

*Shafqat Shehzad*

## **PAKISTAN'S FOOD SHORTAGES AND IMPLICATIONS FOR HEALTH STATE AND POLICY**

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### **Abstract**

Pakistan has witnessed consistent increase in food prices over the past several years. These inflationary food prices, together with other factors, such as lack of resources devoted to agriculture, water resource availability, lack of adequate alternatives to agricultural products (such as dairy and livestock products), are stressing the already poor population health state in the country. Although, there are some relief measures initiated by the government for the poor households, the efforts remain disintegrated and do not aim at bringing structural change in the situation. Food security is not protected by law and efforts to mitigate adverse health situation associated with food shortages are scanty. The paper proposes to address food and health issues together. Treating health as a cross cutting theme in other sectors of the economy such as food and agriculture may help facilitate progress towards attaining Millennium Development Goals (MDGs) of hunger reduction and health improvement simultaneously.

### **1. INTRODUCTION**

The current food crisis (shortage of basic food supplies to the masses) is badly hampering Pakistan's poverty reduction strategies and the state of human development. If the situation remains unchecked or unaddressed, increase in international food prices and overall economic slow down can have devastating effects on the survival and wellbeing of the people. The highest impact is expected to be on the people who earn less than a dollar a day, because of the sharp decline in their purchasing power and affordability of basic food items. Although, the government has very recently started an income support program for the poor households, there are issues for its comprehensive coverage and sustainability. Due to many socioeconomic, global and political reasons, efforts for adjusting domestic food prices, that have minimum adverse effects on the poor people, appear to be insufficient. The presence of other confounding factors, such as shortage of water, lack of adequate shelter and income generating

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activities for the poor, hamper poverty alleviation strategies and make people less resilient to tight socio-economic situations.

It is in this backdrop that an attempt is made below to probe into the causes of Pakistan's food shortages and assess their implications for health state and policy of the country. The paper is divided into five sections. While the ongoing Introduction is Section 1 of the paper, Section 2 explores the linkages among food, health and economy. Section 3 analyses the factors responsible for the current food shortage in Pakistan. Section 4 evaluates the impact of the current food shortages on health and economy. Finally, Section 5 deals with the policy implications.

## **2. FOOD, HEALTH AND ECONOMY**

### **2.1 Indications of Poor Population Health**

According to the government sources, total population of Pakistan in 2007 was 163.9 million, making it a very highly populated country [1]. Out of this 163.9 million, 17 per cent live below the poverty line earning less than a dollar a day [2]. Widespread poverty in Pakistan is confounded by high population growth rate, high infant, child and maternal mortality rates, and prevalence of high burden of communicable diseases [3]. Pakistan's Demographic and Health Survey, 2007 reveals major causes of deaths of children as malnutrition, diarrhoea, acute respiratory illnesses and other preventable diseases [4]. According to the same sources, high maternal mortality rate is affected by high fertility rate, high malnutrition rate, widespread illiteracy, births attended by low skilled attendants and lack of access to emergency obstetric care services.

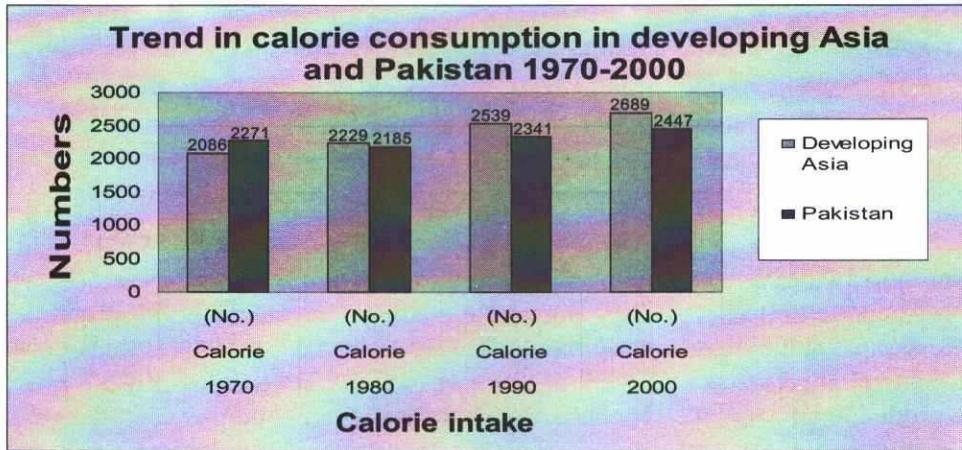
The World Health Organization (2008) finds out that, in a society where major expenditure heads are bounded by food, shelter and health care, about 2.3 per cent of households are estimated to experience financial catastrophe due to health care costs [2]. Pakistan's various health and nutritional studies found serious deficits in nutritional status of population [3, 5]. In Pakistan, the proportion of population that lives below minimum level of dietary energy consumption was 30 per cent in 2000-01 and proportion of population below calorie based food plus non-food poverty line was 34.5 per cent in the same year [6]. More recently, at the national level, 24 per cent of population is under the calorie based food plus non-food poverty line and more than 41 per cent of children under the age of five are underweight for their age [4]. Over half of the children are affected by stunting and about 9 per cent by wasting [4].<sup>1</sup> There are

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<sup>1</sup> Stunting: Number of children stunted, expressed as a percentage of the total number of children under five years of age. A child whose height is below 2 standard deviations of the median height of his/her age is classified as stunted: low height for age.

also significant regional variations in malnutrition rates observed for Pakistan as compared to other developing countries of Asia. Figure 1 shows trends in calorie consumption in developing Asian countries *versus* Pakistan in different decades. The trend shows that calorie intake for Pakistan has significantly reduced, 2477 calories as compared to 2689 calories for other developing economies of Asia in the year 2000.

