



# STATE OF FOOD SECURITY IN PAKISTAN

An In-Depth Analysis of Food Security in Pakistan and Sindh  
Using Agriculture Productivity Time-Series and  
Sensitivity Price Index Data



**RESEARCH & TRAINING WING**

Planning & Development Department  
Government of Sindh



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## ABSTRACT

The problem of food security is multi-dimensional which is directly and indirectly affected by overlapping issues such as insufficient food supply, inadequate purchasing power, unaffordable housing, social isolation, and chronic or acute health problems. In Pakistan, rising prices coupled with unexpected droughts, and hoarding has worsened the situation of accessibility and availability to food. The recent outbreak of the global COVID-19 pandemic and Locust attacks may have substantially compounded the food crises problem within Pakistan. The report tries to capture the present state of food security in Pakistan and Sindh through a time-series analysis of agricultural productivity and also using Sensitivity Price Index (SPI) to analyze variation in production and distribution of crops. Pakistan is a developing country and faces various socio-economic issues, including extreme poverty and food insecurity. According to National Nutrition Survey 2018, 36.9% of the total population in Pakistan is food insecure and Sindh fares even worse at 47.1%. District-level food security analysis of Sindh showed that almost 60% of the Thar population was facing severe food crises and shortage of basic food commodities. District Umerkot showed almost 0.1 million people are facing severe food crises and less than 40% of the district's population is facing intense yet relatively milder level of food crises. During the last decade, almost 25 to 50 % decline was recorded in production of vegetables and almost 300% decline was recorded in production of essential grains like Moong, Masoor and Mash. A substantial decrease was witnessed in yields overtime in tandem with rising prices of essential commodities. Food security requires a holistic multi-dimensional approach that focuses on water-efficient agriculture productivity enhancement, targeted subsidies tied with technological upgradation, effective price regulation mechanisms, nutrition-specific and nutrition-sensitive interventions, and comprehensive social protection programs.



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A Man with his  
family tries to share  
a meal in Rural  
Areas of Sindh

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## I. INTRODUCTION

It is estimated that globally, an average adult consumes around 3,000 kilocalories per day, and people who live in industrialized countries have been reported to consume even more. Globally, sufficient food is produced to feed the entire human population; however, still approximately 820 million people are living on daily diets that are significantly lower than the minimum recommended amount for a healthy body. This clearly indicates that distribution of food is uneven.

Pakistan is considered a lower middle-income country and has the sixth largest population in the world. According to the World Bank, it is estimated that average adult should have at least 2,350 calories to meet its daily requirements and maintain a healthy body<sup>1</sup>. However, within Pakistan there is a great disparity in availability and accessibility to food between various income quintiles (groups) along with variability across regions. The average daily household caloric consumption per adult in Pakistan is equivalent to 2,033 calories<sup>2</sup>, which is 13% lower than the officially recommended level of 2,350 calories per day as defined by World Bank. It is important to understand that if people don't receive sufficient number of calories from food that they have access to, then they are considered to be food insecure. According to the Food Agriculture Organization of United Nations, food security is defined as following.

*"Food Security exists when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life"*<sup>3</sup>

(FAO 2000)

## II. DYNAMICS OF FOOD SECURITY

Pakistan, having a population of 210 million people, is blessed with cultivable land and a sizeable small-holders and agricultural labor population. The mainstay of the country's employment is agriculture and subsistence farming. More than 39% of the entire population is dependent on agriculture with a contribution of 19% to the total GDP (gross domestic product)<sup>4</sup>. It is alarming that a country which employs a significant population in the agriculture sector comprises of 41.4 million people who are either under-nourished or food insecure. There are four pillars that collectively contribute to a country's food security and if any of these pillars is missing, it will lead to a state that is generally known as food insecurity.

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<sup>1</sup> Worldbank.org/PGLP/Resources/povertymanual\_ch3.pdf

<sup>2</sup> Worldbank.com/Child Undernutrition in Pakistan What Do We Know? //

<sup>3</sup> Food Agriculture Organization of United Nations

<sup>4</sup> Ministry of Finance /survey/chapters\_19/2-Agriculture.pdf

## AVAILABILITY OF FOOD (PILLAR I)

The availability of food is the first and the most important pillar of food security in any region. According to the National Nutrition Survey 2018, more than half of households (63.1%) are “food secure” on the Food Insecurity Experience Scale (FIES) measure. However, over a third of population (36.9%) remains food insecure. In a country of more than 210 million people, that percentage is a large number. A larger percentage of households are food secure in Gilgit Baltistan (75.6%) and Khyber Pakhtunkhwa (70.9%) and experience less severe food insecurity in contrast to Sindh and Baluchistan.

Sindh and Baluchistan are considered to be the most food insecure provinces within Pakistan. Almost 47.1% of people living in Sindh are considered to be food insecure. Average caloric consumption of households in the poorest consumption expenditure quintile i.e. (bottom income quintile), at 1,570 calories, is 23% lower than the recommended level, and 27% lower than the average caloric consumption of households in the richest consumption expenditure quintile (the richest households), at 2,501 calories<sup>5</sup>.

The indicators for availability of food are primarily concerned with the supply side economics. **Agricultural productivity** inside Pakistan has significantly decreased over time; however, Pakistan is still ranked at 8<sup>th</sup> position in producing wheat, 10<sup>th</sup> in rice, 5<sup>th</sup> in sugarcane, and 4<sup>th</sup> in milk production throughout the world.

Through a time-series analysis, it could be observed that agriculture productivity of Sindh has decreased significantly in a decade’s time. Wheat is Pakistan’s staple food with a consumption of 124 Kgs/person per annum with an increase of roughly 9% over the last decade (**Refer to Annexure-I Table 2.**). This is a significant amount of wheat intake and it should be noted that any shock to its supply affects a large segment of population which eventually leads to food insecurity. Similarly, Sindh is considered to be the largest producer of chilly across all provinces. However, in recent years its production has decreased by more than 35% which clearly shows that productivity is decreasing overtime. The production of all major grains had declined by almost threefold i.e. nearly 300%, with major decline observed in Mash, Masoor, Moong lentils that are essential grains for the bottom quintile income group. In addition, almost all the major crop’s production has decreased not only in Sindh but across the country (**Refer Annex – I, Table 1 & 2.**)

Currently, water productivity of most of the crops in Pakistan is lower than the desirable level. For instance, sugarcane and wheat use around four times the global average of irrigation water, while rice consumes more than six times the world’s average. Going forward, growing water shortages are expected to drag down yield of different crops on a considerable scale.<sup>6</sup>

<sup>5</sup> World Bank / Child Undernutrition in Pakistan: What Do We Know// 2017 /

<sup>6</sup> Dawn/SBP report shines light on food insecurity//



## ECONOMIC & PHYSICAL ACCESS TO FOOD (PILLAR II)

Adequate supply of food doesn't guarantee adequate food security at household level. Access to food depends on Income, expenditure, markets and prices stability to achieve food security objective. According to a report of State Bank of Pakistan, almost a quarter of Pakistan's population lives below the poverty line (set at Rs3, 030.3 per adult equivalent per month). This means that around 50 million people in the country are unable to access basic needs, given their income levels.

A high population growth, and unfavorable water and climatic conditions in the country mean that food insecurity may increase manifolds over the next two to three decades. Pakistan is naturally blessed and self-sufficient in producing agricultural and livestock commodities to levels that are used as essential foreign trade commodity. However, it is surprising to know that, in Pakistan, per capita consumption of food products with high-nutritional value like beef, chicken, fish, milk, vegetables and fruits are almost 6-10 times lower than that of developed countries.

The quarterly report of Pakistan Bureau of Statistics on Sensitivity Price Index (SPI inflation) is used to monitor price changes on weekly basis of essential food commodities. The latest figure stated by the report mentions that the prices of food commodities have risen by 18.3 %<sup>7</sup> since last year. However, if measured through Consumer Price Index method, almost 23.65 % rise had been seen since last year in all food commodities including non-alcoholic beverages. Given that SPI only takes into account 52 essential food commodities and CPI aggregates all food commodities, it is surprising to know that CPI's inflation counter showed a greater increase in comparison to SPI. This proves that a higher rate of increase was witnessed in all food commodities, more than essential food items like (Rice, Pluses, Wheat, Tomatoes and Potatoes etc.) which showed relatively less increments. SPI through month-over-month analysis showed an increase by 0.5% in January 2020 as compared to a decrease of 2.0% a month earlier and an increase of 0.4% in January 2019 (**Refer Annex – I, Table 3**).

The bottom 60% of households in the country spends a substantial part of their incomes, almost 45% on food<sup>8</sup>. Even if prices are relatively low and stable, poorest families still lack the purchasing power to buy food.

The first or the bottom quintile income group has been affected the most in recent years by the current economic condition of Pakistan that is termed as 'stagflation' in economics. Stagflation is a phenomenon whereby people face sever unemployment crisis coupled with rising prices and declining gross domestic productivity. According to the statistics, least sensitive income group to the price change in essential commodity is the 5<sup>th</sup> or the highest

<sup>7</sup> [http://www.pbs.gov.pk/sites/default/files//price\\_statistics/weekly\\_spi//](http://www.pbs.gov.pk/sites/default/files//price_statistics/weekly_spi//)

<sup>8</sup> <http://www.sbp.org.pk/reports/quarterly/fy19/Third/Special-Section-2.pdf>

income quintile group. This essentially means that the richer households are least susceptible to price variations in essential commodities.

Through a time-series analysis using SPI data set between years 2008-2017, it was observed that the rising inflations has caused the purchasing power of the poor to shrink. Almost 75% increase in prices has been witnessed in last 10 years. The SPI in year 2008 was recorded at 121.11 points and in year 2017 it was recorded at 223.35 points.<sup>9</sup> This shows a significant increase within a decade. Since SPI considers 52 essential good's prices on weekly basis, the variation in terms of inflating SPI figures are much higher than in nominal incomes and gross domestic productivity. As a result, real income/purchasing power decreases which translate into reduced food accessibility.

Food accessibility is also highly vulnerable to economic and environmental shocks. This means that the behavior of market has a great impact on people and the way they consume things. Pakistan's food security has declined since the 2000s, due to a succession of environmental disasters, conflicts and economic crises etc.

Food availability is as important as food production for food security. Pakistan has been facing food crisis not just due to constant price rise, increased import bills and declining productivity, but also due to natural calamities and shrinking incomes coupled with large-scale hoarding. These factors lead to reduced access to food that ultimately translates into food insecurity.

## FOOD CONSUMPTION (PILLAR III)

Another important pillar that determines food security is "Food Utilization". This means that adequate food supply and its consumption, in terms of sufficient quantity, diversity & nutritional value, is an essential component of food security in any country. It is surprising to see that a food surplus country, like Pakistan, has a stunting prevalence of 40% among the children under 5 years (low height-for-age) and two in ten have been suffering from wasting (low-weight-for height) in the country<sup>10</sup>.

In 2019, Pakistan was ranked 94<sup>th</sup> among 117 countries<sup>11</sup> surveyed for the Global Hunger Index, and has been characterized as facing a "serious" level of hunger. In fact, Pakistan is among those seven countries that cumulatively account for two-thirds of the world's under-nourished population (along with Bangladesh, China, Congo, Ethiopia, India and Indonesia).<sup>12</sup>

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<sup>9</sup> [http://www.pbs.gov.pk/sites/default/files//price\\_statistics/weekly\\_spi//](http://www.pbs.gov.pk/sites/default/files//price_statistics/weekly_spi//)

<sup>10</sup> Nation Nutrition Survey Pakistan 2018//

<sup>11</sup> Global Huger Index / Pakistan // 2019

<sup>12</sup> Food and Agriculture Organization of the United Nations//

From an equity perspective, food utilization has been characterized by the availability of nutritious food for the underprivileged population. This means that every individual must receive a diet that is balanced and provides sufficient amount of nutrition to carry day to day activities. However, in Pakistan, around 50 million people are unable to access basic needs given their incomes. This is a clear indicator that over a third (36.9%)<sup>13</sup> of population remains food insecure and is unable to access high energy and nutritious food.

People in the rural part of Pakistan, particularly Sindh, are completely reliant on crops, like wheat and vegetables, for consumption which are not considered adequate in providing all the essential nutrients to the body. Each year, Pakistan is estimated to have an economic loss equivalent to 2.35% of GDP (US\$ 7.6 billion)<sup>14</sup> due to malnutrition and its associated outcomes. In particular, high child mortality rates, prevalence of zinc and iodine deficiencies, stunting, and anemia, lead to deficiencies in physical and mental development that reduces labor productivity and loss of future effective labor force in the country.

According to the National Nutrition Survey 2018 figures, Pakistan lags behind the universal levels of Minimum Dietary Diversity. The Proportion of children aging from 6-23.9 months of age who receive foods from 4 or more food groups which includes grains, roots and tubers; legumes and nuts; dairy products (milk, yogurt, cheese); flesh foods (meat, fish, poultry and liver/organ meats); eggs; vitamin A rich fruits and vegetables; other fruits and vegetables are considered to be a mere 14.2% in Pakistan and the condition of Sindh is even worse at 12.6%.<sup>15</sup> Complementary foods that meet the requirements of a minimum acceptable diet to ensure optimal growth and development for children aged 6–23 months are provided to less than one in 20 children (3.6%). These are seriously low levels of nutrition outcomes for a lower-middle income group country.

The major hurdle that explains the poor levels of MDD inside Pakistan and Sindh revolves around complementing factors like lack of purchasing power for high nutritious food, price, access & availability. Other factors may also include nutrition-related awareness at rural and sub-urban levels.

## STABILITY IN ALL DYNAMICS (PILLAR IV)

Stability in all the above dynamics/pillars is essential to ensure food security within Pakistan. All 3 pillars of food security are interconnected. Because agricultural productivity is the

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<sup>13</sup> National Nutrition Survey 2018/

<https://www.unicef.org/pakistan/sites/unicef.org.pakistan/files/201907/Final%20Key%20Findings%20Report%202019%20%281%29.pdf>

<sup>14</sup> Report on “The Economic Consequences of Undernutrition in Pakistan: An Assessment of Losses” (2017), launched by the Pakistan Scaling Up Nutrition (SUN) Secretariat at the Ministry of Planning, Development and Reform, in collaboration with UN’s World Food Program.

<sup>15</sup> National Nutrition Survey 2018

primary driver for supporting availability of food, its production has to be maintained at a pace that must increase over time to match or outstrip the increase in population. Pakistan is a water-stressed nation; therefore, increasing agricultural productivity warrants prudent planning. To increase agricultural productivity, it is inevitable to use conservation methods like Drip Irrigation, Hybrid Seeding, Laser Leveling and Flood Water Storing. This will not only help in meeting the increasing demand for food but will also help in reducing stress on water availability throughout the country. Factors that contribute to food insecurity in a country include import dependence for certain items, which is partly responsible for significant variations in their prices. In particular, serious attention must have to be paid to the local production of minor crops, such as pulses, fruits, vegetables, nuts & oilseeds, and livestock produce which jointly contribute to around 50 percent of dietary energy.

Furthermore, prices of meat and dairy products have increased significantly which shouldn't be the case because Pakistan is considered self-sufficient in raising its livestock without relying on significant imports. In contrast, a large physical and financial infrastructure of government-run commodity operations works in the country to implement the support/indicative prices for major food crops (especially wheat) to ensure their availability. Although these operations entail a large fiscal cost, these have proved helpful in maintaining commodity stocks and stabilizing the prices of these commodities over the years. But the measures taken by these agencies are not sufficient to ensure stability in prices, availability, access, and also provision of all essential food commodities.

### III. ANALYZING SINDH'S FOOD SECURITY POSITION

According to the Integrated Food Security Phase Classification (IPC) report, the province of Sindh has been analyzed closely in consideration to food insecurity where 7 most food insecure districts namely (Badin, Dadu, Sanghar, Tharparkar, Umerkot, Jamshoro, Shahdadkot) were studied.

According to a latest study conducted by IPC, it was found that province of Sindh is prone to multiple hazards. Drought or drought-like conditions have been prevailing in parts of Sindh since 2013, particularly in the southeastern and western districts: Tharparkar, Umerkot, and Sanghar (along the eastern border with India) and Jamshoro, Dadu, Qamber Shahdadkot (along the Western border of the province). The areas impacted by drought are heavily reliant on monsoon rainfall and with repeated years of low, or in some cases, complete absence of rainfall, the drought conditions have significantly exacerbated. The land of these 7 districts is considered Barren / Arid which means that the entire harvest is primarily dependent on rain and monsoon systems.

Due to the current dry spell, along with the inadequate availability of irrigated water, almost all the crops have shown a decline in the yields since last year. Therefore, inadequate food



availability in these areas has contributed to the food insecurity. The entire rural population is heavily dependent on food that they grow because they tend to use their domestic crop for their own sustenance.

Analyzing the aforementioned seven districts revealed that almost 1.3 million people out of total population of 2.3 million people faced severe to extreme food insecurity. Almost 60% of the Thar population was facing severe food crises and shortage of basic food commodities. Similarly, in district Umerkot almost 0.1 million people are facing severe food crises and less than 40% of the population is facing intense yet relatively milder level of food crises. The crop area and production of major cereal crops has shown an overall reduction across all seven districts, and not just in the drought-notified areas. The crop area and production of wheat has reduced by 24% since 2014-15 in these 7 districts. Crop area and production in 2018-19 is estimated to be 17% (at 294,159 hectares) and 10% (at 960,701 metric tons) less than in 2017-18.<sup>16</sup>

## IV. IMPACT OF PANDEMIC & LOCUST ATTACK

According to Global Huger Index, Pakistan ranks at 106<sup>th</sup> position out of 119 countries worldwide. The major chunk of country's population faces a widespread malnutrition and it is even worse in young and feeding children. Pre-COVID-19 figure states that almost 37% of the 220 million population is considered food insecure in Pakistan and 47% in Sindh. Food insecurity levels are alarmingly high in Pakistan even when compared to extremely food stressed nations like Yemen, the Democratic Republic of the Congo, Afghanistan, Ethiopia, Syria, Sudan, South Sudan and northern Nigeria.

Pakistan was already coping with issues of food security, but the recent COVID-19 pandemic has adversely affected the economy and disproportionately affected the vulnerably employed segments of population. The COVID-19 pandemic has resulted in increased poverty and unemployment in Pakistan. As a result of lockdown, Sindh may witness unemployment of more than 3 million labor force, and may push 3 million additional people below poverty line.<sup>17</sup> It is inevitable that food crisis will exacerbate as a result of the recent pandemic if proactive measures are not undertaken.

As the nation was struggling due to the impact of COVID-19, locust attacked a large proportion of crops. However, paddy crop was fully harvested and large parts of wheat and summer maize crops were reaped so the damage to the crops remained limited. This may or

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<sup>16</sup>Integrated Food Security Phase Classification (IPC)/ Acute Food Insecurity Analysis/ October 2018 – October 2019//

<sup>17</sup> Figures are extracted from "COVID -19 SINDH'S MACRO-ECONOMIC AND SOCIO-ECONOMIC IMPACT ASSESSMENT AND DEVELOPMENT RESPONSE FRAMEWORK" The computations have been estimated on the works of Hafiz Pasha and Shahid Kardar.

may not be the case in FY 2020-21. According to a recent Bloomberg report<sup>18</sup>, in Sindh locusts have already damaged wheat, oilseeds, pulses, fodder and vegetable crops on 166,701 hectares or 13.8% of the province's total cropped area. The production of major pulses and crops in Sindh were already on a declining trend before the attack, however, the locust attack may prove to be alarmingly detrimental to the production. The combined crisis of COVID-19 and Locusts attack also presents an opportunity to harness innovative sustainable solutions to ensure food security in the country.

It is evident that the state of food security would further deteriorate in the on-going fiscal year i.e. 2020-2021 at national as well as provincial level. However, recovery from the aftershocks of locust and pandemic would require serious institutional reforms to mitigate the impact on food crisis.

## V. RECOMMENDATIONS

Considering the intensity of food insecurity within the country following recommendations might help in reducing it, if not completely eradicating it.

- To ensure sufficient food production it is necessary to adopt modern and efficient cropping techniques and patterns. Pakistan is a water-stressed nation and the soil found here is not suitable for the production of Rice and Sugarcane. These cropping patterns must be revisited and stringent policies must be enforced to cultivate low water-intensive crops. This strategy will eventually help in maximizing the yields with efficient water-conservative techniques. World Bank suggests that Promoting farming systems that use climate-smart techniques may produce a more diverse mix of foods that will eventually improve food systems' resilience, increase farm incomes, and enable greater availability and affordability of nutrient-dense foods.
- Hybrid farming must be introduced in Pakistan so that yields can be maximized. Like globally followed practices, imported seeds along with drip sprinkler must be used that guarantees twice the yields so that adequacy of availability to food is ensured. Lack of detailed technical guidance, inputs and advice at a large scale limit the adoption of highly viable and tested technical improvements such as High Efficiency Irrigation Systems (HEIS), alternate energy, scientific orchards management, and better post-harvest handling, value chain management, processing and marketing. To tackle the current food security issue, it is important to adopt the aforementioned remedies at a rapid pace.

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<sup>18</sup> [Bloomberg/articles/2020-06-08/Locusts Pose A Bigger Economic Threat to Pakistan Than the Virus//](https://www.bloomberg.com/articles/2020-06-08/Locusts-Pose-A-Bigger-Economic-Threat-to-Pakistan-Than-the-Virus/)

- Programmes like BISP (Benazir Income Support Programme) Bait-ul-Mal (PBM) and Social Security & Welfare, Pakistan Poverty Alleviation Fund (PPAF), Employees Old-age Benefit Institution (EOBI), and Workers Welfare Fund (WWF) have substantially provided relief to a large number of recipients. However, the safety net programs are working in a fragmented, isolated and often duplicative manner with limited coverage, covering approximately 4.9%<sup>19</sup> of the total population as compared to a poverty rate of about 25%. Through an independent research<sup>20</sup>, it was found that over 80% of cash transfer beneficiaries of BISP prioritized food expenditure, prioritizing (High Nutritious) quality food intake for their household and particularly children. Many beneficiaries were found to be subsisting on ordinary staples (mostly wheat flour) with the extra cash providing them an additional buffer of security, and also enabling many to slightly diversify their diets. Ehsaas Program at federal level is a needful addition to move towards horizontal and vertical integration of the existing social safety net structure of the country. The program is effectively disbursing approximately 1% of total GDP nationwide in form of cash transfers. Intra-governmental coordination is required at federal and provincial level to eliminate fragmented efforts and work on integrated Social Safety Nets that are mostly reliant on cash transfers. The coverage of these SSNPs must also be increased to sustainably address poverty and food security-related issues in the country.
- FAO has developed various food security-based programs for Pakistan like Zero Hunger Healthy, Safe and Nutritious Food for All, etc. Targeted Food Distribution Scheme(s) at national level, with counterparts at provincial level, must be established to ensure that basic food needs of the population are met, both in terms of overall calorie intake, as well as provision of essential micro-nutrients. The scheme can draw lessons from international experience, such as that of the Zero-Hunger Programme in Brazil; as well as national experience, such as that of the Benazir Income Support Programme. Food Security Assessment can become a part of National Socio-Economic Registry that can be updated at rapid intervals for a dynamic analysis of food security status at household level.
- Price regulation is a primary tool to control food crises. Federal and provincial governments must be capable enough to restrict price hikes and at the same time ensure availability of essential food commodities in the market. It must also be noted that the Price regulation must be done to reduce price variability. Distortion in market prices must not be a modus operandi because it increases burden on government budget and is detrimental to the profits of small and medium level growers. Ultimately, that burden is passed on to taxpayers.

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<sup>19</sup> Nation Nutrition Survey Pakistan 2018

<sup>20</sup> Social Protection in Pakistan/ Asad Sayeed/SARNET Working Paper No. 2/2015/

- A major hurdle in controlling food crises is large scale hoarding which disrupts the food supply and market mechanisms. Hoarding often takes place due to administrative failure. It is impossible to break through this vicious cycle until regulatory authority stringently enforces penalties on hoarders and anyone who manipulates the supply chain for exorbitant profits. National and provincial regulatory authorities must work in close coordination to ensure strict monitoring of the entire food supply chain and ensure strict enforcement of penalties against hoarders. Credible private institutions can also be engaged for independent monitoring and evaluation of any mala fide manipulations of the market. Effective and transparent implementation mechanisms are imperative to prevent large-scale hoarding that artificially causes food crises.
- The government must also provide well-directed subsidies to the farmers and suppliers in order to deliver essential food crops to end user at minimum benchmark prices. The main idea of agricultural subsidy is to encourage farmers to use inputs which otherwise help in raising productivity, reduce cost, mitigate environmental problems and incentivize innovative practices. Apart from this, to maintain and develop parity of agriculture with other sectors, subsidies are justified. Government should avoid blanket subsidies and must target either small-scale farmers for protection against economic shocks or to export-oriented/innovative crop production to incentivize farmers to move to export-oriented products or adopt innovative practices to improve productivity.
- Rural population is adversely affected by any shocks in the agriculture sector with a major segment of population directly or indirectly employed in the agriculture sector. High incidence of rural poverty is a major concern for Pakistan which is deeply connected with problems plaguing the agriculture sector. Food-stressed rural regions within Pakistan can benefit greatly from establishment of rural growth centers to reduce the food crisis. RGCs can serve as hubs of integrated service delivery and markets which will provide not only employment opportunity with stimulation of economic activities, but will also raise living standards to minimize the stress on food crises within that region. Sindh has incorporated the concept of RGCs in its 'Poverty Reduction Strategy' which is being piloted in various parts of rural Sindh. RGCs are conceptualized as centers of integrated service delivery with upward and downward market linkages to spur rural economic growth vis-à-vis activities pertaining to comparative advantage in resource endowments.
- It must be noted that infant and young child feeding (IYCF) practices in Pakistan is critically sub-optimal and only 14.2% receive diet from 4 or more high nutritious food groups in Pakistan; and only 12.6% in Sindh. More than 80% of the young population is deprived of acceptable levels of dietary diversity. The demand-side constraints for



nutritious diversified food may be due to the lack of awareness amongst the feeding and young mothers, coupled with low income. Common risk factors for poor child feeding are poverty and poor access to health and nutrition services in the community which can be termed as supply-side constraints. This underlines the need to improve the capacity of programs, health professionals, and community workers to support good complementary feeding. Especially for rural areas of Sindh, it is recommended for urgent nutrition support such as complete Community-based Management of Acute Malnutrition Model (CMAM) programme/packages including Targeted Supplementary Feeding Programme (TSFP) component for Moderately Acute Malnourished Children (MAM) as well as other nutrition sensitive interventions.

- Income (or lack thereof) is also one of the prominent hurdles that contribute to the food shortage severity. Real Income, which is essentially one's purchasing power, is affected by inflation. Ideally, the nominal income level must be commensurate with the level of inflation. However, in Pakistan, a stagflation like situation has translated into increasing levels of inflation with stagnant levels of nominal income which essentially means a reduction in real income/purchasing power. Reduced real income further decreases food accessibility, especially for lower-income groups. Therefore, it is recommended that if income standards cannot be increased substantially, then government at federal level must control inflation on essential food items, ensuring its accessibility amongst the masses.
- The basic proposition in reducing food crises revolves around availability of food in general. The supply chain management system of wheat under the federal and provincial government is significantly weak that allows middle-men to artificially inflate the prices and create shortages, hence, affecting the marginalized and vulnerable segments. Pakistan must work to strengthen its regulatory mechanism, like Australia, to prevent all sorts of cartel and inefficiency from its wheat market.
- Increasing the productivity of essential food grains must be a policy imperative. This means that production of staple foods like wheat, rice and sugar, tomatoes, potatoes and onion etc. must receive special attention. Because Pakistan has one fourth of its population below poverty line, pro-active measures must be taken to improve the quality and quantity of production of these essential crops which is treated as their primary source of energy. With increasing population growth, the country needs to incentivize productivity enhancement and technology upgradation to improve the productivity of staple foods.

## VII. CONCLUSION

Pakistan is a low-income developing country and agriculture is its most important sector due to its primary commitment of providing healthy food to the country's fast-growing population. In the past 73 years, the total cultivable land of Pakistan has just increased by 40 percent, while there was more than 40 times increase in population during the same period. Rapid population growth along with massive urban expansion is causing increasing pressure on the cultivated land. Tremendous efforts are needed to narrow the gap between food demand, due to population growth, and domestic food production. Managing food security in Pakistan requires an understanding on how agricultural policies affect food supply and incomes, and the poor vulnerable population in rural and urban areas. Since, Pakistan is a severely food-stressed country, with almost 37% of population widely affected by the food scarcity, the recent outbreak of COVID-19 coupled with locust attack has critically damaged the dynamics of food and crop production inside Pakistan. Because population control is a sensitive concept in the country, added pressures can be presumed to continue in terms of food demands in future. Therefore, it is recommended that Pakistan must learn from global practices that entails use of high yielding methods using modern practices like, drip irrigation and hybrid farming to maximize yields. Increased mechanization and improved productivity are heavily reliant on effective institutional arrangements at national as well as provincial level. Lack of coordination between the provinces and the center has greatly affected the present situation of food security in Pakistan. Central institutions, like Ministry of Food Security and Research and PASSCO, can play a pivotal role in addressing the food crises at national level. Programs, like Zero-Hunger, must be undertaken to leverage cash transfers that encourage spending on necessary food items for improved dietary diversity levels. Targeted subsidies must also be provided and blanket subsidies must be avoided to incentivize the resource-constrained farmers in adopting innovative practices for improved yields. Eliminating food crises is a mammoth challenge within a country like Pakistan where administrative inefficiencies exist. However, since Pakistan's principal natural resources are arable land and water, it is possible to beat food crises inside Pakistan. The main component needed is collective willingness and efficient administrative control. Ministry of Food Security and Research can spearhead meaningful initiatives to foster inter-provincial collaboration that addresses the availability, accessibility and consumption dimensions of food security in Pakistan.

## VIII. ANNEXURE - I

Table - 1

Sindh's Production in Major food crops in last 10 years			
Crops	2008-09	2016-17	% Change
Banana	128.89	111.67	-15.42
Chilli	172.20	126.20	-36.45
Citrus	30.53	26.31	-16.04
Dates	261.95	202.30	-29.49
Garlic	14.31	6.80	-110.44
Onion	660.17	747.50	11.68
Bajra	45.00	23.30	-93.13
Barley	3.60	4.70	23.40
Gram	31.60	18.50	-70.81
Jowar	33.00	12.40	-166.13
Maize	1.70	3.60	52.78
Mash	0.30	0.10	-200.00
Masoor	3.60	0.90	-300.00
Moong	5.80	1.30	-346.15
Potato	3.00	5.60	46.43
Rice	2537.10	2661.60	4.68
Sesamum	3.50	4.80	27.08
Sugarcane	13304.30	20208.90	34.17
Tomato	100.90	195.80	48.47
Wheat	3540.20	3910.40	9.47

Table - 2

Pakistan's Production in Major food crops in last 10 years			
Crops	2008-09	2016-17	% Change
Banana	157.32	134.90	-16.6
Chilli	187.70	142.90	-31.4
Dates	566.49	438.99	-29.0
Onion	1704.14	1833.30	7.0
Bajra	296.40	304.90	2.8
Barley	81.50	58.00	-40.5
Gram	740.50	329.70	-124.6
Jowar	164.50	148.70	-10.6
Maize	3593.00	6134.30	41.4
Mash	13.60	7.20	-88.9
Masoor	14.40	7.60	-89.5
Moong	157.40	130.20	-20.9
Potato	2941.30	3831.70	23.2
Rice	6952.00	6849.30	-1.5
Sesamum	41.00	34.10	-20.2
Sugarcane	50045.40	75482.20	33.7
Tomato	561.90	569.00	1.2
Wheat	24032.90	26673.60	9.9

Table - 3

Table 1.a General Inflation (%) (Base 2015-16)																		
PERIOD	CPI														SPI**		WPI	
	General						Food				Non-Food							
	National		Urban		Rural		Urban		Rural		Urban		Rural		YoY	MoM	YoY	MoM
	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM	YoY	MoM				
Jan-19	5.6	0.3	6.2	0.4	4.6	0.0	2.6	0.3	1.8	0.0	8.2	0.5	7.0	0.0	3.4	0.4	12.6	-0.8
Feb-19	6.8	0.9	7.2	0.9	6.0	0.9	5.9	2.3	5.2	1.7	8.0	0.1	6.7	0.2	7.2	2.4	13.9	1.6
Mar-19	8.6	2.0	8.9	1.9	8.2	2.2	8.8	2.5	9.3	3.3	9.0	1.5	7.3	1.3	10.5	2.1	16.6	2.2
Apr-19	8.3	0.7	8.4	0.8	8.1	0.6	8.3	1.3	9.3	0.6	8.4	0.6	7.2	0.6	10.0	0.5	17.1	1.8
May-19	8.4	0.6	8.5	0.7	8.3	0.5	9.0	1.3	9.7	0.6	8.3	0.3	7.1	0.4	9.9	0.6	16.5	1.5
Jun-19	8.0	0.5	8.1	0.3	7.9	0.7	7.5	-0.3	9.1	0.7	8.4	0.7	7.0	0.7	9.3	0.9	14.0	0.2
Jul-19	8.4	1.8	8.7	2.0	7.9	1.6	7.9	1.0	9.3	1.7	9.2	2.5	6.7	1.5	8.9	1.0	13.3	3.1
Aug-19	10.5	1.6	10.6	1.5	10.3	1.9	11.9	3.1	12.6	2.9	9.9	0.5	8.4	1.1	12.1	2.7	14.1	1.2
Sep-19	11.4	0.8	11.6	0.7	11.1	0.8	15.0	2.0	15.0	1.8	9.7	0.0	8.0	0.0	14.7	1.9	15.9	0.1
Oct-19	11.0	1.8	10.9	1.6	11.3	2.2	13.7	1.4	14.6	2.6	9.3	1.7	8.7	1.8	15.1	2.7	13.3	2.0
Nov-19	12.7	1.3	12.1	1.0	13.6	1.9	16.6	2.4	19.3	3.4	9.6	0.2	9.0	0.6	20.2	3.7	11.2	-0.8
Dec-19	12.6	-0.3	12.0	-0.4	13.6	-0.3	16.7	-1.7	19.7	-1.1	9.5	0.4	8.8	0.4	18.1	-2.0	12.4	-0.3
Jan-20	14.6	2.0	13.4	1.7	16.3	2.4	19.5	2.7	23.8	3.4	10.2	1.1	10.5	1.5	18.3	0.5	15.4	1.8

\*\* SPI for quintile 1. Digits 0.0\* are due to rounding off.

Table – 4

Income Group (Quintile)	SPI (53 items) 2007-08=100			% change over	
	SPI for week ended on 29-08-19	22-08-19	30-08-18	22-08-19	30-08-18
Q1 (Upto Rs. 8000)	250.24	250.54	215.29	-0.12	16.23
Q2 (Rs. 8001-12000)	262.89	263.28	223.58	-0.15	17.58
Q3 (Rs. 12001-18000)	265.14	265.60	225.23	-0.17	17.72
Q4 (Rs. 18001-35000)	275.69	276.22	230.19	-0.19	19.77
Q5 (Above Rs. 35000)	280.44	281.01	229.29	-0.20	22.31
Combined	271.33	271.83	227.17	-0.18	19.44

Table – 5

Yearly Sensitive Price Indicator (SPI) with base 2007-08=100

Period July to June	SPI (Q1)	Percentage Change over Previous Year
2008-09	121.14	21.14
2009-10	136.80	12.93
2010-11	159.47	16.57
2011-12	170.77	7.08
2012-13	184.04	7.77
2013-14	201.15	9.30
2014-15	204.66	1.74
2015-16	207.35	1.31
2016-17	210.59	1.56
2017-18	212.44	0.88



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