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Sugarcane



Rice (Paddy)



Wheat



Cotton

## Mission Statement of API

To provide professional inputs to agriculture policy and recommendations relating to major and minor crops for meeting long-term objectives towards enhancing production.

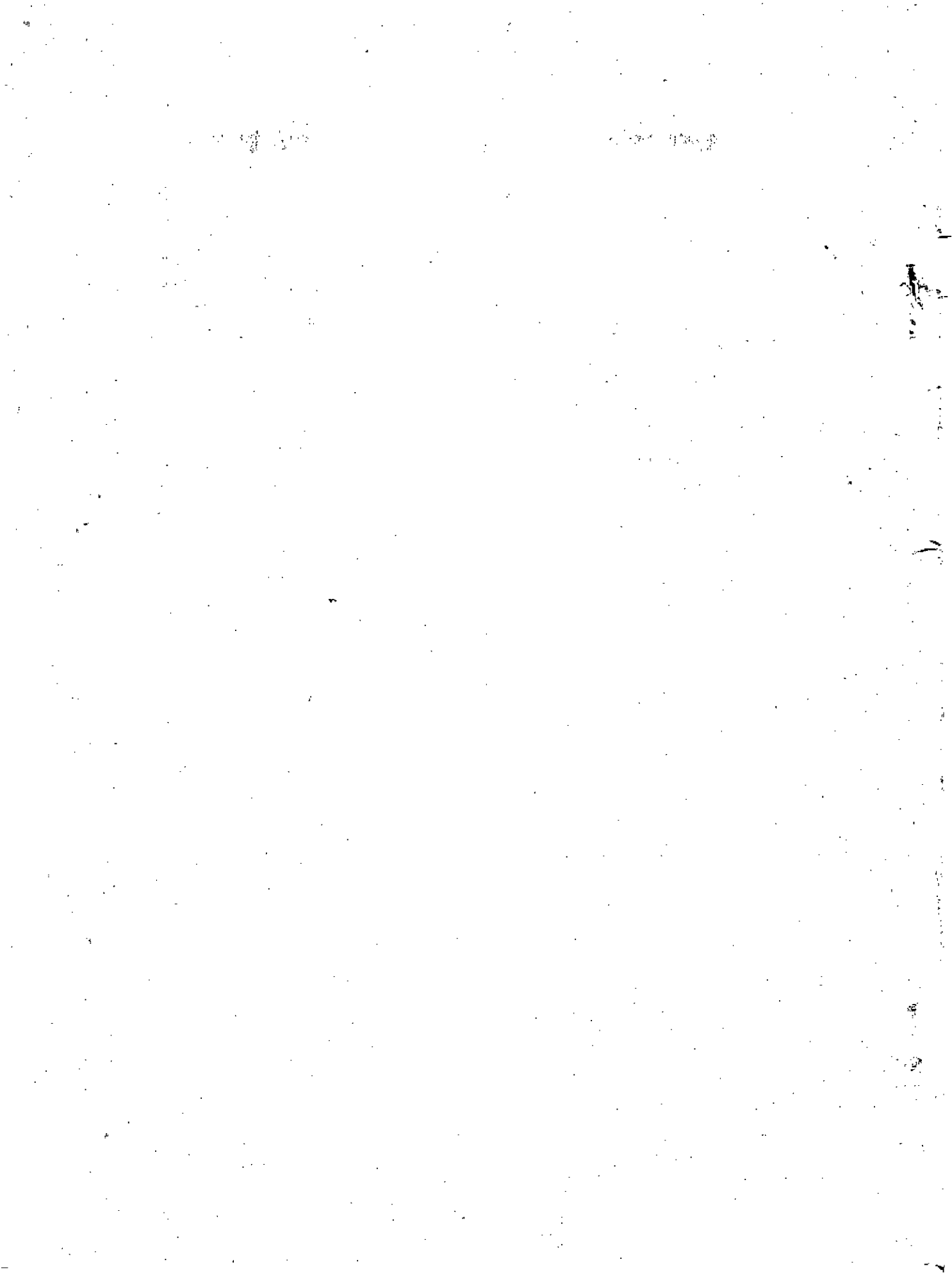
Agriculture Policy Institute  
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Islamabad