Figure-1



Source: FAOSTAT URL: <http://www.fao.org>

Figure 1 shows that the number of calorie intake to Pakistani households is 2447 calories, which is significantly lower than other Asian countries, 2689 calories in the year 2000. Household surveys in Pakistan categorize poor households in terms of calorie intake and differences in calories reflect on nutritional poverty among households. Such calorie consumption defines cut off points between poor and non-poor households. Reduced calorie intake is associated with the prevalence of malnutrition, and this low food consumption usually shows its adverse effects on health through wasting, stunting and low birth weight [6, 22].

In Pakistan, 36.8 per cent children suffer from stunting (height for age is <2SD of the median height of the WHO reference) and 13 per cent children are classified as wasted (where weight for age is <2SD from median reference of the WHO reference) and 38 per cent of under 5 children are under weight<sup>2</sup> [4]. In Pakistan, 26 per cent babies are born with low birth weight (less than 2.5kg) and the proportion of children born smaller than the normal size has increased from 22 per cent in 1990-91 to 31 per cent in 2007, showing the difficulty in meeting

2. Wasting: Number of wasted children, expressed as a percentage of the total number of children under 5 years of age. A child whose weight is below 2 standard deviations from the median reference of the international standard is wasted: low weight for height.

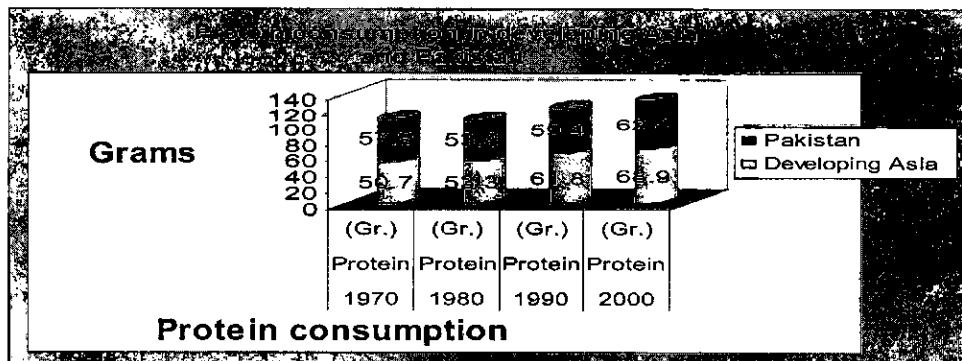
<sup>2</sup> SD = standard deviation

the targets of reducing low birth weight deliveries [4]. Another recent study (2004) reports that 33 per cent children are born with low birth weight and 31.5 per cent boys and 25 per cent girls have birth weight less than 2 standard deviations [5]. The sources also reports 12.5 per cent children suffering from vitamin A deficiency [4, 5].<sup>3</sup> International sources rank Pakistan at number 88 among 119 developing countries and Pakistan falls in the category in which the hunger situation is deemed “alarming” and holds serious health impacts [2, 7]. Anaemia is also widely prevalent among mothers and children in Pakistan. Prevalence of anaemia in pre-school age is estimated at 50.9 per cent of the population and according to the sources of the WHO, it is recognized as a severe public health problem in Pakistan [3, 9].

The proportion of pregnant women with anaemia (haemoglobin level of less than 12 g/dl among pregnant females) is estimated to be 39.1 per cent of the population and 27.9 per cent among the non-pregnant women [8, 9].

Reduced food consumption is also associated with increased morbidity and eventually death that can usually be controlled or prevented if quality food consumption is ensured. Poor nutritional status is, therefore, the most pressing problem for the vulnerable groups in Pakistan, such as expecting mothers and children. Much empirical work shows a strong link between nutritional intake, health and poverty [10, 11]. Their work shows that if a country’s overall level of economic development is low, it may also be associated with low level of health status of general population. In Pakistan, over the years, socioeconomic indicators have been on the fall. Although, at the household level, linkages between food shortage and poor health have not been established due to lack of data, some macro-level comparisons for protein consumption levels for Pakistan and the countries of developing Asia are presented below to reflect on the situation.

Figure 2



Source: FAOSTAT URL: <http://www.fao.org>

<sup>3</sup> Percentage of preschool with serum vitamin A level of  $\leq 0.69$   $\mu\text{mol/l}$

Figure 2 shows that besides lower levels of calorie intake, protein consumption in Pakistan is also significantly low, (62.4 grams) as compared to (68.9 grams) for other developing economies in the year 2000. The households that are not able to ensure adequate intake of protein consumption, suffer from Protein Energy Malnutrition (PEM). The following table shows classification of arm circumference based on PEM.

List of Tables

**Table 1**  
**Classification of Arm Circumference**

Categories	Arm Circumference in cm	Arm Circumference for height ( per cent of reference standard)	Arm Circumference for Weight ( per cent of reference standard)*
Well nourished and mild PEM	13.5 or more	85 per cent or more	80 per cent or more
Moderate PEM	12.5-13.5	70-85 per cent	70-80 per cent
Severe PEM	under 12.5	Under 70 per cent	Under 70 per cent

Source: de Goyet, C. de Ville, J. Seaman and U. Geijer, (1978, p.30) [27].

\*Note: Equivalent SD (Z-score) values are 80 per cent, minus 2 SD; 70 per cent, minus 3 SD.

a: Protein Energy Malnutrition or (PEM).

According to a study, these standardized Z scores for arm circumference of Pakistani children under 5 years of age, and reported prevalence of severe PEM specifically as a result of the lack of access to quality food and health care [5].

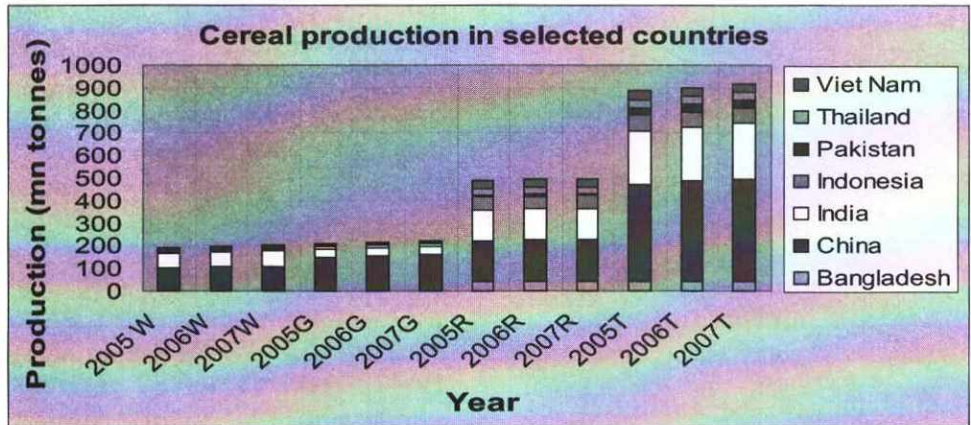
## 2.2 Indications of Poor Food Availability

In Pakistan, rising food prices have put masses of population at risk of malnutrition. Food price increases entail desolate human conditions as the purchasing power of already poor people declines and people face a greater risk of hunger and malnutrition. Increase in food prices forces poor people to consume poor quality food and poverty pushes masses of population in hunger. Some empirical work finds out that it is not always correct to associate hunger with lack of calories alone, see for example, UNDP, 2007 [18]. Although hunger is one condition of poverty that is associated with lack of food, the quality of food consumed (and the importance of other nutrients) has long-term implications for health, longevity and human productivity [12, 23].

In Pakistan, food stock has been declining steadily over time, and price increases have directly reduced supplies of basic food necessities. In order to protect the welfare of the poorest, stringent food support measures are needed besides the income/financial support to make up for the reduced purchasing power of the very poor. There are many factors that are linked with food

shortages in Pakistan and one of them is the reduction in cereal production in Pakistan. The following diagram shows state of cereal production (wheat, grains, rice) for the selected countries since 2000. The production numbers show that as compared to other large cereal producing countries, Pakistan's share is lower than other developing countries such as India, China and Indonesia.

Figure 3



Source: URL: <http://www.fao.org/docrep/010/ah873e/ah873e06.htm>

According to Food and agricultural organization (2000), in countries like China, and Indonesia, poverty reduction was mainly the result of increases in economic growth, whereby agricultural growth played a significant part in generating incomes in rural areas, where most of the poor reside [13]. Improvements in food security made an important contribution to fall in poverty and to the progress made in combating hunger. Asian Development Bank (2000) finds out that in these countries, cereal production doubled over the previous decades, with almost all of the increase stemming from higher productivity on practically the same amount of agricultural land [11]. In parts of rural Asia, technology played an important role and the problem of food shortage was largely solved [11, 13].

Figure 3 shows that as compared to selected countries, such as China, India and Indonesia, the production of wheat, grains and rice has been low in Pakistan. Despite the fact that Pakistan's major sector of the economy is agriculture that consists of crops and livestock products, Pakistan is, over the years, becoming a wheat deficit country. In Pakistan, more than sixty five per cent of the population lives in rural areas and has some links with agriculture for food and livelihood. Although, Pakistan's agriculture constitutes more than twenty per cent of total GDP and more than forty per cent of employment activities take place in agriculture, the yield of major crops remains fairly low [1]. Since 2000, agricultural growth has shown mixed trends. For example, during 2001-02,

Pakistan experienced drought that resulted in negative agricultural growth over two years. In 2005-06, the performance of agriculture was still weak, where agriculture grew only by 2.5 per cent [1]. Major crops also witnessed a decline of 3.6 per cent because of low production of cotton and sugarcane due to excessive rains at time of sowing and high temperature at flowering stage. However, rice registered a significant growth of 10.4 per cent [1].

Figure 4

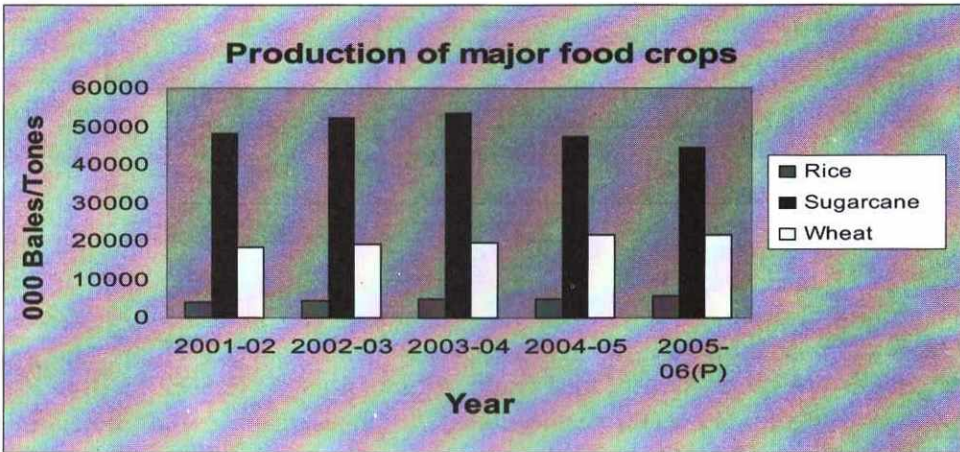


Figure 5

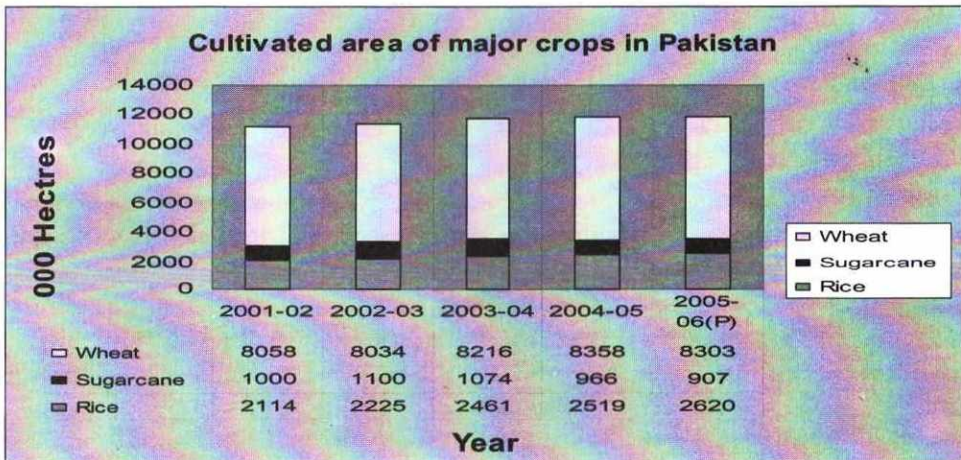
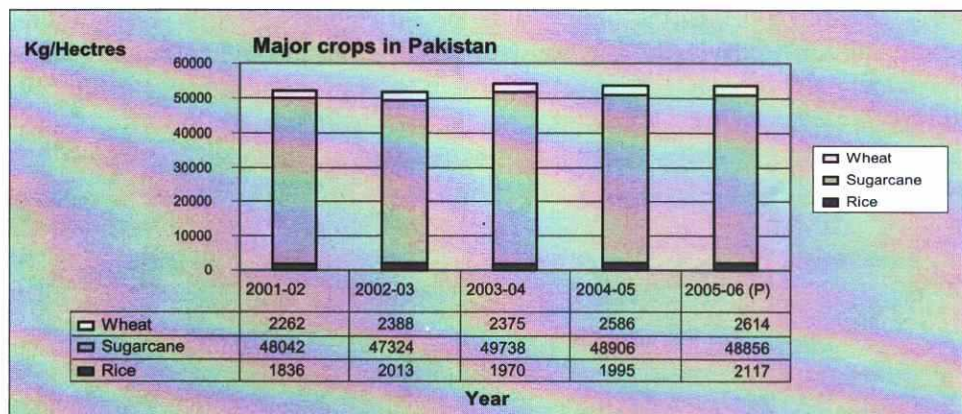


Figure 6



Source: Figures 4-6, *Pakistan Economic Survey 2005-06*, pp.23.

Figures (4-6) are based on data obtained from the Economic Survey of Pakistan [1] and show all major crops and their area, production and yield figures. For Pakistani people, wheat, rice and sugarcane are main food items. Rice is an important food cash crop that accounts for 6.1 per cent of the value in agriculture and 1.3 per cent of total GDP. Rice showed an increase of 10.4 per cent due mainly to favourable weather conditions. Sugarcane adds 3.4 per cent in agriculture and 0.7 per cent in GDP. The area for sugarcane in 2005-06 was five per cent below the target due mainly to decline in sugarcane production and farmer's preference to shift to other cash crops. Wheat contributes to 13.7 per cent in the value of agriculture and 3 per cent in GDP. The size of the wheat crop is estimated at 21.7 million tons, which is 0.4 per cent higher than the previous year but 1.4 per cent lower than the target, for details see, *Economic Survey of Pakistan, (2005-06)* [1].

The following table shows per capita monthly consumption of major food items in Pakistan, provided by the agricultural statistics of Pakistan for the latest available year (2003-04).

**Table 2**  
**Per Capita Monthly Consumption of Major Food Items (2004)**

Item	Unit	Rural	Urban	All
Average No. of members per household	(No.)	7.00	6.87	6.96
Wheat	(Kg)	9.74	6.96	8.94
Rice	(Kg)	1.23	1.02	1.17
Gram	(Kg)	0.15	0.17	0.16
Mash	(Kg)	0.03	0.06	0.04
Moong	(Kg)	0.07	0.08	0.07
Masoor	(Kg)	0.04	0.09	0.05
Other Pulses	(Kg)	0.04	0.02	0.03
Milk	(Ltr)	5.97	5.39	5.80



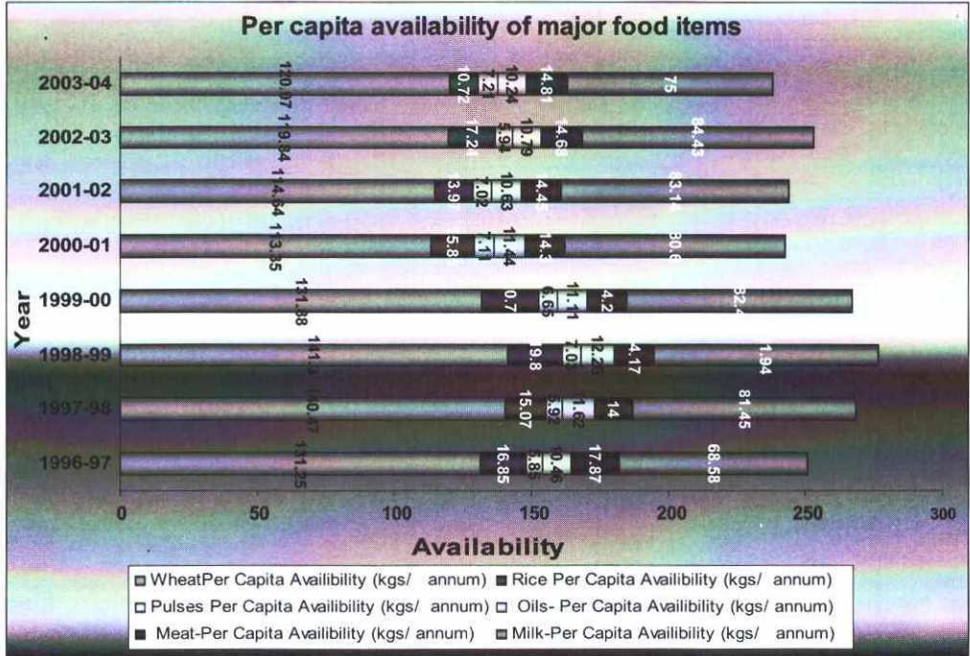
Mutton	(Kg)	0.08	0.16	0.10
Beaf	(Kg)	0.27	0.36	0.30
Fish	(Kg)	0.04	0.06	0.05
Chicken meat	(Kg)	0.11	0.22	0.14
Eggs	(No.)	1.41	2.34	1.68
Dry Fruits	(Grm)	7.66	8.43	7.88
Potatoes	(Kg)	1.04	1.06	1.05
Tomatoes	(Kg)	0.30	0.44	0.34
Onion	(Kg)	0.97	1.02	0.98
Other Vegetables	(Kg)	1.51	1.52	1.51

Source: Government of Pakistan, Agricultural Statistics of Pakistan 2003-04, Ministry of Food, Agriculture and Livestock, pp.254.

The state of food consumption shows that with high levels of population growth, there will be an ever increasing demand for food, and it will become more and more difficult to meet these needs in the presence of mixed trends observed in the growth in agriculture in Pakistan and absence of sound agricultural policies. With low incomes, households are forced to spend less on food, but with an increase in income, more is usually spent on buying quality food. However, when at a given income level, food prices increase, there is a direct change in the purchasing power of poor households, who are able to buy less for the same income due to decline in their purchasing power and the percentage of additional income spent on food increases due to inelastic demand for basic food items.

Figure 7 shows per capita food availability of major food items in Pakistan. These include, among other, wheat rice, meat and milk. The figure shows that there has been a sharp decline in per capita food availability of these items. For example, per capita wheat availability was 140.47 kg (per annum) in 1997-98. It declined to 120.07 kg in 2003-04. This shows a decline of almost 20 kg in per capita availability. Similarly, rice availability was 16.85 kg in 1996-97. It declined to 10.72 kg in 2003-04, showing an overall decline of 6.13 kg per capita. Figures for meat availability show a decline of 3.06 kg per capita, from 17.87 kg in 1996-97 to 14.81 kg in 2003-04. The per capita food availability for milk, however, increased from 68.58 kg in 1996-97 to 75 kg in 2003-04. In Pakistan, wheat and rice are the major food items, and a significant fall in the availability may be associated with great loss in population welfare, increase in hunger and exposure to bad health and malnutrition.

Figure 7



Source: Government of Pakistan, Agricultural Statistics of Pakistan 2004-05. Economic Surveys of Pakistan, Various issues.

In order to increase the nutritional status of the overall population, self-sufficiency in food production is very important. For this purpose, it is important that the people are able to buy food of choice and are able to afford quality food for better health state. With the decrease in the real purchasing power of households, due mainly to inflationary food prices, and holding constant other demographic and social factors, households are becoming unable to buy quality food for their children. In Pakistan, declines in fertility rates have not been impressive despite various government efforts. With high fertility rates, per capita food availability is further reduced as there are more and more numbers to feed. In a society where dependency rates are also high, large family size and reduced real incomes can have devastating effects on population health, especially those of the vulnerable groups, such as the mothers and children. The following section discusses some of the reasons responsible for food shortage in Pakistan.

### 3. FACTORS RESPONSIBLE FOR FOOD SHORTAGE IN PAKISTAN

#### 3.1 Availability of Land for Agriculture

In Pakistan, total cultivated area is only 40.65 per cent of the total area reported, and out of this 15.13 per cent goes waste due to various reasons [1].

There has been a decrease in agricultural production due to increased cultivable waste and due to other factors like increase in growth rate of population exceeding the growth in agricultural production, substantial food shortages have taken place over the last few years. Table 3 shows land utilization statistics for Pakistan.

**Table 3**  
**Land Utilization Statistics for the Year 2007-08**  
(Million Hectares)

Province	Geographical Area	Total area Reported	Forest Area	Not Available for Cultivation	Cultivable Waste	Cultivated Area
Punjab	20.63	17.48	0.49	2.97	1.60	12.42
Sindh	14.09	14.09	1.03	6.74	1.44	4.88
NWFP	10.17	8.34	1.33	3.89	1.21	1.91
Balochistan	34.72	17.15	1.66	9.83	3.97	1.99
Total	79.61	57.06	4.21	23.43	8.22	21.20

**Geographical area** is that area which has been surveyed and calculated by the Survey of Pakistan. **Total Area Reported** is the total physical area of the village/deh, tehsil or districts etc. **Forest Area** is the area of any land classed or administrated as forest under any legal enactment dealing with forests. Any cultivated area, which may exist within such forests, should be excluded,

**Area not Available for Cultivation** is that uncultivated area of the farm which is under farm homestead, farm roads and other connected purposes and, therefore, not available for cultivation. **Cultivable Waste** is that uncultivated farm area which is fit for cultivation but was not cropped during the year under reference nor in the year before that.

**Cultivated Area** is that area which was sown at least during the year under reference or during the previous year. Cultivated Area= Net Area Sown + Current Fallow.

Source: Government of Pakistan, Agricultural Statistics of Pakistan 2004-05, Land utilization statistics, pp.110.

Table 3 shows that in Punjab, total cultivated area is 12.42 million hectares and waste is about 1.6 million hectares out of the total area of 17.48 hectares. In Sindh, out of the total 14.09 million hectares, only 4.88 million hectares are available for cultivation, while 6.17 million hectares are not cultivated. In NWFP, out of 8.34 million hectares, only 1.88 million hectares are available for cultivation. Similarly, in Balochistan, out of 19.51 million hectares, only 1.99 million hectares are available for cultivation. The figures show that the proportion of land not available for cultivation is much higher than the available. For total area of 57.06 million hectares, 23.43 million hectares are not cultivated. To correct this situation and minimize on cultivable waste, the government has

been trying to introduce and implement land reforms for the benefit of the households and enable them to increase agricultural production in the country. Table 4 shows progress of implementation of these reforms in 2006.

**Table 4**  
**Progress of the Implementation of Land Reform, Area Resumed, Area Allocated and Families Benefited up to 30-06-2006**  
(in Hectares)

Province	Area Resumed under Land Reforms MLR-64, MLR-115 & ACT-II/77	Area Allocated	Persons Benefited
Punjab	674392	592885	137347
Sindh	458233	435997	60724
NWFP	166343	132120	43600
Balochistan	224861	144976	16535
<b>Total</b>	<b>1523829</b>	<b>130978</b>	<b>258206</b>

Source: Government of Pakistan, Agricultural Statistics of Pakistan 2004-05, Progress of Implementation of Land Reforms, Area Resumed, Area Allocated and Families Benefited up to 30-06-2005, pp.123.

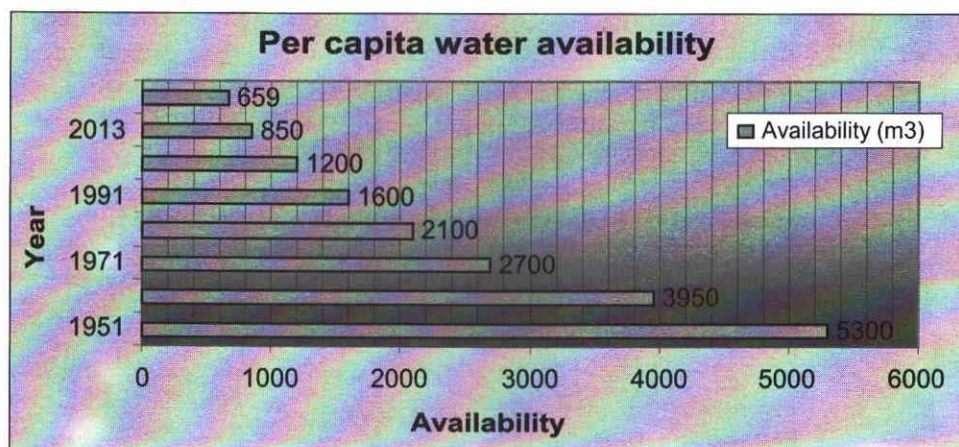
In Pakistan, under the land reforms, Punjab resumed 674392 hectares of land and 137347 persons benefited, whereas, in Sindh, 458233 hectares were resumed and 60,724 persons benefited. Total distributed land for these provinces turned out to be 7289 hectares for 1762 families in Punjab and 2244684 hectares for a total of 470451 families in Sindh. In Balochistan, 33443 hectares were distributed to 5586 families in 2005-06 and in NWFP, 10837 hectares were distributed to 2994 families, see Economic Survey of Pakistan (2007). Tables 4-6 highlight three farm inputs necessary for adequate farm output in the country. These include, fertilizers, water availability and land utilization. Fertilizer is one of the basic inputs in agriculture and is crucial for agricultural output. In Pakistan, the domestic production of fertilizer in 2005-06 increased to 5.3 per cent. Similarly, the share of imports in fertilizers also increased to 77.7 per cent making the availability of fertilizers 21.1 per cent more than the previous years [1].

### 3.2 Water Availability for Agriculture

In Pakistan, water resource availability has been in the decline due to various reasons. Although, provision of a proper irrigation system is a prerequisite for better agricultural outputs, statistics show that huge wastage takes place in irrigation. For example, the canal head withdrawal in kharif, in 2005, increased to 19.8 per cent and covered 70.75 million acre feet (MAF), as compared to 59.12 MAF in the previous year [1]. Other factors for waste are lack of development of water resources in the country, reduced surface water availability

and inadequate protection of land infrastructure from water logging, soil erosion, floods and salinity. To avoid wastage and improve the water availability for agriculture, strategies like building more dams, efficient use of existing water resources, implementation of National Drainage Strategy for reducing effluents in the water, on farm drainage system, and water conservation are important steps that need to be taken by the government. Figure 8 shows per capita water availability in Pakistan and Table 5 shows overall water availability at farm gate.

Figure 8



Source: Economic Survey of Pakistan (Various Issues) [1]

**Table 5**  
**Overall Water Availability at Farm Gate**

Year	Surface Water		Ground Water				Total water availability
	At canal head	At farm gate	Public T. wells	Private T. wells	Scrap T. wells	Other Pr. T. wells	
1994-95	94.45	81.23	12.76	35.66	-	-	129.65
2004-05	85.92	85.66	1.93	40.08	8.01	0.00	135.68

Note: Overall water availability for Kharif and Rabi.

Source: Government of Pakistan, Agricultural Statistics of Pakistan 2004-05, Overall Water Availability at Farm Gate, pp.139.

Table 5 shows the distribution of area by crops and in that, food crops yield 56 per cent of the total cropped area and cash crops are 19 per cent. All the crops are irrigated through different sources and there is only a slight increase in sources of irrigation, 17.20 in 1994-95 to 18.84 in 2004-05. Overall water availability at farms is shown by surface water and ground water. The results show that at canal heads, there is decrease in surface water from 94.45 to 85.92

MAF, however, total water availability increased to 135.68 in 2004-05 from 29.65 in 1994-95, see Water Availability at Farm Gate (2005).

### 3.3 Availability of Resources for Agriculture

Available resources for agriculture have been consistently declining over the recent past in Pakistan. Decline in resources allocated for agriculture bear direct implications for health state, due to comparative food shortages that may arise as a result. Tables 6-7 show growth in agriculture (both major and minor crops) and resource allocation in agriculture. Table 6 shows that agriculture sector encountered a major setback in 2000 showing an overall negative growth rate (-2.2 per cent) and a slow recovery by 2005, in which major crops reflected a negative growth rate (-4.1 per cent).

**Table 6**  
**Trend in Growth in Agriculture**

Year	Agriculture	Major crops	Minor crops
2000-01	-2.2	-9.9	-3.2
2001-02	-0.1	-2.5	-3.7
2002-03	4.1	6.9	0.4
2003-04	2.3	1.9	4.0
2004-05	6.7	17.8	3.0
2005-06	1.6	-4.1	0.4
2006-07	4.1	7.6	1.1
2007-08	1.1	-6.4	10.9
2008-09	4.7 (provisional)	7.7	3.6

Source: Economic Survey of Pakistan 2007-08, pp.15-17

**Table 7**  
**Total and Provincial Agriculture Sector Share in PSDP/ADP**  
(In Million Rupees)

Province	Total	2004-05 Agri. Share	Total	2005-06 Agri. Share
Punjab	44456.00	1105.00	53000.00	1914.00
Sindh	18000.00	699.55	24000.00	894.27
NWFP	10545.00	135.41	14142.60	75.00
Balochistan	10044.93	354.88	9092.46	136.47

Source: Government of Pakistan, Agricultural Statistics of Pakistan 2004-05, Province-Wise Agriculture Sector Share in PSDP/ADP, pp.265.

**Table 8**  
**10-Year Perspective Development Plan 2001-11 (Agricultural Sector)**  
(In Million Rupees)

Name, Location of the Scheme	Cost/ (Throw forward)	PSDP										Total 10- year 2001-11
		2001- 02	2002- 03	2003- 04	2004- 05	2005- 06	2006- 07	2007- 08	2008-09	2009- 10	2010-11	
Total Agriculture	36510.8	698.8	3100.1	3705.1	4100.0	4169.5	4074.5	4090.5	4079.5	4068.0	3974.0	36060.0

*Source:* Government of Pakistan, Agricultural Statistics of Pakistan 2004-05, 10-Year Perspective Development Plan 2001-11 (Agricultural Sector), pp.277.

Table 7-8 provide details of the public sector expenditure on agriculture in different plan periods. A careful analysis of the tables furnished above suggest a sheer neglect in terms of the allocation of resources for the agriculture sector in the Public Sector Development Plans, Annual Development Plans and 10-Year Perspective Development Plan 2001-11. A review of authoritative official sources of information like Pakistan Economic Survey or Agricultural Statistics of Pakistan also depicts the same picture [1, 21].

### 3.4 Livestock, Poultry and Health

Livestock in Pakistan cater domestic animals reared in an agricultural setting for food or fibre. Livestock plays a vital role in Pakistan's economy and is a major source of food consumption after agricultural products. It accounts for 23 per cent of Pakistan's national income (GDP) and employs 42 per cent of its workforce. It accounts for 46.8 per cent of agricultural value added and about 10.8 per cent of the GDP, see, Economic Survey of Pakistan (2007) [1]. Livestock sector plays a critical role in rural economy of Pakistan, as 30-35 million people are engaged in this sector for livelihood. Within this sector, milk is a very important commodity generating more value than that of the combined value of important crops i.e. wheat and cotton. While milk can be important major food item, there are issues of lack of appropriate collection of milk at source, storage, provision to the masses and issues relating to delivery. The issues mainly relate to the absence of an adequate livestock development policy and a legal framework to support strategies for livestock as a secondary source of income for the farmers. The government needs to bring radical changes in the current livestock production system for the exploitation of potentials of livestock sector and allow import of dairy and livestock machinery/equipment, not manufactured locally. Some micro credit schemes also need to be initiated through commercial banks to provide access to credit to small businessmen.

Besides livestock, poultry is also one major food item in Pakistan and its production emerged as a good substitute to beef and mutton. A large number of rural/urban households are engaged in this sector directly or indirectly. There has been a severe setback due to the havoc created by the outbreak of avian influenza

commonly known as bird flu. It affected a large number of households. Nonetheless, no significant steps were taken by the government to deal with the consequences of the outbreak of bird flu. The safety issues keep emerging and poultry consumption is not fully safe and much more is needed to ensure poultry consumption in Pakistan.

#### **4. FOOD SHORTAGES: IMPACT ON HEALTH AND ECONOMY**

WFP (2007) reveals that around "10 million deaths take place every year due to hunger and hunger related diseases, and rising food prices will push 100 million people deeper into poverty"[15]. In a developing country like Pakistan, where widespread poverty is a rising problem, the effects of current food shortages will depend on vulnerability of households. Food insecurity is most likely to bring changes in the dietary patterns of the households in manners that will affect the health of all family members. The effects of reduced food consumption or low quality food consumption are especially expected to hamper the growth of young children through their adverse effects on micronutrient status. Increased food insecurity will also be closely related to increase in the morbidity and mortality as well as maternal mortality. Other observable consequences over a period of time may include children's less healthy mental development, effects on learning ability, reduced work productivity, and increased prevalence of other chronic diseases. Wasting and stunting among children are likely to increase, over and above the already high levels, and anaemia and other micronutrient deficiency conditions, especially among women and children, may rise. If the current situation remains unaddressed, the negative health impacts, resulting mainly as a result of food shortages will hamper the attainment of the health and nutrition-related MDGs (1, 4, 5, and 6).

Food shortages in Pakistan will exert pressure in prices and will reduce the purchasing power of households. After paying high prices for small quantity and low food quality, it is highly likely that the already limited capacity of the households to spend on other necessities such as affordability of basic health services will further be squeezed. In Pakistan, a high proportion of health care is paid from out-of pocket-expenditures, and in the absence of any social health insurance, rising health care costs will become devastating. Therefore, in situations where poor people have to struggle for their bare minimum survival due to food shortage, there will also be far less resources available for health and health care. For policy makers, it is important to recognize that MDGs can not be achieved in isolation or independent of sectoral developments. Reduction of hunger and poverty (MDG-1) and health related MDGs for reducing incidence of diseases and mortality can not be disintegrated from each other. For achieving these MDGs, this study proposes to recognize the inter-relationships between poverty, hunger and health. Poverty is the basic cause of hunger and poor people do not possess the means to access the food or basic health care necessary for a healthy life can become vulnerable to deprivation. International organizations,



such as FAO, IFAD and WFP (2005) find out that hunger imposes human and economic costs on individuals and societies by adversely affecting the health and productivity of the population [15, 16, 18]. Their recent calculations show that "the present discounted value of the combined costs of protein-energy malnutrition, low birth-weight babies and micronutrient deficiencies (such as iron and iodine deficiency) throughout the lifetime of one cohort of undernourished children would add up to at least 5 to 10 per cent of GDP of the developing world – roughly US\$500 billion to US\$1 trillion" [18].

Food consumption is one of the significant factors that has direct impact on the nutritional status of the overall population and is related to prevalence of wasting, stunting, malnutrition and anaemia. Food shortages will not only adversely affect the health state of Pakistani people, but may become a major economic development problem due to effects on productivity. Therefore, efforts to overcome the challenges posed by food shortages/insecurity need to start with an accurate measurement of key indicators at the household level, which at present are missing.

## 6. POLICY IMPLICATIONS

In Pakistan, macro level policy documents, such as Poverty Reduction Strategy Paper and Medium Term Development Framework (2005-2010) are the two government documents that discuss MDGs and roadmap to achieve them [20, 21]. In these documents, food and health related MDGs and their targets are well defined. However, strategies that are proposed to achieve these goals and targets appear to be standalone and independent of multi-sectoral effects. Although, there appears to be significant interdependence of food and health related targets, but the strategies that are proposed in these documents are not interdisciplinary. It is, therefore, very important to realize that poverty reduction strategy, without simultaneous improvements in health, for example, cannot guarantee a complete success. It is important to estimate poverty/hunger status of vulnerable groups, the areas that are deprived or backward and to carefully track progress made in meeting/not meeting micro-nutrient consumption goals.

For health state and policy, it may be better to evaluate indicators that are used to track MDG-1, 5 and 6, particularly with respect to the eradication of disease and hunger. Regular tracking of micro-nutrient deficiencies, resulting from food shortages, should be carried out through household level surveys highlighting gender-specific feeding practices, rural-urban nutrition disparities, and food status of isolated/remote areas. This may help to provide a complete picture of the extent and intensity of hunger amongst the poor in Pakistan. It is important to understand that economic growth alone can not ensure poverty reduction, unless the human dimension attached to it is clearly defined. As the extent of poverty in Pakistan is large that affects large segments of society, there

is need to adopt a multidisciplinary approach for poverty reduction, food shortages and improvements in health state.

In Pakistan, there are no entitlements to food as a basic human right through law. However, as the number of hungry and unhealthy population is increasing, it is very important that the right to access to food should be included in the legislation. Such a process is already in place in other countries and more than forty countries have passed this legislation in which courts can enforce citizens' rights related to food, see, ICESER, International Covenant on Economic, Social and Cultural Rights (2007) [14]. In Pakistan, large numbers of households do not hold productive assets, and do not possess adequate skills that can help in income generation from alternative activities. Empowering people with productive assets, especially in the agricultural sector, may have spill over effects in the health sector.

It is very important to control and curtail food inflation trends in the country. Over the past few years, food inflation has been consistently on the rise and has reached double-digit inflation for most food items. The government efforts to control food inflation appear to be inadequate as there is no stability in food prices. Pakistan has witnessed food inflation in the double digits that is much higher than non-food inflation. In the absence of sound economic and social protection policies, it is important to keep a check on food prices, especially for basic food items, such as wheat, oil, meat and milk, to minimize the associated adverse effects on health.

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### Acronyms

<b>MDG:</b>	Millennium Development Goals
<b>WHO:</b>	World Health Organization
<b>FAO:</b>	Food and Agricultural Organization
<b>FAOSTAT:</b>	Food and Agricultural Organization Statistics
<b>SD:</b>	Standard Deviation
<b>ADB:</b>	Asian Development Bank
<b>UNDP:</b>	United Nations Development Programme
<b>IFAD:</b>	International Fund for Agricultural Development
<b>GDP:</b>	Gross Domestic Product
<b>Kg:</b>	Kilogram
<b>CRPRID:</b>	Centre for Poverty Reduction and Income Distribution
<b>MAF:</b>	Million Acre Feet
<b>WFP:</b>	World Food Programme
<b>ICESER:</b>	International Covenant on Economic, Social and Cultural Rights
<b>PSDP:</b>	Public Sector Development Programme

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