

AGRICULTURE AND FOOD SECURITY **IN PAKISTAN**



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Hunger is exclusion – exclusion from the land, from income, jobs, wages, life and citizenship. When a person gets to the point of not having anything to eat, it is because all the rest has been denied. This is a modern form of exile. It is death in life...

Josue de Castro

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1 - Introduction

Prime Minister Shaukat Aziz has approved the export of an additional 500,000 tons of wheat this year in the hope of making inroads into the lucrative Indian market. The export will be undertaken by the private sector by sea and by railways. A bumper harvest of 23 million tons is expected this 2006-07 crop year. Last year, the country also had a bumper crop of 21.7 million tons of wheat. (1) The surplus harvest of wheat, however, does not guarantee food security in the country.

One citizen of Pakistan, Mr. Maqbool, comments that first we will export, and then we will import 'Pakistani wheat' at much higher rates during the time of crises from these neighbouring countries. Another informed citizen, Salman Ali, says there have been serious irregularities in the past in wheat export and then import. The traders mafia (that includes ministers, influential parliamentarians and the private traders plus few industrialists) in our country is very strong and the common consumer suffers the net impact of such malpractices. Government takes decisions in the name of consumers but in actual effect, these are the traders who benefit from exports/ imports and not the consumers.

The profiteering tendency of the global food producers and distributors even at the cost of people's survival is bound to create social and political upheavals. This is a harsh reality which the business people and policy makers have chosen to ignore so far. (2)

Food insecurity amidst plenty is the name of the game in food politics. Despite the fact that global economy is a food surplus economy, 852 million people (17 % of the world population) go hungry every day in the world because they do not have access to food. The chronic hunger kills more people every day than disasters, disease or war. But, all this is when there is enough food to feed the entire population of the world twice. Women in rural areas go hungry the most despite doing the bulk of the work to grow food and feed their families. Women produce up to 80 per cent of the food in developing countries, but they own only one per cent of the land. (3)

The continuation of hunger is directly related to a lack of access or entitlement to food, and to the natural resources essential to the provision of food. Food sovereignty is the right of people to define their own food and agriculture, and to protect and regulate domestic agricultural production and trade. Access and entitlement to food are affected by North-South global divide, particular national policies, gender, class, ethnicity, and rural-urban divide.

1.1 What is food security?

Food security as a concept originated only in the mid-1970s, in the discussions of international food problems at a time of global food crisis. The initial focus of attention was primarily on food supply problems - of assuring the availability and to some degree the price stability of basic foodstuffs at the international and national level. That supply-side, international and institutional set of concerns reflected the changing organization of

the global food economy that had precipitated the crisis. A process of international negotiation followed, leading to the World Food Conference of 1974, and a new set of institutional arrangements covering information, resources for promoting food security and forums for dialogue on policy issues. (4)

The issues of famine, hunger and food crisis were also being extensively examined, following the events of the mid 1970s. The outcome was a redefinition of food security, which recognized that the behaviour of potentially vulnerable and affected people was a critical aspect.

A third, perhaps crucially important, factor in modifying views of food security was the evidence that the technical successes of the Green Revolution did not automatically and rapidly lead to dramatic reductions in poverty and levels of malnutrition.

1.2 Official definitions

The initial focus, reflecting the global concerns of 1974, was on the volume and stability of food supplies. Food security was defined in the 1974 World Food Summit as:

“Availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices”.

In 1983, FAO expanded its concept to include securing access by vulnerable people to available supplies, implying that attention should be balanced between the demand and supply side of the food security equation:

“Ensuring that all people at all times have both physical and economic access to the basic food that they need”.

In 1986, the World Bank report, *Poverty and Hunger*, focused on the temporal dynamics of food insecurity. It introduced the widely accepted distinction between chronic food insecurity, associated with problems of continuing or structural poverty and low incomes, and transitory food insecurity, which involved periods of intensified pressure caused by natural disasters, economic collapse or conflict. This concept of food security is further elaborated in terms of:

“Access of all people at all times to enough food for an active, healthy life”.

By the mid-1990s food security was recognized as a significant concern, spanning a spectrum from the individual to the global level. However, access now involved sufficient food, indicating continuing concern with protein-energy malnutrition. But the definition was broadened to incorporate food safety and also nutritional balance, reflecting concerns about food composition and minor nutrient requirements for an active and healthy life. Food preferences, socially or culturally determined, now became a consideration.

The 1996 World Food Summit adopted a still more complex definition:

“Food security, at the individual, household, national, regional and global levels [is achieved] 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”. (5)

This definition is again refined in The State of Food Insecurity in the World 2001:

“Food security [is] a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”.

Essentially, food security can be described as a phenomenon relating to individuals. It is the nutritional status of the individual household member that is the ultimate focus.

So, **Food security** exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. Household food security is the application of this concept to the family level, with individuals within households as the focus of concern, and **Food insecurity** exists when people do not have adequate physical, social or economic access to food as defined above.

The amount and quality of food available globally, nationally and locally can be affected temporarily or long-term by many factors including climate, disasters, war, civil unrest, population size and growth, agricultural practices, environment, social status and trade.

Affordable age, status, gender, income, geographic location and ethnicity all affect a person's ability to access and afford sufficient food. When there is a shortage of food the rich are unlikely to go hungry but their demand for food increases the price and makes it harder for poor people to obtain food.

1.3 Why food insecurity?

There are a number of factors which cause food insecurity:

1.3.1 Poverty: Poor people lack access to sufficient resources to produce or buy quality food. Poor farmers may have very small farms, use less effective farming techniques, and/or be unable to afford fertilizers and labour-saving equipment, as of which limit food production. Often they cannot grow enough food for themselves and are even less able to generate income by selling excess to others. They may be forced onto less productive land which is prone to further environmental deterioration. Addressing poverty is important to ensure all people can afford sufficient food.

1.3.2 Health: Without sufficient calories and nutrients, the body slows down making it difficult to undertake the work needed to produce food. Without good health, the body is less able to make use of the food that is available. A hungry mother gives birth to an underweight baby, who then faces a future of stunted growth, frequent illness, learning disabilities, and reduced resistance to disease. Contaminated water and food can cause illness, nutrient loss and often death in children.

1.3.3 Water and environment: Food production requires massive amounts of water. It takes one cubic metre (1000 litres) of water to produce one kilogram of wheat and 5,000 litres of water for one kilogram of rice. Producing sufficient food is directly related to having sufficient water. Increasing irrigation efficiency and limiting environment damage through salinization or reduced soil fertility is important for ongoing food availability. (6)

1.3.4 Gender equity: Women play a vital role in providing food and nutrition for their families through their roles as food producers, processors, traders and income earners. Yet their lower social and economic status limits their access to education, training, land ownership, decision making and credit and consequently their ability to improve their access to and use of food. Food utilization can be enhanced by improving women's knowledge of nutrition and food safety and the prevention of illnesses.

1.3.5 Disasters and conflicts: Droughts, floods, cyclones and pests can quickly wipe out large quantities of food as it grows or is stored for later use or planting. Conflicts can also reduce or destroy food in production or storage. Farmers flee their fields for safety or become involved in the fighting. Previously productive land may be contaminated with explosive debris and need to be cleared before it can be used for food production again. Stored food, seeds and breeding **livestock** may be eaten or destroyed by soldiers or opposing groups leading to long-term food shortages.

Box-1

“The Pakistan government has sought United Nations intervention to help avert nutrition crisis among 84,000 displaced persons in Balochistan. They had to leave the comforts of their homes and association of the neighbourhood to save their lives. The government, in the past, had been rejecting the presence of internally displaced persons (IDPs) in the province and had prevented aid groups from helping them. A senior UN official revealed that among 84,000 IDPs facing nutrition, more than 70 per cent were women and children (26,000 women and 33,000 children). The survival of several thousands children was said to be in great danger. The horrifying fact is that a large number of children have already died of acute malnutrition. The Unicef assessment has revealed that 80 per cent of deaths among the IDPs were of children under the age of five. The assessment, however, did not disclose the number

of displaced persons died of nutrition so far, and how many of them were women and elderly people”. (*Weekly Pulse, Islamabad, Dec 29-Jan 04, 2007*)

1.3.6 Population and urbanization: Population growth increases the demand for food. With most productive land already in use there is pressure for this land to become increasingly productive. Expanding cities spread out across productive land, reducing the agricultural production including food production.

1.3.7 Trade: Many poor countries can produce staples more cheaply than rich nations but barriers to trade, such as distance from markets, quarantine regulations and tariffs make it difficult for them to compete in export markets against highly subsidised farmers in rich countries.

1.4 Right to food

1.4.1 Article 25 (1) of Universal Declaration of Human Rights 1948 outlines the right to food as:

1. **Respect:** States must refrain from violating the right to food e.g. discrimination against women, forced displacement from lands. This can also be used for the international perspective – developed countries’ governments should not knowingly violate the right to food of citizens in other countries through e.g. trade rules.
2. **Protect:** Third parties must refrain from violations, and government has a duty to regulate third parties – this relates to corporate violations, regulatory frameworks e.g. for GMOs, and to armed opposition groups.
3. **Fulfill:** States must take positive action to progressively realize the right to food for all – relates to food security policies, trade issues etc.

The right to food is set out in the International Covenant on Economics, Social and Cultural Rights (ICESCR) (Article 11.1), the Convention on the Elimination of Discrimination Against Women (Article 14 g/h), and the Convention on the Rights of the Child (Article 24 c). At national level, there are varying constitutional, civil and customary laws which reflect human rights standards at domestic level.

Box-2

The UN General Assembly, recalling inter alia the 1948 Universal Declaration of Human Rights (UDHR) and the ICESCR, has reaffirmed the right of every one: “to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right to every one to be free from hunger so as to be able fully to develop and maintain their physical and mental capacities.

UN General Assembly Resolution 56/155 of 15 February, 2002

1.4.2 Constitution of Pakistan

Article 38 (d) of the Constitution of Pakistan ensures provision of basic necessities of life including food for the citizens of Pakistan. It says:

“The State shall provide basic necessities of life, such as food, clothing, housing, education and medical relief, for all citizens, irrespective of sex, caste, creed or race, as are permanently or temporarily unable to earn their livelihood on account of infirmity, sickness or unemployment”.

1.5 Components of food security

Food security can be broadly divided into three main components namely; food availability (physical access to food), economic access to food, and equity of food distribution. According to some experts, however, the third component of food security is ‘effective food utilization or absorption’.

1.5.1 Food availability

Food availability is achieved when sufficient quantities of food are consistently available to all individuals. Sources of such a food supply could be household’s own production, other domestic output, commercial imports or food assistance.

1.5.2 Access to food

Access to food is ensured when a household and all members of the household have enough (economic) resources to acquire food meeting the nutritional requirements and dietary needs of the household. Access is thus primarily a function of a household’s income, its distribution within the household and the price of food, besides the physical aspect. Economic accessibility implies that personal or household financial costs associated with the acquisition of food, to meet dietary needs adequately, should be at such a level that the attainment and satisfaction of other basic needs are not threatened or compromised.

1.5.3 Food utilization or absorption

Food availability and economic access to food alone can not ensure food security as proper food absorption is equally important. It has public health dimension and requires a diet providing sufficient energy and essential nutrients, along with access to potable water and adequate sanitation. Food absorption also depends on the knowledge within the household of food storage and processing techniques, basic principles of nutrition, proper child care and illness management. (7)

1.5.4 Equity of food distribution

While there are sufficient resources in the world to provide food security for all, policy and behavioural changes are necessary to guarantee a fair share for all people, especially the poor. Equity is a major issue of concern related to food security, particularly in the context of Pakistan wherein inequity in land holdings and incomes is relatively high. There is a wide variation in income, human development as well as overall development across regions and provinces. Ethnic divide within some provinces makes the intra-provincial inequities more sensitive than they would have been in a homogenous set-up. (8)

2 - Agriculture and Food Security

Land and water are important natural resources for mankind. The demand for food, fiber, and shelter is increasing with the continuous increase in the world's population. The rapid urbanization, continuous tillage, and greater use of fossil fuels, fertilizers and pesticides are polluting the natural resources and environment.

Food production is mainly dependant upon land and water resources. More than 90 per cent of rice and 43 per cent of wheat in the world is produced and consumed in Asia. The rice-wheat system, one of the major cropping systems of the South Asia and parts of East Asia, requires special management. Due to management differences and traditional cultural cultivation practices, the productivity of the rice-wheat system is stagnating and its sustainability threatened.

The introduction of new varieties and chemical fertilizes, during the green revolution of the 1960s, resulted in increase in crop yields. But, intensive cultivation, increased use of fertilizers, pesticides, conventional soil management practices, and improper use of irrigation water resulted in deterioration of land and water resources leading to poor crop yields. Large fertile areas fell prey to water logging and salinity, making small farmers more food insecure.

2.1 Agriculture in Pakistan

Agriculture is considered the mainstay of Pakistan's economy. According to the Economic Survey of Pakistan 2001-2002, nearly one-fourth of total output of the GDP and 44 per cent of total employment is generated in agriculture. More than 67 per cent of the country's rural population is directly or indirectly linked with agriculture for their livelihood. What ever happens to agriculture is bound to affect the livelihood and consequently food security of the poor rural people. Agriculture's share in the GDP has declined from 38 per cent in 1969-70 to 28 per cent in 2001-02. Decline of agriculture and shrinking livelihood opportunities have resulted in rising poverty in rural areas. (9)

Agriculture is an important sector, providing food to the fast growing population of the country. With a population growth rate of 2.23 per cent, there will be a net addition of 3.0 million people each year. According to *United Nations Statement on Food Security in*

Pakistan, 2000, in more than 50 years (1948-2000), the population has increased four-folds but during this period the production of wheat, the major food crop, has increased only 2.9 fold. Pakistan Agricultural Research Council, however, claims that wheat production in the country has increased by 647 per cent (more than 6.4 fold) during 1948 to 2006 whereas increase in the area was 210 per cent during this period. The country's consumption requirement, however, is approximately 21.3 million tons per year.

In Pakistan, agriculture production is dominated by crop production, which accounts for almost 61 per cent of agriculture's GDP (at constant prices). Livestock accounts for almost 35 percent. In 2000, Fisheries and forestry make up about four per cent of the GDP. There are four major crops; wheat, rice, cotton and sugarcane. Among the minor crops the most important are; fruits and vegetables, followed by pulses and oilseeds. The main successes since the 1960s have been in the production of wheat, rice, cotton and poultry products. Although self-sufficiency has not yet been achieved in grain production, rice and cotton have contributed substantially to increased export earnings.

During the period of 1990-91 to 1999-2000, the major crops sub-sector witnessed a growth rate of only 2.87 per cent. The other sub-sectors such as minor crops and livestock did well in the 1990s but fisheries slowed down. Income from forestry is declining due to ban on harvesting enforced since 1997-98 for forestry protection.

Wheat production fluctuated between 14.56 million tons in 1990-91 to 21.5 in 2005-06. The relative success story of wheat, rice and cotton has not been repeated in sugarcane though its production has increased mainly through increased area which went up from 190,000 hectares in 1948 to a record 1.16 million hectares in 1998-99, declining to one million hectares in 1999-2000. Sugarcane yields have remained more or less static. For oil seeds, the country turned from self-sufficiency into a major importer of edible oils. In 2000, the imports represented 65 per cent of domestic consumption. Area under maize has doubled since 1948 but its yield has not shown any significant improvement due to lack of high yielding varieties and most of the crop in NWFP continues to be grown under rain-fed conditions. (10)

Table-1

AREA, PRODUCTION AND YIELD OF WHEAT IN PAKISTAN

Year	Area (m. ha)	Production (m. tones)	Yield (kg/ha)
1999-00	8.463	21.079	2491
2000-01	8.261	19.018	2302
2001-02	8.058	18.226	2262
2002-03	8.034	19.183	2388
2003-04	8.216	19.500	2375
2004-05	8.358	21.612	2586
2005-06	8.303	21.700	2614
2006-07	8.459	23.031	2723 <i>(estimates)</i>
Average	8.219	19.879	2420

Source: Ministry of Food, Agriculture & Livestock, Federal Bureau of Statistics

Wheat being the staple diet is the most important crop and cultivated on the largest acreages (8.459 million hectares during the growing season 2006-07) in almost every part of the country. It contributes 13.7 per cent to the value added in agriculture and 3.0 per cent to GDP. There are progressive farmers of irrigated area who are harvesting 6 to 7 tons yield per hectare. However, farmers yield ranges 0.5 to 1.3 tons per hectare depending on the amount of rainfall. The yield in irrigated area ranges from 2.5 to 2.8 tons per hectare depending upon the amount of water available and other factors.

There is around 60 per cent yield gap in wheat, which needs to be narrowed. Wheat production in the country, however, has been well below potential and variable. The major reasons for low productivity and instability includes: delayed harvesting of *kharif* crops like cotton, sugarcane and rice, and consequent late planting of wheat, non availability of improved inputs like seeds, inefficient fertilizer use, weed infestation, shortage of irrigation water, drought in rain-fed area and terminal heat stress, soil degradation, and inefficient extension services. Moreover, farmers are not aware of modern technologies because of weak extension services system. (11)

2.2 Rural people remain poor

The World Bank's latest, April 2007, report on Rural Poverty in Pakistan states that over the last century, Pakistan has successfully harnessed the Indus River to develop a major irrigated-agriculture sector that remains the backbone of its economy. However, the country is divided by income inequality and geographic disparities that are an increasing source of concern, and which are likely to be potentially destabilizing. These divisions are particularly pronounced in the agriculture sector, as most of the rural poor lack access to land and irrigation water.

After a decade of moderate growth, there is little or no long-term change in rural poverty in Pakistan. The impressive achievements (during the past few years) notwithstanding, there is not yet cause for complacency. Approximately 35 million rural people remain poor (accounting for about 80 percent of Pakistan's poor), and rural poverty rates in 2004-05 were still at levels approximating those of the 1990s. And in spite of improvements, non-income measures of welfare related to health and education are low in comparison with those of other countries in South Asia. Infant mortality per 1000 live births is 82 in Pakistan (88 in rural areas), compared to only 62 in India, 56 in Bangladesh and 12 in Sri Lanka. The national primary school enrollment rate for girls in Pakistan is only 48 percent (42 percent in rural areas), compared to 86 percent in India.

The longer term agricultural GDP per capita growth rate (1999-2000 to 2004-05) was only 0.3 percent annually. In addition, much of the improvement in total incomes can be attributed to a steep rise in net private unrequited transfers from abroad (including workers' remittances). By 2005-06 these transfers averaged more than Rs 3,000 per person for Pakistan's entire population, equivalent to more than two-thirds the real output of crop agriculture or livestock production. Yet, these transfer incomes, some of which accrue to rural households or are spent on rural and small-town products and services, may not continue to grow at the rates of recent years. (12)

2.3 Who are the Rural Poor?

Although agriculture is at the heart of the rural economy, the majority of Pakistan's rural poor are neither tenant farmers nor farm owners. Farmers (including both owners and tenants) comprised only 43 percent of households in the bottom 40 percent of the rural per capita expenditure distribution in 2004-05. Non-farm households (excluding agricultural labourer households) accounted for slightly more than half (52 percent) of the poor. Overall, agriculture (including both crop and livestock production) accounts for only about 40 percent of rural household incomes; the poorest 40 percent of rural households derive only about 30 percent of their total income from agriculture.

Box-3

A Class-for-Itself?

Small farmers have long been viewed as a doomed class by many economists, technocrats, policymakers, and urban intellectuals. Once regarded as passive objects to be manipulated by elites, they are now resisting the capitalist, socialist, and 'developmentalist' paradigms that would consign them to ruin. They have become what Karl Marx described as a politically conscious 'class-for-itself.' And even as peasants refuse to 'go gently into that good night,' to borrow a line from Dylan Thomas, developments in the 21st century are revealing traditional pro-development visions to be deeply flawed. The escalating protests of peasant groups such as Via Campesina, are not a return to the past. As environmental crises multiply and the social dysfunctions of urban-industrial life pile up, we realize that the farmers' movement has relevance not only to peasants, but to everyone who is threatened by the catastrophic consequences of obsolete modernist paradigms for organizing production, community, and life.

Walden Bello

A major reason for the large proportion of rural non-farm poor in Pakistan, as well as poverty levels among small farmers, is the prevailing highly unequal distribution of land and access to water. According to the 2000 Agricultural Census, only 37 percent of rural households owned land, and 61 percent of these land-owning households owned fewer than five acres, or 15 percent of total land. Access to usable water is also quite unequal which is a major cause of lower productivity in the dry lands (*barani*) relative to irrigated land, land at the tail end of watercourses relative to land at the head end, and areas with saline groundwater as compared with areas that have sweet groundwater. Because of this skewed distribution of ownership and access to productive assets, much of the direct gains in income from crop production, particularly irrigated agriculture, accrue to higher-income farmers. (13)

2.4 Agricultural growth is not enough

The World Bank's report further states that agricultural growth is a necessary, but not sufficient, condition for rapid reduction of rural poverty. Agricultural growth remains

important to raise the incomes of small farmers and to generate growth linkages by increasing demand for rural non-farm goods and services. However, in most of rural Pakistan, the impact of agricultural growth linkages on rural poverty is limited for two reasons. First, much of the gains in rural incomes are spent on urban goods and services. Second, gains to non-agricultural rural incomes and employment as a result of growth linkages are shared among a large number of rural poor.

Pakistan's rural and small-town non-farm sector, however, faces numerous constraints, particularly concerning access to credit and inadequate infrastructure. As in other South Asian countries, the non-farm sector in Pakistan's rural villages and small towns primarily consists of family based micro-enterprises, averaging only about two workers per enterprise. Poor road infrastructure raises transport costs and reduces profitability. Lack of access to reliable electricity (half of village enterprises reported power outages of 20 days or more in a typical month) limits production or necessitates private investment in generators.

Moreover, high rates of rural-urban migration and the increasing integration of the rural and urban economies point to the importance of investment in human capital, in addition to policies addressing growth of the agricultural and rural non-farm sectors. As in most of Asia, Pakistan's economy is in the midst of a major transformation involving growing urbanization and increased linkages among rural, urban and international markets. About two-thirds of Pakistan's population lives in rural areas, where average per capita expenditures are 31 per cent lower than those in urban areas (Rs 1259/month and Rs 1818/month in 2004-05, respectively). (14)

3– Food Poverty

Food insecurity in Pakistan is a product of poverty and inadequate food availability. The term food poverty is commonly used to determine the level of poverty viz-a-viz food security in a country. During the past two decades, 1987-2007, food poverty incidence in the country shows that about one-third of the households were living below the food poverty line and they were not meeting their nutritional requirements. The incidence of food poverty is higher in rural areas (35 per cent), than in urban areas (26 per cent). Urban and rural areas, however, did not differ much in terms of calorie intake per capita, the differences across the four provinces were also not substantial. The problem lies in the non-equity of food distribution within each of these categories and even within the members of the household.

The national household survey in 1998-99 showed that household income was usually used to buy food items from the market. The value of food items produced and consumed was about 19 per cent of the total monthly household food expenditure. The proportion of the food items received as 'wages in kind and consumed' was less than one per cent. The survey indicated that disabled and/or aged persons and widows usually living alone were the principal receivers of food assistance, probably from their relatives and neighbours.

The major difference in the mode of procurement of consumed food items was between rural and urban areas. Households located in urban areas used their incomes to buy food from the market, while rural households produced substantial proportion of food required for their subsistence. The other major difference was between poor and non-poor households within the rural areas. A large proportion of non-poor households had access to agricultural land, the value of food items they produced and consumed was about 48.4 per cent of their total monthly food expenditure. In the case of poor rural households, this share was only 30 per cent.

Table-2

ACCESS TO FOOD BY RURAL POPULATION IN PAKISTAN								
Access Zone	Punjab	NWFP	Sindh	Balochistan	Northern Areas	AJK	FATA	Total
DISTRICTS								
Extremely	5	17	6	15	5	1	7	56
Low								
Very Low	7	5	4	5	-	1	-	22
Low	6	-	4	5	-	2	-	17
Moderate	5	1	2	-	-	1	-	9
High	11	1	1	1	-	2	-	16
Total	34	24	17	26	5	7	7	120

FSA 2003

The survey showed that procurement of food items had some relationship with both poverty and farm/non-farm status of households. Poor and/or non-farm households generally buy food that is required for their subsistence, while farm households appear to be relatively better off because they produce a substantial proportion of food required for basic subsistence.

There was no significance difference in the prevalence of chronic malnutrition in low and medium socio-economic groups but was significantly low (26% less) in the high socio-economic group. This showed that the low and medium groups lack the purchasing power that hinders their food consumption levels while in the high socio-economic group the lack of adequate nutrition education may be the main cause. (15)

Box-4

With the globalization of the market, and the associated curtailing of subsistence agriculture, the pre-dominant method of establishing an entitlement to food has become that of the exercise of purchasing power, and consequently it is those without purchasing power who will go hungry amidst a world of plenty.

Amartya Sen

4 - Food insecurity in rural Pakistan

Food insecurity and consequently food poverty has been on increase over time. Among the possible reasons *inter alia* are the sharp increase in market price of food items compared to wages, non-equity in food distribution, slow growth in public sector and deteriorating land and water resources.

Food Security Analysis (FSA) of Pakistan conducted by Sustainable Development Policy Institute (SDPI) and United Nations' World Food Program (WFP) does not agree with the commonly held opinion that Pakistan is moderately food secure at macro level. The FSA's findings support the argument that hidden hunger is more pronounced in Pakistan than what macro picture of food security presents. In view of growing population pressure and resultant demand of food, the study estimates an annual shortfall of 3.2 million tons of wheat alone, the main staple, on the basis of average annual wheat harvest of 18 million tons.

FSA 2003 for rural Pakistan was undertaken from June 2003 to June 2004. It analyzed, using a set of relevant indicators, available secondary data on the basis of three key determinants of food security namely physical access to food (availability), economic access to food and effective biological utilization (food absorption). Its findings translate into a "State of Food Insecurity" prevailing in rural Pakistan.

Food availability was assessed on the basis of food production and consumption. Out of 120 district settings in Pakistan, 74 (62%) were found to be food deficit in terms of net availability. This deficit varies ranging from low through high to extreme degree. Wheat, a staple catering for 48 per cent of caloric needs in Pakistan, was found deficit in terms of net availability, and the shortage was estimated at 3.2 million tons annually. Out of 120 districts, only 48 (40%) were producing surplus or enough to cater to the needs of those districts.

Table-3

WHEAT PRODUCTION AND DEMAND IN PAKISTAN					
Districts	Surplus Districts	Deficit Districts	Surplus (29 Districts) Net Production In 000 M Tons	Additional Requirement in Deficit districts in 000 M. Tons	Surplus [+]/ Deficit [-] in 000 M. Tons
Punjab	20	4	2823.38	1601.67	1221.71
NWFP	-	9	-	1745.63	-1745.63
Sindh	6	22	622.35	2181.55	-1559.20
Balochistan	3	18	150.90	612.03	-461.13
NAs	-	5	-	69.04	-69.04
AJK	-	7	-	295.39	-295.39
FATA	-	7	-	313.60	-313.60
Total	29	72	3596.63	6818.91	-3222.28

The analysis ranked, in terms of availability, NWFP, Northern Area (NAs) and Azad Jammu and Kashmir (AJK) as net food insecure.

The study also indicates that mega cities pitted against mounting population pressure are also being adversely affected. For example, even in wheat surplus province of Punjab, provincial capital Lahore, home to 81 per cent of the district population, was among the net food insecure zones in terms of availability.

On overall crop-based food availability (exclusive of livestock products), out of 120 districts, 39 (32%) had surplus production, 6 (5%) were self-reliant while 35 (29%) were extremely insecure and 40 (33%) experienced deficit of low to high degree. (16)

In terms of economic access to food, as against food availability, FSA 2003 revealed that income inequality factors especially land, and access to opportunities such as education and employment have led to a wide range of disparities. Consequently, women, labour, landless and small farmers are being adversely affected in terms of access to food.

Reduced capacity of agriculture sector in terms of gainful employment is another important factor impacting opportunities in rural Pakistan. Further, as majority of holdings were small, such as in 105 (88%) out of 120 districts, percentage of marginal cultivators having less than one acre of land was to 30 per cent. The small farmers were thus unable to enhance agricultural productivity beyond a certain limit for want of resources and economy of scale. The low income of 96 (80%) districts out of 120 found further plunging into low through very low to extremely low income bracket, impacted economic access to food. (17)

Table-4

PER CAPITA INCOME IN PAKISTAN								
Level of Income	Punjab	NWFP	Sindh	Balochistan	Northern Areas	AJK	FATA	Total
DISTRICTS								
Extremely Low	2	11	4	4	4	2	7	34
Very Low	18	7	6	10	1	5	-	47
Low	7	3	2	3	-	-	-	15
Moderate	3	3	5	5	-	-	-	16
High	4	-	-	4	-	-	-	8
Total	34	24	17	26	5	7	7	120

Effective biological utilization or food absorption was assessed on the basis of parameters including access to safe drinking water, immunization cover and infant mortality, access

to medics and paramedics and rural health infrastructure. It revealed that out of 120 only 11 (9%) districts of Pakistan performed reasonably well while 45 (38%) experienced extremely low rate of food absorption. The contributory factors to this state of affairs include *inter alia* the poor access to potable water, for example in 113 (94%) out of 120 districts, safe drinking was available to less than 50 per cent of the population. It implies that 50 per cent of the population uses unsafe water which contaminates food. (18)

Table-5

SAFE DRINKING WATER IN RURAL PAKISTAN								
Percentage	Punjab	NWFP	Sindh	Balochistan	Northern Areas	AJK	FATA	Total
DISTRICTS								
0-10	16	1	2	11	-	-	2	32
11-20	9	4	13	9	-	-	2	37
21-30	8	5	1	3	3	3	3	26
31-50	1	11	-	-	2	4	-	18
51 and above	-	3	1	3	-	-	-	7
Total	34	24	17	26	5	7	7	120

FSA 2003

5 – Strategic options

5.1 Agricultural growth has played a major role in the country's development and continues to be crucial for overall growth and poverty reduction. World Bank's report on Rural Poverty suggests following options **to reduce poverty**;

- Promotion of efficient and sustainable agricultural growth to raise the incomes of small farmers and to generate growth linkages in the rural non-farm economy. Programs to increase livestock production, especially production of dairy cattle and milk in Punjab and Sindh, and sheep and goats in NWFP and Baluchistan, could have significant direct impact on the incomes and food security of the rural poor,
- Creation of an enabling environment for the rural non-farm sector to enhance employment and incomes, and improve rural public service delivery in infrastructure, health and education to serve as a foundation for growth and to increase household welfare and food security,
- Enhancement of the effectiveness and governance of rural institutions through decentralization and strengthen local demand for enhanced accountability. Five years after devolution, there is still confusion regarding the roles and responsibilities of the various levels of government, as well as apparent jurisdictional overlaps. Immediate steps should be taken to begin to alleviate these administrative constraints and improve the efficiency of spending, and

- Empowerment of the poor and protection of the most vulnerable through social mobilization, safety nets and by facilitating access to productive assets for income-generating activities for poverty reduction and food security. (19)

5.2 Food security has basically three dimensions; adequacy of food supply, access to food, and equity of food distribution. All these dimensions require special interventions and enabling environment for ensuring household food security. Following are the policy and strategic options recommended by the United Nations System in Pakistan **to reduce food insecurity**; (20)

5.2.1 Sustainable and efficient utilization of the natural resources

- **Land:** Land related problems like depleting soil fertility, soil erosion, water logging and salinity needs immediate attention to achieve yield potential of crop. The other option is to take up new lands for agriculture. At the moment there is about 4 million acres land in the riverine belt of the country which should be distributed among local landless peasants. These are virgin lands where there is no shortage of moisture. The special conditions attached to these areas, especially bio-diversity have to be taken into consideration.
- **Water:** The efficient and effective use of irrigation water is most crucial to the future of Pakistan. It is also necessary that the government should plan for the future needs, taking into account agricultural, domestic, and industrial demand of the future and impact on the environment. There is urgent need for the government to ensure adequate and timely availability of water for farming to enhance food production and availability. The lowering of the water table is a serious issue in Balochistan, where the installation of large number of tubewells for irrigation is the main factor. Efficient utilization will not only promote food production, but also ensure the sustainable use of the ground water. In arid areas of the country like Cholistan, Tharparker and greater part of Balochistan, efficient rainwater utilization can be done through better water harvesting techniques and more efficient use of the available water resources. In the Rod-Kohi and dry mountainous areas, rainwater harvesting, storage and management including increasing the capacity of the main reservoirs should be given higher priority.

5.2.2 Proper application of physical inputs

- **Seed:** Improved seed is one of the important factors in crop productivity enhancement, but unfortunately this category of seed coverage is within low range of 14-20% for wheat and other major food crops. The productivity of the food crops can be substantially enhanced through increased use of quality seed.
- **Fertilizer:** Proper use of organic and inorganic fertilizers is also critical for maintaining soil fertility to enhance agriculture productivity. Fertilizers should be used according to the site-specific requirements of crops. The current use of plant nutrients is not only imbalanced and inadequate, but inefficient as well. The use

of organic and inorganic fertilizer needs to be encouraged in an integrated manner.

- **Credit:** Due to the financial limitations, the small farmers are largely dependent on credit to procure agriculture inputs. The existing credit procurement system is complicated and not in easy access to small farmers. There is an immediate need to simplify such procedures. The agriculture loan should be broad based, and flexible enough to provide credit for variety of agriculture related activities. Credit should be extended to the rural non-farm households, including rural poor, landless farmers and women for their income generation. .
- **Pesticides:** There is indiscriminate use of pesticides for plant protection. Integrated Pest Management should be promoted for sustainable plant protection. In this regard, policy changes have to be made, and effective implementation arrangement has to be put in place.

5.2.3 Productivity enhancement of major food crops

- **Wheat:** The yield range for the wheat is in the range of 0.8 to 5.5 tons per ha. This clearly indicates that through improved management the gap can be reduced, and correspondingly substantial increase would be obtained in the production. In view of the special concern for food security, a quick and sustainable increase in wheat productivity is essential.
- **Rice:** The yield of rice is about 2.0 tons/ha against expected yield of 2.56 tons/ha. This increase in yield could be easily achieved through good management practices at farm level. Rice productivity can be increased through increasing plantation intensity, mechanized transplanting and reducing post harvesting losses. The strategic option for the rice would be to increase the productivity of the crop, while keeping the same area under this crop due to its high water requirement.
- **Maize:** This crop is mainly grown in the rain-fed areas of NWFP and Punjab. The current production level is about 1.7 million tons. Maize can play an important role in food security as it is grown in poor areas of the country (the mountainous and rainfed areas), which are generally food insecure. The potential of maize to contribute towards more nutritive food for human consumption is high. Presently, the maize yield is far below its potential (1.5 vs.10-12 tons/ha) which should be enhanced.
- **Oil seed:** The local production of the oil seed is low, and the country imports a large quantity to fulfil the demand of the fast growing population. There is a need to exploit the potential of the oil crops by creating more attractive and conducive environment through the establishment of an effective marketing system of oil seed crops, besides bringing new varieties of high yield.

5.2.4 Identification and targeting the food insecure people

- In the context of access to food, it would be important to identify the food insecure people, who are financially poor and are unable to acquire sufficient food, even if the overall supply of food in the country is sufficient, and to improve co-ordination, information and statistical data on food insecure and vulnerable groups.

5.2.5 Diversification of on-farm and off-farm income generation activities

- In order to raise the financial capability of the poor specially women to have purchasing power for the essential food items, diversification of income both from on-farm and off- farm should be encouraged. There is great scope and potential of increasing yields of short-term cash crops, like vegetable items produced and marketed in the nearest urban areas. This is especially the case with lands situated in the urban and peri-urban areas where proximity to large towns enables an efficient marketing strategy. This can be further integrated into livestock and small ruminant development. This would require the integrated development of the farming system as a whole.

5.2.6 Stabilization of input and output prices

- Keeping in view, the poor financial situation of the food insecure people, it would be required to put in place input and price polices in such a way to rationalize the prices of both inputs and outputs. Sudden and drastic changes and fluctuations would definitely affect poor to have access to food. At the top of it is to give the farmer a fair return in the market place.

5.2.7 Inter-regional and urban-rural disparity

- In spite of adequate food production at the national level, severe food shortages have been experienced in certain parts of the country. These food shortages are considered to be the most significant threat to food security in these areas. Besides, growing urban populations coupled with decreased economic activities has resulted in massive urban slums with millions of food insecure people including female-headed households. Similar population increases in rural areas has exasperated the food insecurity situation. The traditional coping mechanisms of rural societies are severed in the urban areas with little or less reliable substitutes. This adds a drastic complication to the food insecure urbanites. Investments in agriculture and related rural infrastructure would sustain more population in the rural areas thus benefiting the immediate area as well as relieving urban areas of future immigrants.

5.2.8 Distribution of land and access to the resources and inputs

- The distribution of land resource is skewed. In addition, large farmers have easier access to resources like water, and credit. Small farmers suffer from resource starvation. Even within the small farmer category, there is a case for improving the conditions of the poorest of the poor i.e. those that own one hectare or less. Therefore more emphasis should be made to facilitate easy access of the majority of small farmers to the land, water and other essential agriculture inputs. This will help in the overall agriculture growth of the country.

5.2.9 Gender inequity

- Inequity is greatly reflected in gender. In the rural areas, the women are generally uneducated, and the male members control the resources, in spite of the fact that the female contributes a lot of labour for food production. In this way they are unable to maintain their own assets. It will be required to focus more on women and children, especially girls to bring them at par with other members of the family.

5.2.10 Skill development and exposure to the development

- Skill development and capacity building are important factors for equity. Well-trained farmers will have more confidence for undertaking small food related enterprises, which would help in their economic uplift. Efforts have to be made to develop capacity of the farmers (both male and female) for undertaking small businesses and enterprises.

5.2.11 Improving the nutritional aspects of food

- Ensuring the food security for household is not only related to availability, but also whether the food fulfils the nutritional requirement of its consumer. Through balance diet and good food quality and removal of gender inequity, the nutritional aspects of the food security can be enhanced. Exploring and promoting cheaper alternatives for nutritional requirement is a necessity.

5.2.12 Vegetable and Pulses Production

- In order to provide the required proteins and vitamins, it will be important to promote household vegetable production in the form of kitchen gardens. Poor and small farmers do not have the financial resource to buy these items from the open market, and they heavily rely on cereal, which fulfills the caloric requirement of the body, but lack the nutritional part of it. Growing vegetables and pulses will compensate for the nutritional value of the food. Similarly pulses can compensate for meat, which is generally beyond the purchasing power of poor farmers.

5.2.13 Rural poultry and rearing of small ruminants

- Rural poultry is another important protein source, which can be promoted for improving nutritional aspect of the diet. In this regard rural poultry have to be brought as potential intervention for the rural areas. It is a women intervention and is known as a widow's industry. The peri-urban areas could certainly take advantage of this. Small ruminants are reared mainly by the small farmers and landless. For them it is a source of cash reserve, as well as nutritional resource. The possible interventions would include providing access to credit for such intervention with soft collateral. Also the selection of proper animals according to the terrain and feed availability is helpful.

5.2.14 Inland fisheries

- The field of inland fisheries could bring phenomenal increase in income, as this would be primarily in the urban, peri-urban and in some case where infrastructure exists for peri-rural areas. The private fish farming would be good venue for future investment for the food insecure areas, especially in the waste and water logged lands.

6 – Supporting requirements

6.1 Removing policy distortion

- There is a need for a continuous review of macro-economic framework to remove the policy bias against agriculture. Policy distortions not only depressed the prices for major crops but also resulted in large price variations between years. There is a need to evolve a policy that keeps this variation within narrow bands. There is a need for government to rationalize public investment as this encourages private investment in agriculture.

6.2 Provision of rural infrastructure

- Rural infrastructure and human resource development have the attributes of "public goods", especially in a society composed of a large number of small farmers and poor people. The provision of an effective rural infrastructure, particularly rural roads, electricity, drinking water, and educational and health facilities is one of the most important instruments that relaxes the constraints faced by the farmers and the non-farming poor rural people.

6.3 Human Resource Development

- Raising the literacy level is an essential condition for the success of rural development programs. There is also a need to give vocational training to both farmers, workers in small-scale rural enterprises and traders and entrepreneurs

and to strengthen the agricultural colleges and universities in their efforts to produce better research and extension manpower.

6.4 Research and extension support services

Research system needs a thorough revamp in terms of focus, mandate, management and manpower planning and development. Research on high value crops, livestock, fisheries, Forests' conservation, post-harvest handling, irrigation water management and management of soils problems need to be given much higher priority. The provincial extension services also need overhauling. It should give more emphasis to technology demonstration and the use of broadcast media to spread its messages. It needs further focus on middle and small farmers using group participatory approach and to strengthen its linkages with the research institutes. (20)

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Food Democracy vs Food Dictatorship

In any case, amaranth is not the only source of protein in India's rich bio-diversity and cuisine. Our "dals," pulses, and legumes that are a staple with rice as "dal-chawal" and with wheat as "dal-roti" are rich in protein. The consumption of "dals" and pulses provides much higher levels of proteins than genetically engineered potatoes can. Pulses are also necessary for sustainable agriculture, since they are nitrogen-fixing crops and provide an ecological alternative to chemical nitrogenous fertilizers. Pulses have been made expensive by being made scarce through the spread of green revolution mono-cultures of wheat and rice. In (Indian) Punjab alone, the area under pulses went down from 13.38 per cent to 3.48 per cent during 1966-67 to 1985-86. Traditional agriculture was based on mixtures of cereals and pulses. New initiatives like Navdanya are rejuvenating mixed cropping with pulses to increase both nutritional security and ecological security.

GM foods are intrinsically linked to food dictatorship. The first level of control comes from the fact that a handful of gene giants—Monsanto, Syngenta, Aventis, Dow, Dupont—control agricultural biotechnology. The second level of control comes from intellectual property and patent monopolies over GM seeds and plants. The third level of control is created by stifling freedom of information and choice. GM crops are only spreading where farmers are denied freedom of information and freedom of choice because of corporate control and dependency. GM foods are entering the food chain where consumers are denied the right to know and the right to choose. U.S. farmers are the most trapped under corporate control of inputs and marketing. U.S. citizens have been denied food freedom and food democracy by corporations preventing labeling of GM foods.

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