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# MANAGING PUBLIC WHEAT STOCKS IN THE CURRENT SCENARIO

By

Abdul Rauf Chaudhry, Chief (APD) API, Islamabad

## *Abstract*

*Pakistan had the bumper harvests of wheat crop for the last 4 years with all time record production of 25.21 million tonnes in 2010-11. For the year 2011-12, wheat crop is estimated at 23.34 million tonnes. Wheat is not only the major staple food grain but also the food security crop of Pakistan. For the 2012-13 year, poor prospects of wheat are forecast in a number of major producing countries like Australia, USA and Black Sea Area. Accordingly, wheat production is forecast to 662 million tonnes and wheat stocks to 180 million tonnes. If the above situation of poor prospects of wheat production in surplus producing regions persist, the issue of food crisis may again arise to certain extent. In order to face the emerging situation, Pakistan should take precautionary measures and retain sufficient wheat reserve stocks. Current public sector wheat stocks are reported at 9.30 million tonnes which include this year wheat procurement of 5.79 million tonnes and last year carry-over stocks of 3.51 million tonnes. The public sector on the average annually releases 6.5 million tonnes to flour mills and other Agencies/Areas. Maintaining the Strategic Reserve of one million tonnes and one million tonnes for Barter Trade of Wheat with Iran, the country is left with 0.80 million tonnes surplus. It is reported that the private traders have exported wheat and its products from the open market in recent months in the wake of rising prices in the world market. Major portion of these exports comes from wheat flour, accruing value addition receipts to the country. In view of volatile situation of wheat production the world over, the Government should ban wheat export. It will have a psychological impact on the open market and help stabilize the domestic market prices. Export of wheat products may be continued for forex earnings through value addition receipts. The issue price this year may be determined on the basis of procurement cost, domestic price, world price and North-West border price. After fixing the issue price, it may be regularly monitored by the provincial food departments and adjusted in line with the emerging domestic and world situation to ensure ample supply of the staple food grain for the sake of food security at home.*

## 1. Introduction

1.1 Pakistan had the bumper harvests of wheat crop for the last 4 years with all time record production of 25.21 million tonnes in 2010-11. For the year 2011-12, wheat crop is estimated at 23.34 million tonnes. Wheat is not only the major staple food crop but also the food security crop of Pakistan. As a very sensitive commodity, a small change in its price and availability have considerable impact on consumers, especially on the poor sections of the community. Hence the Government is much concerned with its supply and demand situation so as to ensure the availability of this basic food security item for the masses.

## 2. International Prices

2.1 International price of wheat has been quite volatile during recent years. This has caused major concerns of food security world over. During the 2006-07 year, the world prices of US HRW wheat were reported at US \$ 212 per tonne. The international prices jumped to US \$ 361 per tonne in 2007-08, causing a food crisis across the globe particularly in the importing countries. In the coming 4 years, the world as well as Pakistan had bumper harvests and the world prices fell to US \$ 209 per tonne in 2009-10. The prices again sharply escalated to US \$ 316 per tonne in 2010-11 (Table-1).

**Table-1: International Prices (Fob Gulf) of US HRW Wheat: 2006-07 to 2012-13**

<b>Year (July-June)</b>	<b>US \$ per tonne</b>
2006-07	212
2007-08	361
2008-09	270
2009-10	209
2010-11	316
2011-12	301
2012-13 (Jul-Sep)	361 (323-381)
July 2012	356
August 2012	363
September 2012	365

**Source:** International Grains Council, London

### **3. World Wheat Situation**

3.1 The world wheat production and world stocks were reported at 607 and 132 million tonnes during the food crisis year of 2007-08. In the following bumper harvest years, wheat production went upto 696 million tonnes and wheat stocks to 197 million tones in 2011-12 (Table-2).

**Table-2: World Wheat Situation: 2007-08 to 2012-13**

Item	2007-08	2008-09	2009-10	2010-11	2011-12 (Estimate)	2012-13 (Forecast)
	----- Million tones -----					
1. Production	607	685	679	653	696	662
2. Consumption	602	645	653	659	692	679
3. Stocks	132	173	199	193	197	180
4. Trade	110	137	128	126	145	133

**Source:** International Grains Council, London.

3.2 For the 2012-13 year, poor prospects of wheat are forecast in a number of major producing countries like Australia, USA and Black Sea Area. Accordingly, wheat production is forecast to 662 million tonnes and wheat stocks to 180 million tonnes. However, the situation is not likely to worsen to the tune of 2007-08 food crisis year due to record stocks of last year and lower feed use forecast in 2012-13 for wheat. This situation has currently escalated international prices of wheat to a considerable extent. International prices of wheat are quoted at US \$ 356 per tonne in July, \$ 363 in August and \$ 365 in September 2012 against \$ 301 per tonne during the last year (Table-1).

### **4. Current Domestic Wheat Stocks and Scenario of Exports**

4.1 If the above situation of poor prospects of wheat production in surplus producing regions persist, the issue of food crisis may again arise to a certain extent. In order to overcome the emerging situation, Pakistan should take precautionary measures and retain sufficient wheat reserve stocks. Current public sector wheat stocks are reported at 9.30 million tonnes which include this year's wheat procurement of 5.79 million tonnes and last year carry-over stocks of 3.51 million tonnes (Table-3).



**Table-3: Current Domestic Wheat Stocks**

Province/Agencies	Carry-over as on 1-5-2012	Current procurement	Total wheat stocks for 2012-13
Punjab	1.875	2.781	4.656
Sindh	0.191	1.152	1.343
KPK	0.104	0.317	0.422
Balochistan	0.149	0.107	0.257
PASSCO	1.186	1.435	2.621
Total	3.506	5.792	9.298

Source: Ministry of National Food Security and Research, Islamabad.

4.2 The public sector on the average annually releases 6.5 million tonnes to flour mills and other Agencies/Areas. Maintaining the Strategic Reserve of one million tonnes and one million tonnes for Barter Trade of wheat with Iran, the country is left with only 0.80 million tonnes surplus. In view of volatile situation of wheat production in the world, this amount of 0.80 million tonnes may be kept as a Special Buffer Stock in addition to the routine Strategic Reserve for the sake of crucial concerns of National Food Security as wheat is the major food security crop of Pakistan.

4.3 PASSCO presently carries wheat stocks of 2.62 million tonnes including this year's procurement of 1.43 million tonnes and last year's carry-over stocks of 1.19 million tonnes. Out of these stocks, PASSCO has worked out its total allocation/requirements for 2012-13 to the tune of 1.58 million tonnes. Resultantly PASSCO has a surplus stocks of 1.04 million tonnes. Taking one million tonnes for Barter Trade of wheat with Iran into account, nothing is left with PASSCO for any export.

4.4. In the national perspective, the country is left with 0.80 million tonnes surplus as explained above. According to the PASSCO cost analysis of wheat for exports, the cost of wheat stocks with PASSCO calculates to US \$ 347 per tonne ex-godown. Adding the inland transport upto Karachi, cleaning, processing and export incidentals @ \$ 58 per tonne, the cost of Pakistani wheat (Fob Karachi) works to US \$ 405 per tonne ex-godown in the Multan region (Annex-I). However, if the export incidentals of private exporters @ \$ 45 per tonne as compiled by the API are taken into account, the cost of Pakistani wheat (Fob Karachi) works to \$ 392 per tonne ex-godown in Multan region (Annex-II). The Fob prices of US (Gulf) HRW wheat have averaged at US \$ 356 per tonne in July, \$ 363 in August and \$ 365 in September 2012, ranging from US \$ 323-381 per tonne. It indicates

that the export of public sector wheat may become feasible in future (Table-1). It may be noted that Pakistan has exported 1.78 million tonnes of wheat in 2010-11 in view of remunerative world prices which dropped to 0.41 million tonnes in 2011-12 owing to fall in world prices.

4.5 It is reported that the private traders have exported wheat and its products from the open market in July and August 2012. Major portion of these exports comes from wheat flour, accruing value addition receipts to the country. The domestic prices of wheat and wheat flour have also risen owing to poor production prospects and price hike in the world and wheat exports from Pakistan. Hence there is a need to ban wheat export and let the export of wheat products continue. It will not affect the forex earnings much with value addition but will have a psychological impact on the domestic market and help stabilize the prices in the open market.

4.6 Another crucial step to be taken on part of the Government is to rationally fix the issue price of wheat for releases to flour mills from the public sector stocks. This responsibility primarily lies on the shoulders of the provincial governments. Fixation of issue price this year should not be taken as a routine matter. Neither it should be fixed once for all nor it be a cascading price. Instead, it should be volatile and be determined on the basis of procurement cost, domestic price, world price and North-West border price. After fixing the issue price, it should be regularly monitored and adjusted in line with the emerging domestic and world situation to ensure supply of the staple food grain for the sake of national food security.

4.7. Following are the major findings of the above analysis:

4.7.1 Lower global crop prospects may cause food security concerns but are not likely to the tune of 2007-08 food crisis due to record stocks of last year and lower feed use forecast in 2012-13.

4.7.2 To safeguard the food security concerns, Pakistan should retain sufficient buffer stocks over and above the routine Strategic Reserve of one million tonnes.

4.7.3 Accounting for the allocations / options for PASSCO and Barter Trade to Iran, PASSCO is left with no surplus for further exports.

- 4.7.4 Accounting for the public sector annual releases of 6.5 million tonnes, one million tonnes of Strategic Reserve and one million tonnes of Barter Trade with Iran in the national perspective, the country is left only with 0.80 million tonnes surplus.
- 4.7.5 In view of international price hike of wheat, the export of wheat and wheat products have become feasible from Pakistan.
- 4.7.6 Major portion of wheat exports comes from wheat flour, accruing value addition benefits to the nation.

## **5. Conclusions**

- 5.1 In view of volatile world wheat situation, following measures are proposed to ensure food security at home:
  - 5.1.1 The left over surplus of 0.80 million tonnes may be retained as a Special Buffer Stock in addition to the normal Strategic Reserve for the time being to counter panic buying, hoarding and price hike, etc.
  - 5.1.2 In view of volatile situation, it may be regularly monitored and export of 0.50 million tonnes may be taken up at the appropriate time when the situation is firmed up probably by the close of 2012 or beginning of 2013.
  - 5.1.3 Export of wheat from the open market may be strictly banned and widely publicised to stabilize the domestic market prices.
  - 5.1.4 Export of wheat products may be continued for forex earnings through value addition receipts to the country.
  - 5.1.5 In view of low production of wheat forecast for the Russian States and sensitive nature of its border, the issue price may be fixed in line with the domestic and border prices to counter pilferage across this border.
  - 5.1.6 The issue price may be regularly monitored by the provincial food departments and adjusted in line with the emerging domestic and world situation.

**6. References**

1. *International Grains Council, London.*
2. *Ministry of National Food Security and Research, Islamabad*
3. *Pakistan Agricultural Storage and Services Corporation (PASSCO), Lahore*
4. *Garib and Sons (Pvt), Karachi*

**ANNEX-I**

**COST ANALYSIS OF WHEAT TO BE EXPORTED  
ON FOB KARACHI BASIS**

	Items	Rs/tonne	US \$/tonne @ Rs.95
1.	Cost of wheat @ Rs 1050/40 kgs	26,250.00	276
2.	Incidentals accrued upto PASSCO godowns	6705.77	70
3.	Gross cost of wheat stocks at PASSCO godowns ( Items 1+2)	32955.77	347
4.	Transportation from Punjab to Karachi/Port Qasim, Cleaning of wheat & Sea Port charges upto loading of vessels	5300	55
5.	Processing loss during cleaning @ 0.5 kg per bag of 100 kgs	160	2
6.	Miscellaneous expenses	100	1
7.	Fob (Karachi) cost of Pakistani wheat (3+4+5+6)	38,515.77	405

Source: PASSCO, Lahore.

**ANNEX-II**

**COST ANALYSIS OF WHEAT TO BE EXPORTED  
ON FOB KARACHI BASIS**

S.No.	Items	Rs/tonne	US\$/tonne @ Rs.95
1.	Cost of wheat @ Rs.1050/40 kgs	26,250.00	276
2.	Incidentals accrued upto PASSCO godowns	6705.77	70
3.	Gross cost of wheat stocks at PASSCO godowns	32955.77	347
4.	Export incidentals (Items i to x):	4281	45
	i) Transport cost from Multan to Karachi	1500	
	ii) Cleaning/grading	500	
	iii) Bagging, spillage, loading, unloading & testing	300	
	iv) Wharfage, Stevedoring weightment and port charges	642	
	v) Pre shipment inspection charges	75	
	vi) Export development surcharge 0.25% of fob price	86	
	vii) Insurance charges at port 1 % per month	343	
	viii) Bank commission & charges 0.5% per month	171	
	ix) Mark up @ 1.5% per month	514	
	x) Miscellaneous charges (Ghati, Wastage, Godown rent)	150	
5.	FOB (Karachi) cost of Pakistani wheat (Items 3+4)	37236.77	392

Sources: i) Export incidentals: Garib and Sons (Pvt), Karachi.

ii) PASSCO incidentals: Annex-A.



# GLOBALIZATION AND DEVELOPMENT IN SOUTH

By

**Muzammal Sobban, Team Lead, