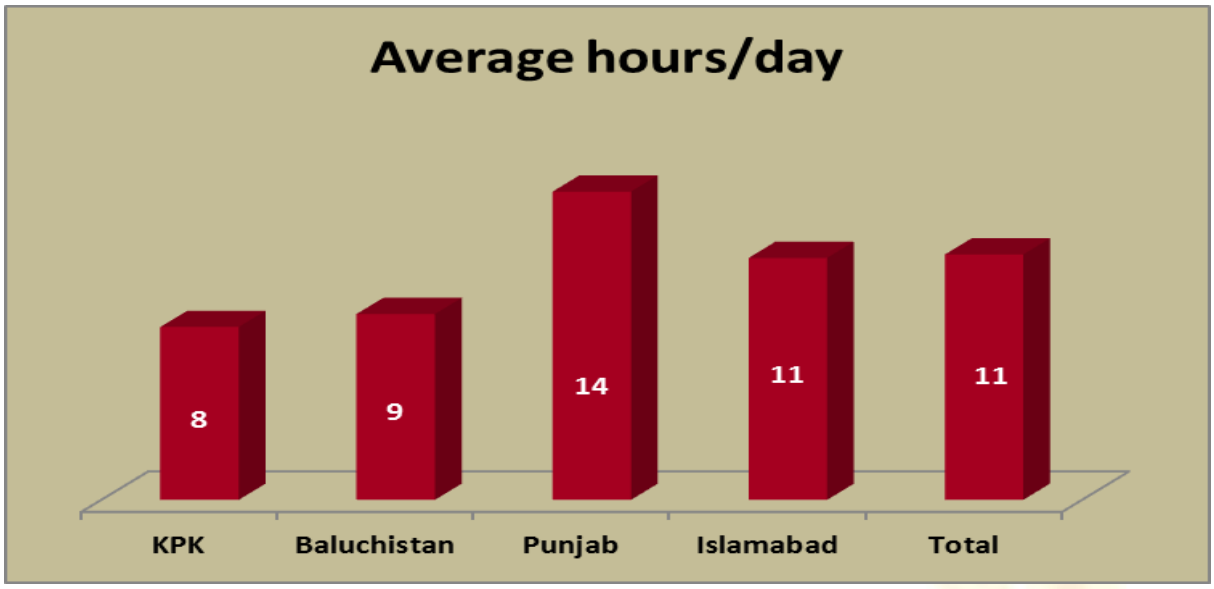
## 2. Production

### 2.1 Working Hours

Data gathering about working hours and shifts explains the maximum time available for wheat flour production, and helps to narrow down the mills efficiency while preparing the list of mills to be supplied with premix. Following table explains the working shifts and working hours each day for the mills.

| Provinces | Number of Shifts | Hours per shift | Average hours/day |
|---|---|---|---|
| KPK | 1.45 | 11.6 | 8 |
| Baluchistan | 1.42 | 12.21 | 9 |
| Punjab | 1.31 | 10.89 | 14 |
| Islamabad | 1 | 11.2 | 11 |
| | | **Total** | **11** |

For all provinces the average number of shifts is mostly 1-2 and the shift duration on average is between 8-11 hours.




## 2.2 Flour Extraction & Types / Roller Bodies

| Provinces | Flour Extraction % | | | Total Roller Bodies | Average Roller Bodies |
|---|---|---|---|---|---|
| | Atta & Maida | Suji | Bran | | |
| KPK | 82% | 1% | 17% | 273 | 9 |
| Baluchistan | 85% | 0% | 15% | 187 | 10 |
| Punjab | 82% | 2% | 16% | 604 | 12 |
| Islamabad | 100% | 0% | 0% | 70 | 14 |
| **Total** | **%** | **%** | **%** | **1,134** | **10** |

The yield of flour obtained from wheat in the milling process. A 100% extraction (or straight-run) is whole flour containing all of the grain; lower extraction rates are the whiter flours from which progressively more of the bran and suji (and thus B vitamins and iron) are excluded, down to a figure of 72% extraction, which is normal white flour.

In KPK, the flour and maida extraction is around 82% (mostly flour with some unspecified quantity of maida), 1% suji and 17% Bran. Majority of the mills are manufacturing special atta for exports, simple, fine, superfine atta, bran & suji for local production in KPK. Total roller bodies for all mills are 273 and average is 9. In Baluchistan, the flour and maida extraction is around 85% (mostly flour with some unspecified quantity of maida), and 15% Bran. Majority of the mills are manufacturing special and fine atta for exports. Total roller bodies for all mills are 187 and average is 10. In Punjab, the flour and maida extraction is around 82% (mostly flour with some unspecified quantity of maida), 2% Suji and 16% Bran. Mills are manufacturing special and fine & super fine atta, Bran, whole atta, and Suji, . Total roller bodies for all mills are 604 and average is 12. In Islamabad 100% of the production is for Atta and Maida, there are 70 functional roller bodies with an average of 14 per mill.

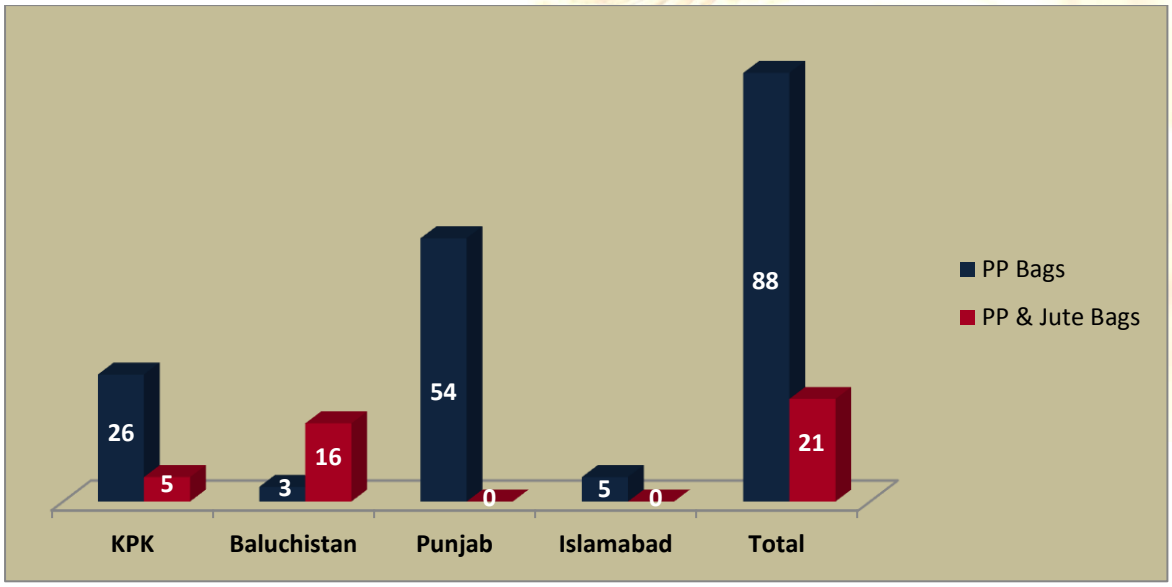
## 2.3 Packaging and Labelling

To understand the packaging and labelling in use by the industry the relevant data was collected, in order to export wheat flour the Pakistani industry needs to follow certain packaging and labelling requirements especially with respect to Afghan National Standards Authority (ANSA).

In ackaging and Labelling; the occurrence of packaging materials used by the mills and their percentage is explained in Table 1 and usage of various labelling methods is explained in the Table 2

## Table 2.3.1:

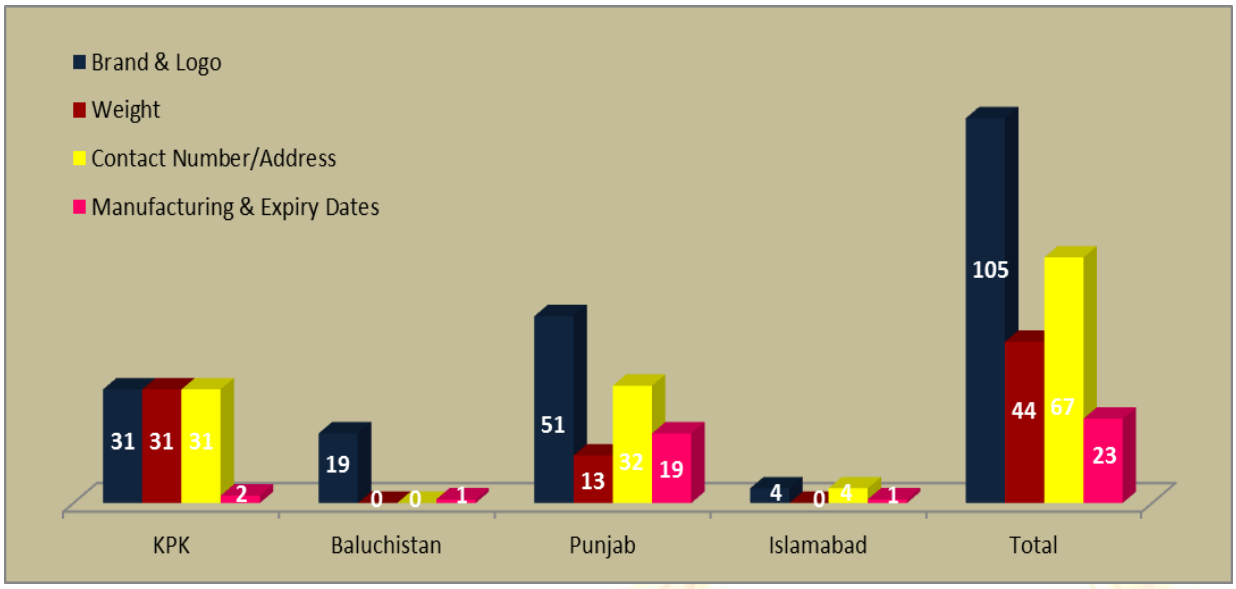
| Provinces | Package material | | Package material % | |
|---|---|---|---|---|
| | PP Bags | PP & Jute Bags | PP Bags | PP & Jute Bags |
| KPK | 26 | 5 | 84% | 16% |
| Baluchistan | 3 | 16 | 16% | 84% |
| Punjab | 54 | 0 | 100% | 0% |
| Islamabad | 5 | 0 | 100% | 0% |
| Total | 88 | 21 | 81% | 19% |




Majority of mills in KPK, Baluchistan and Punjab are using Plastic Polyethylene bags (woven) & jute bags for packaging.

## Table 2.3.2:

| Provinces | Labelling | | | |
|---|---|---|---|---|
| | Brand & Logo | Weight | Contact Number/Address | Manufacturing & Expiry Dates |
| KPK | 31 | 31 | 31 | 2 |
| Baluchistan | 19 | 0 | 0 | 1 |
| Punjab | 51 | 13 | 32 | 19 |
| Islamabad | 4 | 0 | 4 | 1 |
| **Total** | **105** | **44** | **67** | **23** |




## Table 2.3.3:

| Provinces | Percentage | | | |
|---|---|---|---|---|
| | Brand & Logo | Weight | Contact Number/Address | Manufacturing & Expiry Dates |
| KPK | 100% | 100% | 100% | 6% |
| Baluchistan | 100% | % | % | 5% |
| Punjab | 94% | 24% | 59% | 35% |
| Islamabad | 80% | 0% | 80% | 20% |
| **Total** | **96%** | **40%** | **61%** | **21%** |

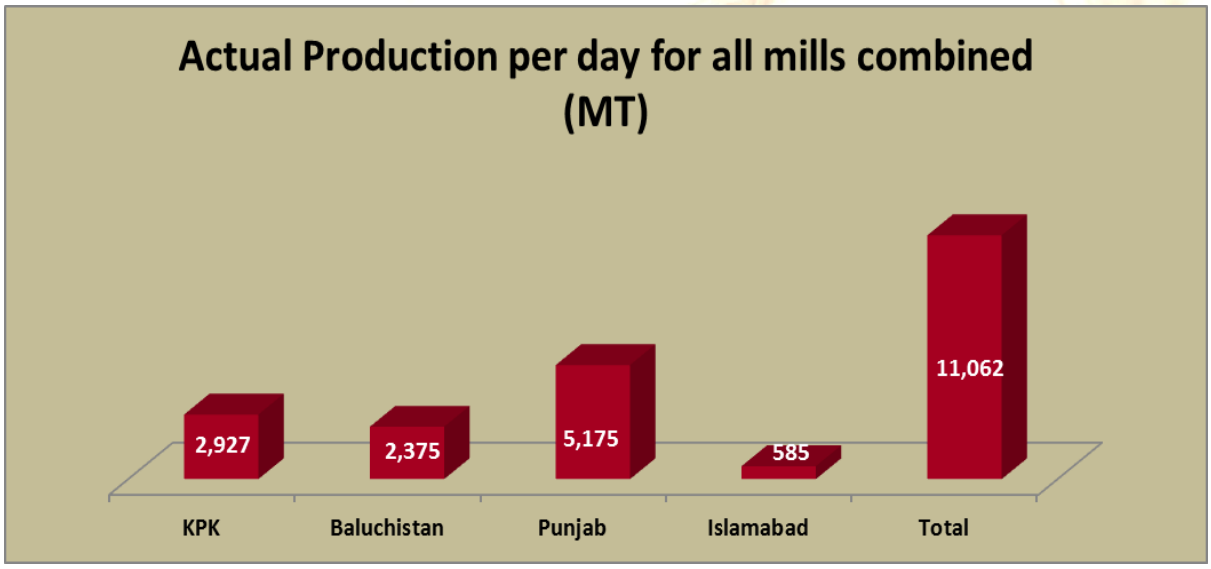
Almost all of the mills mention brand name in the labels, while the weight, contact numbers, expiry dates references are random, usually for local use only the brand names are mentioned while for the export weight and manufacturing/expiry dates are mentioned. There are no formal rules governing the labelling protocols.

For KPK in the multiple choice question of labelling details, 100% of the mills responded that they use brand name and logo with export mentioned if applicable along with weight and contact information, while only 6% mention manufacturing/expiry dates. For Baluchistan 100% of the mills responded that they use brand name and logo only when exporting, while only 5% mention manufacturing/expiry dates. For Punjab 94% of the mills responded that they use brand name and logo, 24% mention weight, 59% mention contact number/address and 35% mention manufacturing/expiry dates. In Islamabad 80% use branding and contact information, 21% use manufacturing/expiry dates.

## 2.4 Actual Production per day

Each of the flour mill have a grinding capacity which is directly proportional to its potential production, but not all mills are producing at their maximum and each mill produce according to the demand, and export quotas allotted to them by Punjab Food Department known as the Actual Production. The actual production data for all the mills, average production per day is explained below:

| Provinces | Actual Production per day-MT | |
|---|---|---|
| | Total Production for all mills | Average production |
| KPK | 2,927 | 98 |
| Baluchistan | 2,375 | 132 |
| Punjab | 5,175 | 101 |
| Islamabad | 585 | 117 |
| Total | | |




In KPK the existing per day production for all mills is 2,927 MT/Day with 98 MT per mill per day compared with 143 MT mentioned previously as the average potential for production, this means that the mills are using 69% of their potential. In Baluchistan the existing per day production for all mills is 2,375 MT/Day with 132 MT per mill per day compared with 292 MT mentioned previously as the average potential for production, this means that the mills are using 45% of their potential. In Punjab the existing per day production for all mills is 5,175 MT/Day with 101 MT per mill per day compared with 236 MT mentioned previously as the average potential for production, this means

that the mills are using 43% of their potential. In Islamabad the existing per day production for all mills is 585 MT/Day with 117 MT per mill per day compared with 280 MT mentioned previously as the average daily potential for production, this means that the mills are using 42% of their potential.

## 3. Quality

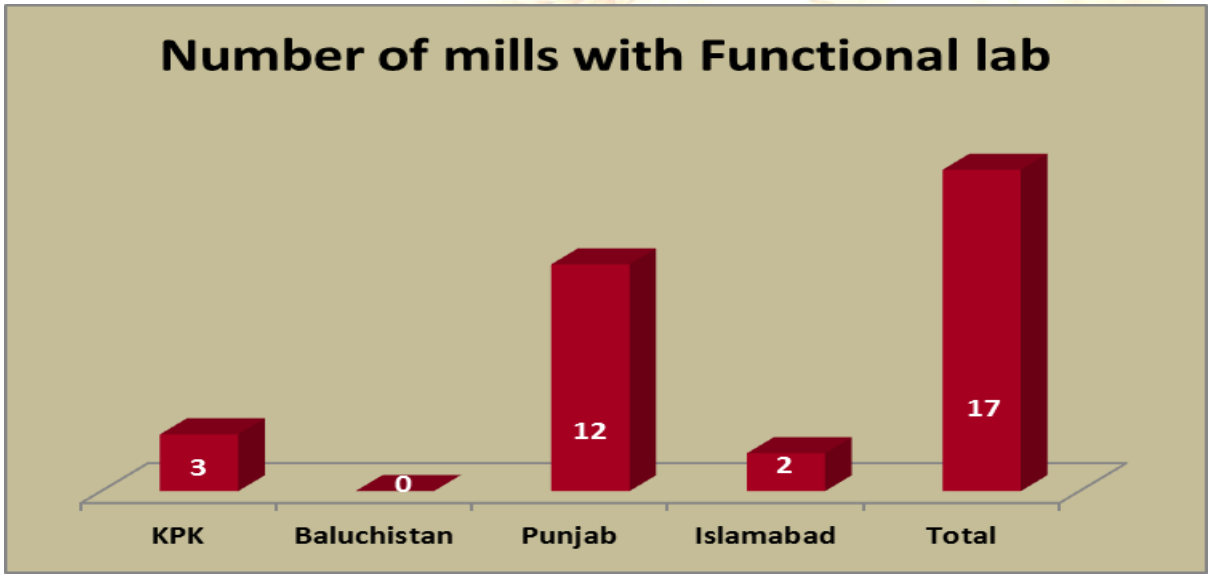
Quality section covers the aspects of quality control, testing, laboratory details, certifications & SOPs, data entry practices and product recall mechanisms

## 3.1 Quality testing & Functional Lab

This section explains the occurrence of quality testing of wheat flour, the availability of quality testing lab, the availability of quality department staff and staff trained on QA/QC & other laboratory tests. The data on quality testing again will help prioritize the selection of mills and their human resource to be trained and provision of equipment.

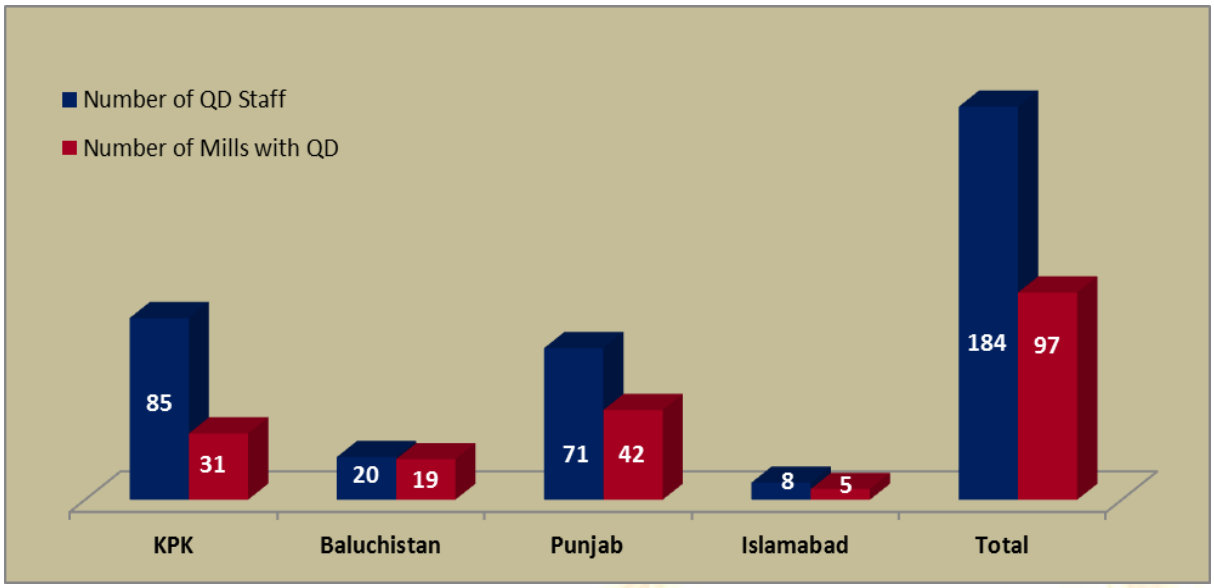
### Table 3.1.1

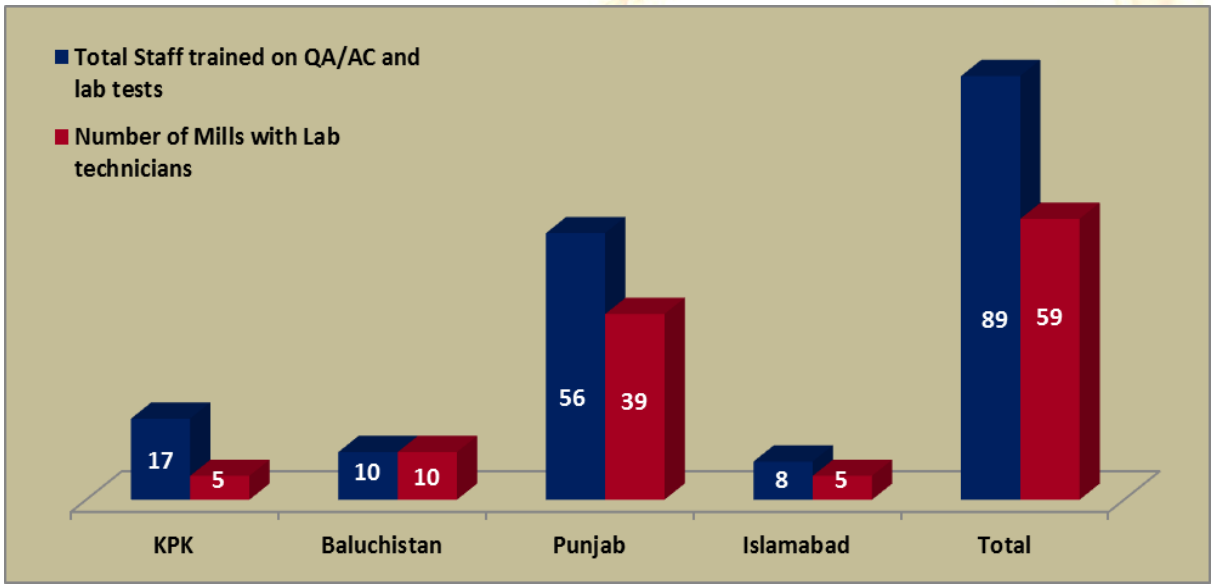
| Provinces | Quality Testing | | Functional lab | |
|---|---|---|---|---|
| | Number of mills | Percentage | Number of mills | Percentage |
| KPK | 31 | 100% | 3 | 10% |
| Baluchistan | 19 | 100% | 0 | 0% |
| Punjab | 23 | 43% | 12 | 22% |
| Islamabad | 5 | 100% | 2 | 40% |
| **Total** | **78** | **72%** | **17** | **16%** |



## Table 3.1.2

| Provinces | Quality department | | | | QA/AC and lab tests | | | |
|---|---|---|---|---|---|---|---|---|
| | Total Staff | Average Staff | Number of Mills with QD | Percentage | Total Staff | Average Staff | Number of Mills with Lab technicians | Percentage |
| KPK | 85 | 2.7 | 31 | 100% | 17 | 0.5 | 5 | 16% |
| Baluchistan | 20 | 1.1 | 19 | 100% | 10 | 0.5 | 10 | 53% |
| Punjab | 71 | 1.39 | 42 | 78% | 56 | 1.09 | 39 | 72% |
| Islamabad | 8 | 1.6 | 5 | 100% | 8 | 1.6 | 5 | 100% |
| **Total** | **184** | **1.69** | **97** | **89%** | **89** | **1.1** | **59** | **54%** |



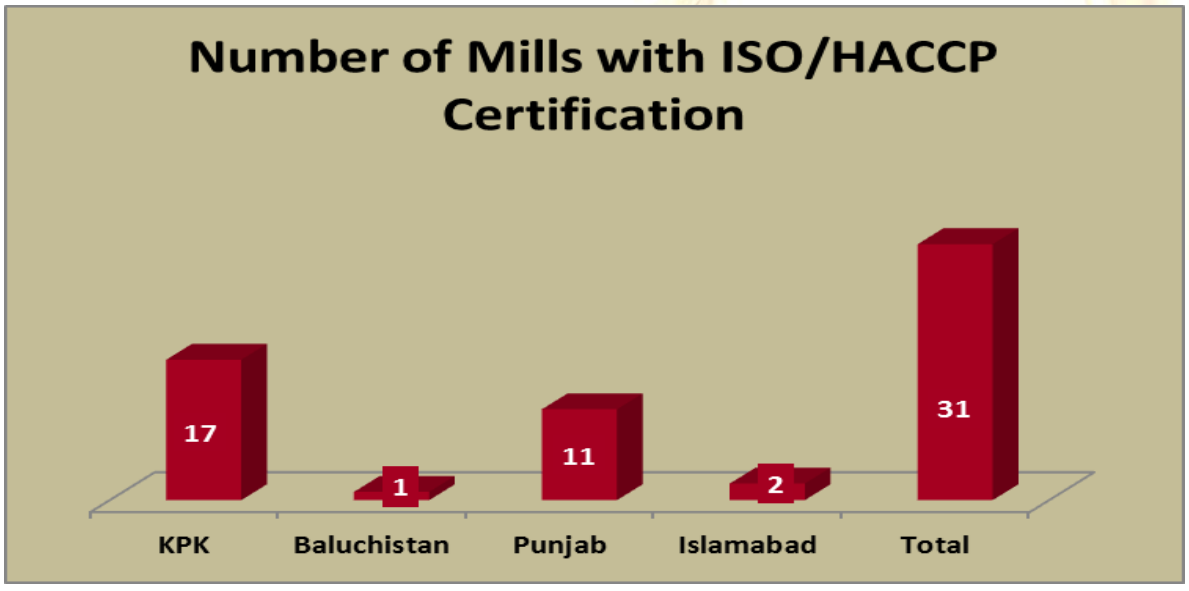
A total of 72% of the mills are involved in Quality testing, 16% have functional labs, total quality department staff for all provinces is 184 with an average of 1.69 per mill, 97 mills in total have quality department (89%). 89 staff is available for Lab tests for 59 mills (54% of the 109 mills).

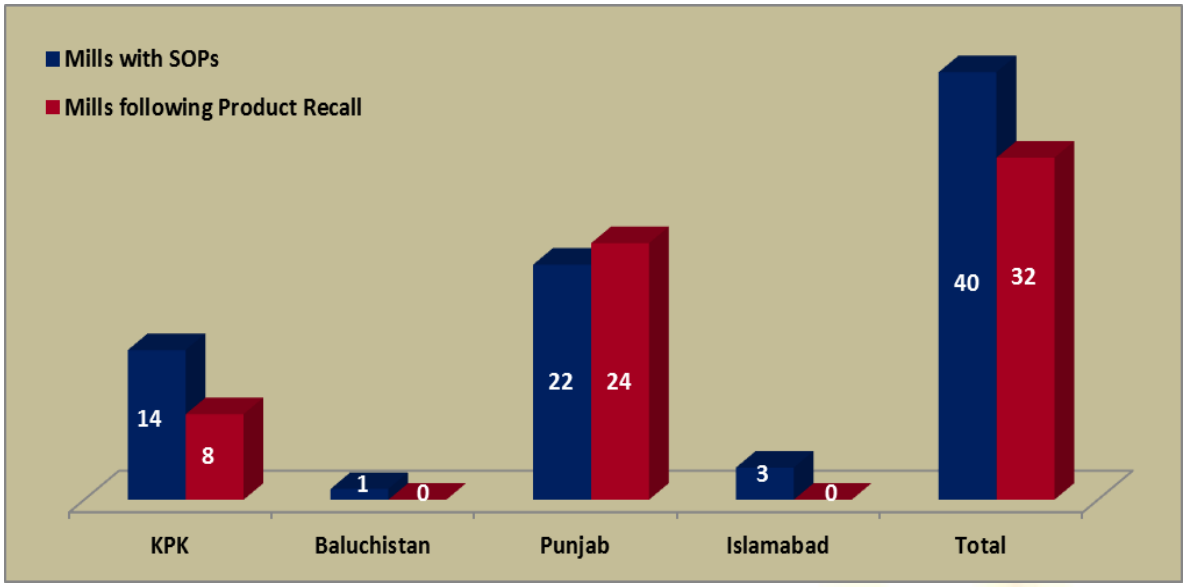
Most of the mills in KPK are involved in flour composition analysis including moisture testing, extraction, physical appearance and colour, ash and gluten testing, stone and dust removal (other impurities). Some mills send their samples to PFMA or other laboratory based firms e.g. Qarshi Foods. Most of the mills in Baluchistan are involved in moisture testing only. In Punjab the flour composition testing includes Gluten, Moisture, Ash, Protien, Mesh size, iron fortification test when fortified wheat flour produced, Water Absorption, PPM (if fortified).6 Mills in Punjab send their samples to PFMA for testing. In Islamabad the tests include moisture testing, Ash and Gluten.

| Provinces | ISO/HACCP | | SOPs | | Product recall | |
|---|---|---|---|---|---|---|
| | Number of Mills | % | Number of Mills | % | Number of Mills | % |
| KPK | 17 | 55% | 14 | 45% | 8 | 26% |
| Baluchistan | 1 | 5% | 1 | 5% | 0 | 0% |
| Punjab | 11 | 20% | 22 | 40% | 24 | 44% |
| Islamabad | 2 | 40% | 3 | 60% | 0 | 0% |
| **Total** | **31** | **28%** | **40** | **37%** | **32** | **29%** |

## 3.2 Certifications, SOPs & Product Recall Mechanism

The following data was collected to analyze the ISO/HACCP certifications present in the flour mills, the presence of SOPs and product recall mechanisms, all aspects vital for the export of wheat flour to Afghanistan.



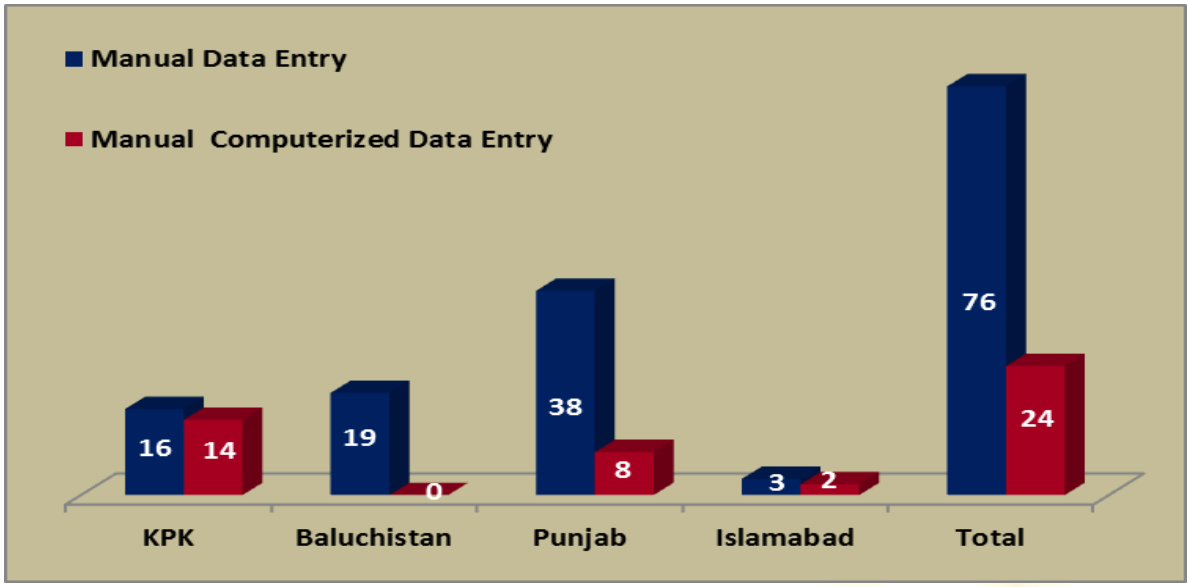



For KPK in Certifications 55% of the mills (17 mills) are certified in ISO/HACCP, 45% of the mills have their own SOPs available for their staff and only 26% of the mills (8 mills) have a product recall mechanism (mostly informal). For Baluchistan in Certifications 5% of the mills (1 mill) are certified in ISO/HACCP, 5% of the mills have their own SOPs available for their staff a. No mill follows the product recall mechanism. For Punjab 20% of the mills are certified with ISO/HACCP, 40% have SOPs, 44% have product recall mechanism. For Islamabad 40% of the mills are certified with ISO/HACCP, 60% have SOPs. Few mills follow the product recall mechanism, and the occurrence of recall itself is rare according to the flour millers. When occurred, it is usually due to monsoon rains or any other seasonal impact, and more rarely due to quality issues/complaints.

## 3.3 Data Entry Practices

Following table explains the various data entry practices in the flour mills:

| Provinces | Data entry practices | | |
|---|---|---|---|
| | Manual | Computerized | Both |
| KPK | 16 (52%) | 1 (3%) | 14 (45%) |
| Baluchistan | 19 (100%) | 0 | 0 |
| Punjab | 38 (70%) | 0 | 8 (15%) |
| Islamabad | 3 (60%) | 0 | 2 (40%) |
| **Total** | **76 (70%)** | **1 (1%)** | **24 (22%)** |




In KPK 52% of the mills use manual data entry systems, 3 % use computerized system and 14% use both. In Baluchistan 100% of the mills are using manual system. In Punjab and Islamabad 70% and 60% are using manual, 15% and 40% are using bot manual and computerized data entry practices respectively.

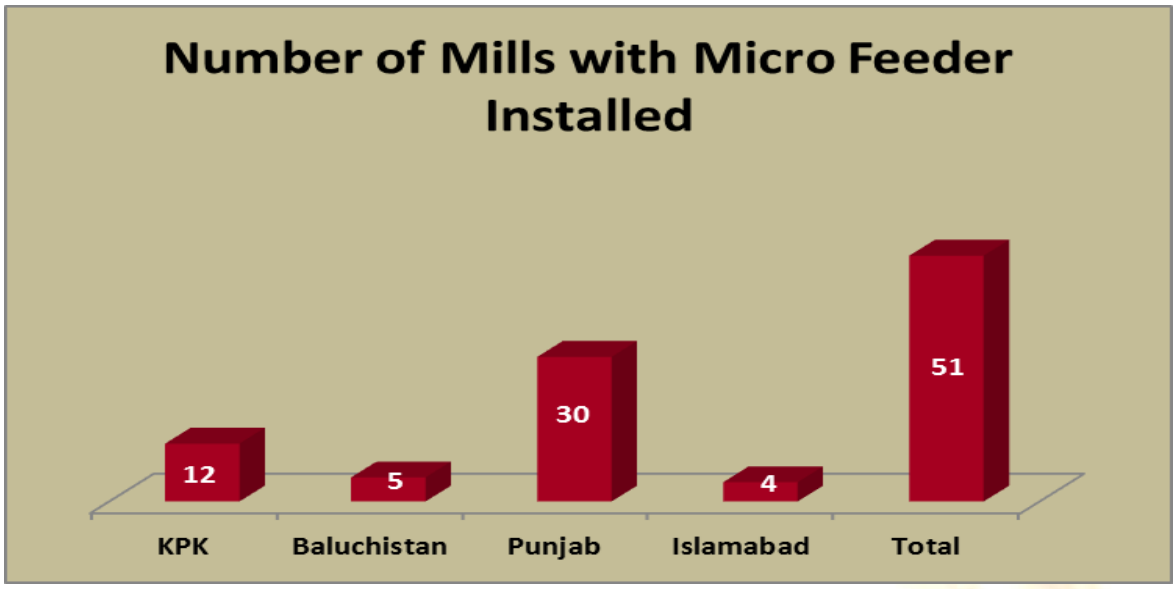
## 4. Equipment

### 4.1 Status of Micro Feeder (Installed & Functional)

| Provinces | Micro Feeder-Installed | | Micro Feeder-Functional | |
|---|---|---|---|---|
| | Number of Mills | % | Number of Mills | % |
| KPK | 12 | 39% | 10 | 32% |
| Baluchistan | 5 | 26% | 0 | 0% |
| Punjab | 30 | 56% | 25 | 46% |
| Islamabad | 4 | 80% | 4 | 80% |
| **Total** | **51** | **47%** | **39** | **36%** |

A micro feeder is a device that facilitate the process of fortification by adding the fortified premix to the wheat flour in a custom quantity as per the required standards, many of the mills have micro feeders installed but they are either not functional, damaged or not properly calibrated, in many cases there is a lack of trained staff to operate the micro feeders.

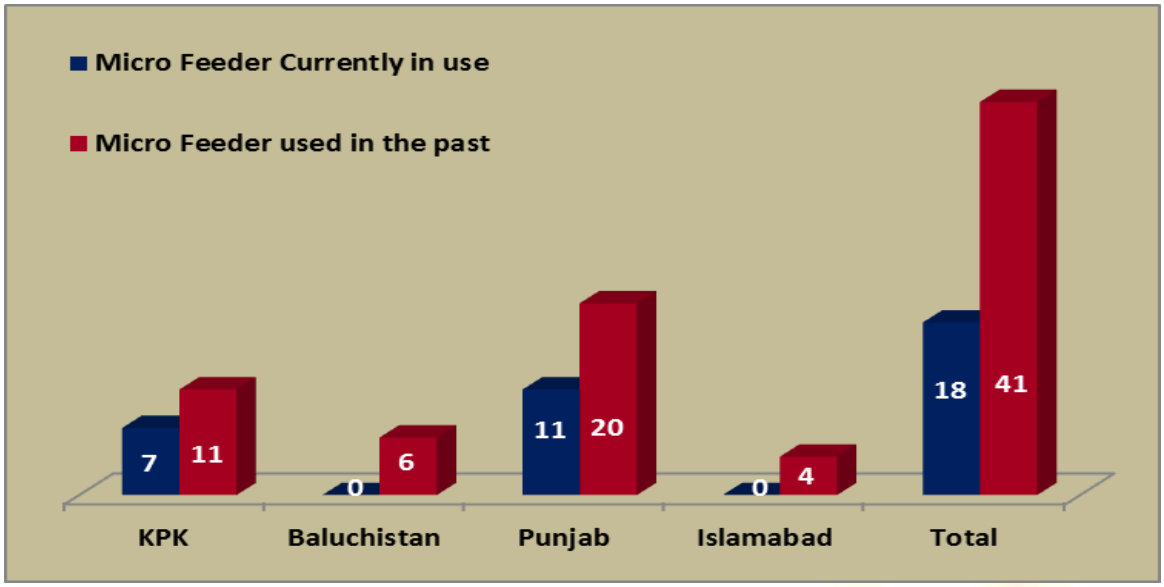
The above table explains the number of mills with installed micro feeders, and functional micro feeders with their respective percentages. 39% of the mills in KPK, 26% of the mills in Baluchistan, 56% of Punjab and 80% of Islamabad mills have installed micro feeders – total 51 mills (47% of 109), 32% of the KPK mills have functional micro feeders, 56% of the Punjab mills have functional micro feeders, 80% of the mills in Islamabad have micro feeders.




## 4.2 Usage of Micro Feeder (Past Present)

Micro feeder usage presently and in the past, this table shows the current usage rate and the record of usage in the past explaining that some of the mills did fortify in the past but now either doesn't have a functional micro feeder or their equipment is damaged.

| Provinces | Micro Feeder Currently in use | | Micro Feeder used in the past | |
|---|---|---|---|---|
| | Number of Mills | Percentage | Number of Mills | Percentage |
| KPK | 7 | 23% | 11 | 35% |
| Baluchistan | 0 | 0% | 6 | 32% |
| Punjab | 11 | 20% | 20 | 37% |
| Islamabad | 0 | 0% | 4 | 80% |
| **Total** | **18** | **17%** | **41** | **%** |

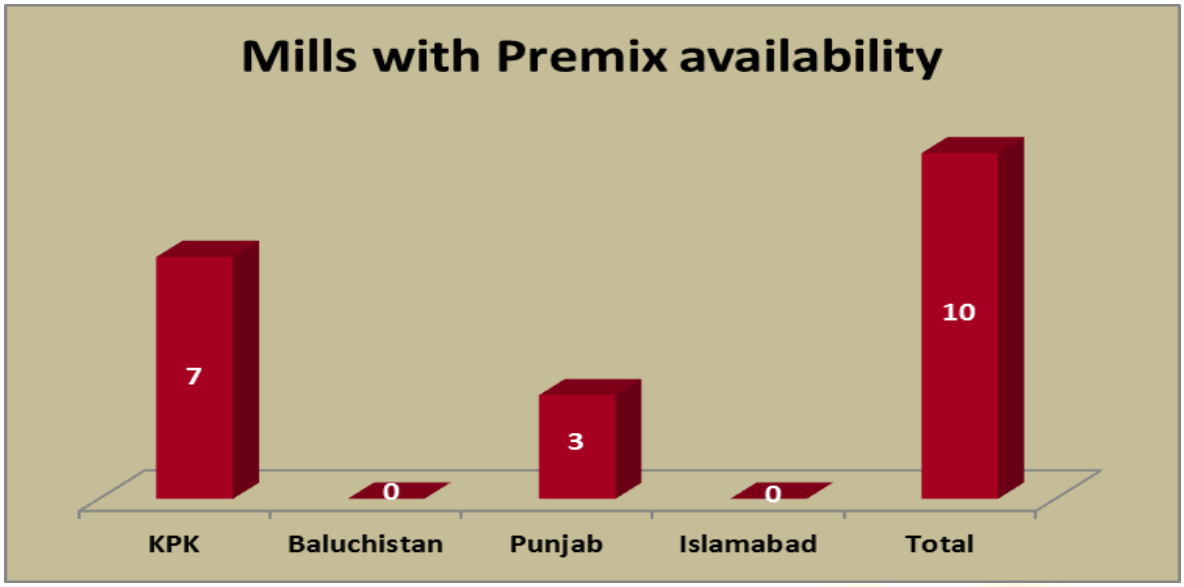



In KPK 7 mills are presently fortifying using their micro feeders (23%) and 11 have fortified in the past (35%), 6 flour mills in Baluchistan have fortified in the past (32%) while none is doing so at the moment. In Punjab 11 Mills (20%) are currently involved in fortification while 20 (37%) have fortified in the past including the current 11, 4 mills in Islamabad have fortified in the past (80%)

## 4.3 Availability of Premix (Availability and Quantity)

The following table explains the availability of premix, and the quantity of the premix stock:

| Provinces | Premix availability | | Premix quantity-KG |
|---|---|---|---|
| | Number of Mills | Percentage | |
| KPK | 7 | 23% | 1,125 |
| Baluchistan | 0 | 0% | 0 |
| Punjab | 3 | 7% | 70 |
| Islamabad | 0 | 0% | 0 |
| **Total** | **10** | **9%** | **1,195 KG** |




Currently 7 mills in KPK and 3 Mills in Punjab have premix available for fortification; quantity available in KPK is 1,125 KG while in Punjab is 70 KG. A total of 10 mills are fortifying at the moment within combined availability of 1,195 KG premix.

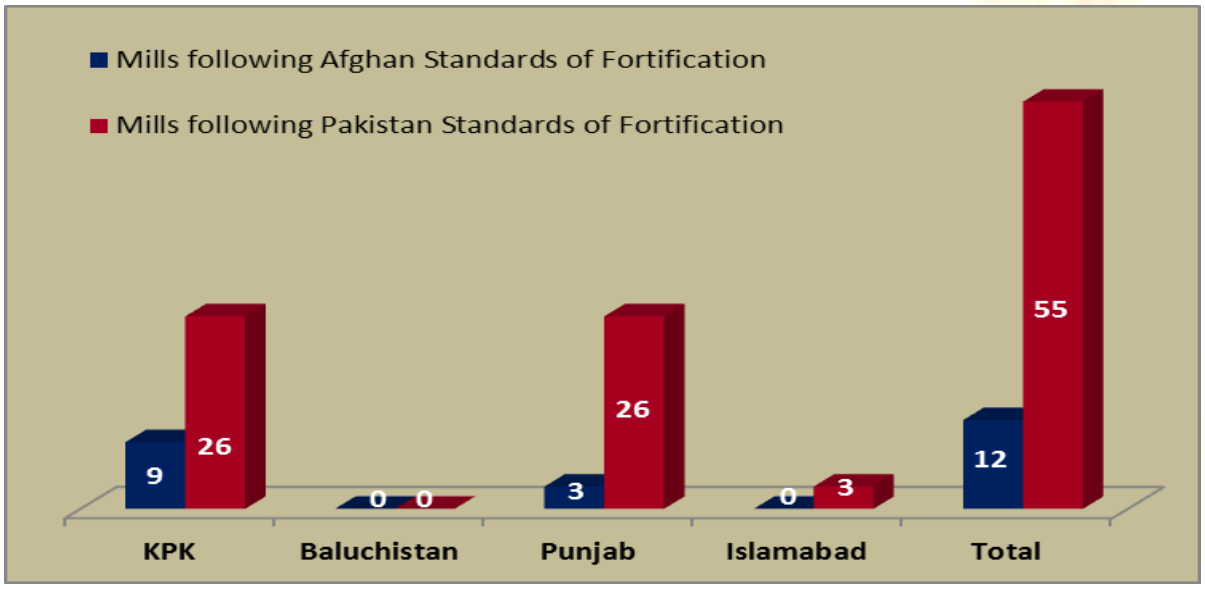
## 5. Fortification

This section is applicable to the mills that have micro feeders and are actually fortifying or have fortified in the past.

## 5.1Standards of Fortification in use (Access to Afghan Standards)

This table explains the standards in use for wheat fortification and extent to Afghan standards access.

| Provinces | Afghan Standards of Fortification | | Pakistan Standards of Fortification | |
|---|---|---|---|---|
| | Number of Mills | Percentage | Number of Mills | Percentage |
| KPK | 9 | 29% | 26 | % |
| Baluchistan | 0 | 0% | 0 | 0% |
| Punjab | 3 | 6% | 26 | 48% |
| Islamabad | 0 | 0% | 3 | 60% |
| **Total** | **12** | **11%** | **55** | **50%** |




9 mills in KPK are using the Afghani standards of fortification (29%) and 26 mills are using Pakistani standards, while none is doing so in Baluchistan. 3 mills in Punjab are using the Afghani standards of fortification (6%) and 26 mills are using Pakistani standards (48%). 3 mills in Islamabad are using Pakistani Standards (60%)

## 5.2 Fortification Quality Analysis and testing frequency

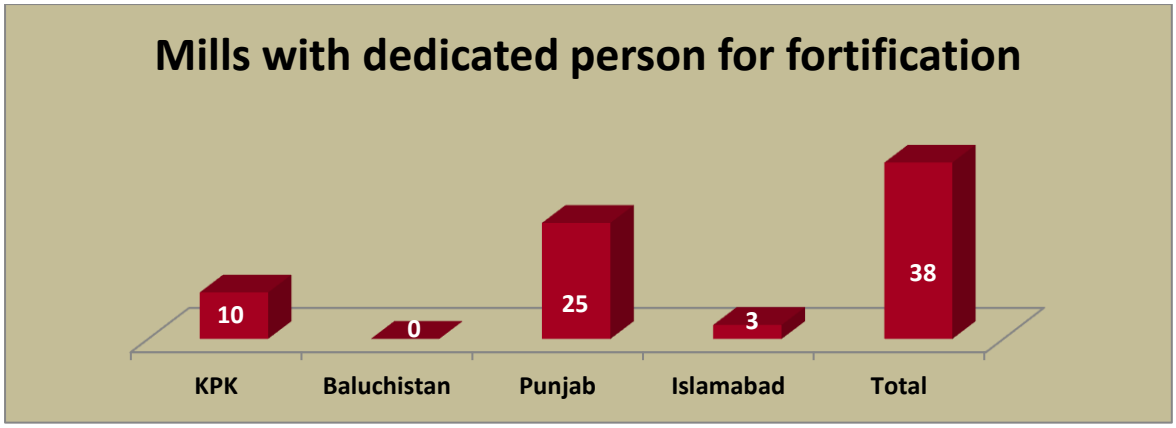
This section covers the details on the tests for fortification quality analysis, frequency of fortification testing, and the personal for fortification:

| Provinces | Tests for Fortification Quality Analysis | | |
|---|---|---|---|
| | External Lab | Government Departments & WFP | RTKs |
| KPK | 4 (13%) | 16 (52%) | 0 |
| Baluchistan | 0 | 0 | 0 |
| Punjab | 0 | 0 | 17 |
| Islamabad | | 1 (20%) | 1 (20%) |
| **Total** | | | |

There are two kinds of methods for fortification testing, one is according to the quantity of wheat being fortified e.g. one mill in KPK reported they test after every 250 MT of production and one reported after every 300 MT, another method is according to the time (hours or days) e.g. 3 mills from Nowshera reported they test the fortification quality after every three days regardless of quantity. In some instances the provincial food departments and department of health are also used for the inspection. Private labs are also used in which Qarshi Labs Hathar-Haripur is mentioned twice. The fortification includes the tests for Moisture, ash and gluten. None of the mills in Baluchistan are testing for fortification; while in Punjab 17 mills are using Iron testing Rapid Test Kits (RTKs) – 31%. In Islamabad one mill is using Iron Rapid Test Kits (RTKs), and one mill is following WFP standards of testing (2 in total-40%)

## 5.3 Fortification Personal in the mills

| Province | Mills with dedicated person for fortification | Percentage of mills with dedicated person for fortification |
|---|---|---|
| KPK | 10 | 32% |
| Baluchistan | 0 | 0% |
| Punjab | 25 | 46% |
| Islamabad | 3 | 60% |
| **Total** | **38** | **35%** |




10 mills in KPK, 25 mills in Punjab and 3 mills in Islamabad (38 in total-35% of 109) have dedicated staff for fortification.

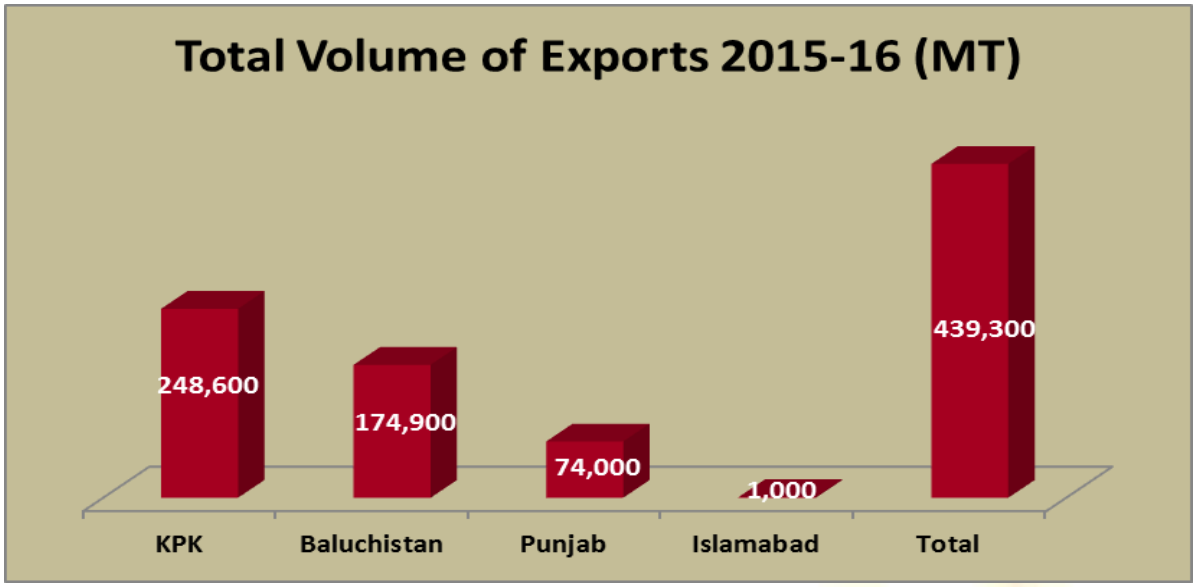
## 6. Export

This section explains the export potential, preferences and volume of exports past & present

## 6.1 Exporting Potential (Last and Current Year)

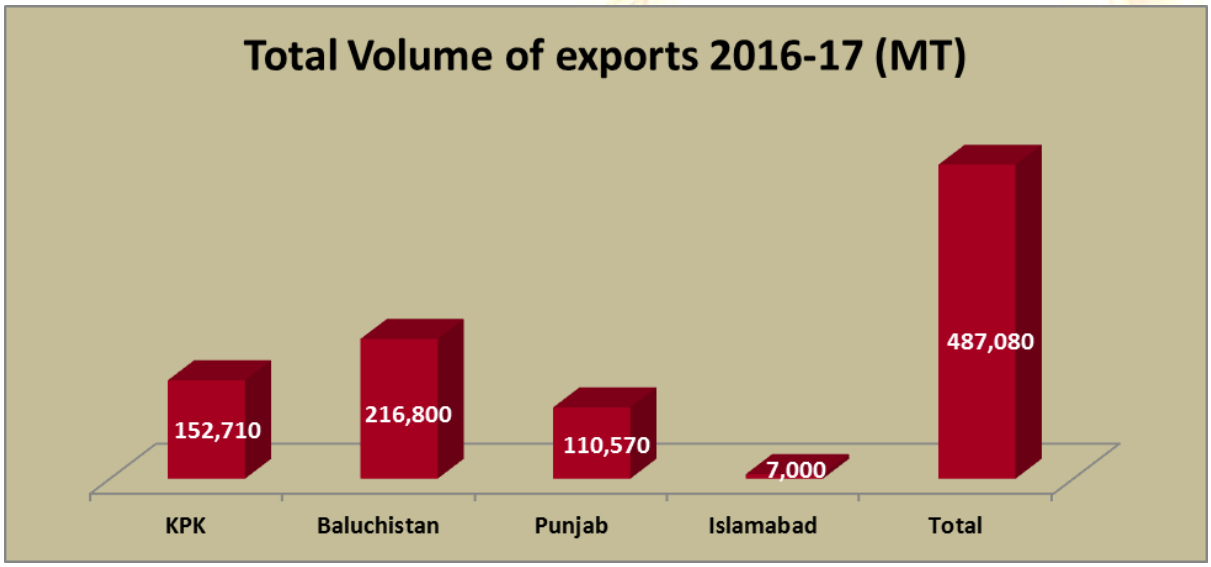
## Table 6.1.1

| Provinces | Exports 2015-16 | | | |
|---|---|---|---|---|
| | Mills that exported last year | Percentage | Total Volume-MT | Average Volume-MT |
| KPK | 20 | 65% | 248,600 | 12,430 |
| Baluchistan | 12 | 63% | 174,900 | 14,575 |
| Punjab | 5 | 9% | 74,000 | 14,800 |
| Islamabad | 1 | 20% | 1,000 | 1,000 |
| **Total** | **38** | **%** | **439,300** | **11,561** |




## Table 6.1.2

| Provinces | Exports 2016-17 | | | |
|---|---|---|---|---|
| | Current year exports/ exporting potential | Percentage | Total Volume-MT | Average Volume-MT |
| **KPK** | 27 | 87% | 152,710 | 5,656 |
| **Baluchistan** | 19 | 100% | 216,800 | 11,411 |
| **Punjab** | 49 | 91% | 110,570 | 2,257 |
| **Islamabad** | 3 | 60% | 7,000 | 2,333 |
| **Total** | **98** | **%** | **487,080** | **4,970** |




In KPK last year (2015-16) the total exports were 248,600 MT mostly to Afghanistan and 20 Mills were involved in the exports with an average of 12,430 MT per mill. For the current year the figures are for the wheat already exported or the remaining export potential which is 152,710 MT, 27 Mills

(87% of the 31 mills) are or will be involved in the exports; we have to keep one fact in mind that this figure is likely to increase with the start of new calendar year. The average exports/potential for the current year is 5,656 MT per mill.

In Baluchistan last year (2015-16) the total exports were 174,900 MT, all to Afghanistan and 12 Mills were involved in the exports with an average of 14,575 MT per mill. For the current year the figures are for the wheat already exported or the remaining export potential which is 216,800 MT, 19 Mills (100% of the total mills) are or will be involved in the exports; we have to keep one fact in mind that this figure is likely to increase with the start of new calendar year. The average exports/potential for the current year is 11,411 MT per mill.

In Punjab last year (2015-16) the total exports were 74,000 MT mostly to Afghanistan and 5 Mills were involved in the exports with an average of 14,800 MT per mill. For the current year the figures are for the wheat already exported or the remaining export potential which is 110,570 MT, 49 Mills (91% of the 54 mills) are or will be involved in the exports; we have to keep one fact in mind that this figure is likely to increase with the start of new calendar year. The average exports/potential for the current year is 2,257 MT per mill.

In Islamabad last year (2015-16) the total exports were 1,000 MT mostly to Afghanistan and 1 Mill was involved. For the current year the figures are for the wheat already exported or the remaining export potential which is 7,000 MT, 3 Mills (60% of the 5 mills) are or will be involved in the exports; we have to keep one fact in mind that this figure is likely to increase with the start of new calendar year. The average exports/potential for the current year is 2,333 MT per mill.

## 6.2 Exporting Country Preference

| Provinces | Preferred Country | | | |
|---|---|---|---|---|
| | Afghanistan | Percentage | Others | Percentage |
| KPK | 31 | 100% | 0 | 0% |
| Baluchistan | 19 | 100% | 0 | 0% |
| Punjab | 51 | 94% | 4 | 7% |
| Islamabad | 5 | 100% | 0 | 0% |
| **Total** | | % | | % |

In KPK and Baluchistan 100% of the exporting mills prefer Afghanistan and are getting export rebate. Seasonal variations include seasonal demand fluctuations especially in winters, isolated incidents of rate fluctuations according to seasons have been reported, 6 mills had absolutely no information on seasonal variations in KPK and 10 in Baluchistan as they are exporting for the first time. Most of the mills reported that season itself doesn't affect but it is the market demand fluctuations from Afghanistan that directly affect the exports from KPK and Baluchistan. In Punjab the seasonal weather patterns especially monsoon rains can be a hindrance according to the mills 94 % of Punjab mills and 100% of Islamabad mills prefer Afghanistan for exports, 7% of Punjab mills also have preference to export to some European countries, and Chile in South America.

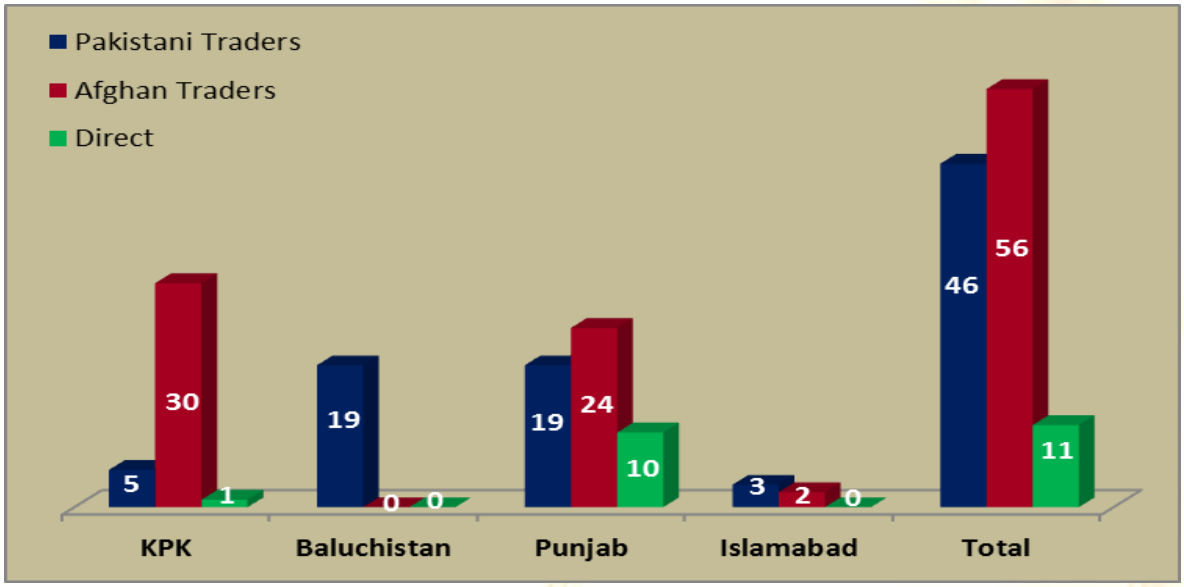
## 6.3 Ideas to Increase Exports

(Narrative) – Flour Mills informed on the demand fluctuations due to seasonal weather and climate change, Mills also informed that on their own, running a large exporting order is not feasible and they need government support in that regard, many mentioned that they are coming into exports for the first time and are not well informed on the issues and ideas and will learn in time. Price fluctuations are termed as major hindrance and controlling it would be key according to millers, export rebate should be increased both in terms of the rebate itself and the time period over the year. Lowering the price of wheat to make it market compatible on the regional level was suggested my flour millers, taxes from Afghan side were also mentioned as a contributing factor on the retail price of exports, on time payments from Afghan traders, and foremost a demand for fortified wheat from Afghanistan.

## 6.4 Exports Intermediary

This section explains the preference of Pakistani Flour Millers on which intermediary to be used for exports, it's Pakistani Traders, Afghan Traders or direct trade.

| Provinces | Export Intermediary | | | | | |
|---|---|---|---|---|---|---|
| | Pakistani Traders | | Afghan Traders | | Direct | |
| | Number of Mills | Percentage | Number of Mills | Percentage | Number of Mills | Percentage |
| KPK | 5 | 16% | 30 | 97% | 1 | 3% |
| Baluchistan | 19 | 100% | 0 | 0% | 0 | 0% |
| Punjab | 19 | 35% | 24 | 44% | 10 | 19% |
| Islamabad | 3 | 60% | 2 | 40% | 0 | 0% |
| **Total** | **46** | **42%** | **56** | **51%** | **11** | **10%** |




16% of the mills in KPK use Pakistani traders for exports, 97% use Afghani traders and only 3% use direct channels for exports. 100% of the Baluch Flour mills use Pakistani traders as export intermediary. 35% of mills in Punjab use Pakistani Traders, 44% use Afghan and 19% use direct channels for exports. 60% of Islamabad mills use Pakistani traders and 40% use Afghan traders.

# Next Steps

Based on the current unavailability of premix, and the available mills with micro feeders, following recommendations has been drawn:

- ***Facilitating the equipment and related services by servicing & calibrating the micro feeder***
    - The flour mill category in which the mills with have micro feeders that are either functional or need a minimum of servicing to make it operational (minor damage which can be repaired would be also considered)
    - Priority will be given to operational micro feeder and then non-operational micro feeder. The mills with damaged micro feeders or no micro feeders will not be included in the list. All the identified micro feeders will be serviced and properly calibrated.
    - The selection of the mills also includes various other factors including the micro feeders being declared functional. Have been used in the past, technical capacity of the mill both in terms of equipment and the human resources.
    - GAIN will be hiring a technical consultant to service the micro feeders in the selected mills, and once the premix lands in Pakistan (expected date: 15th Jan 2017) it would be immediately distributed to the mills to start the fortification at the earliest.
- ***GAIN has also planned capacity building exercise with following details***
    - HR capacity building trainings on how to calibrate & operate the micro feeders
    - Hiring the technical consultant to service the micro feeders with minor repairs and micro feeder calibration with respect to the fortification requirements of micro nutrients.
- ***Facilitating the supply of premix***
    - The identified Flour mills will be supplied the premix through the selected vendors; the initial orders will be delivered overnight while the later orders will be on the regular courier delivery timings in order to speed up the premix delivery.
    - Again the priority will be given to those mills with functional micro feeders and who have ordered first.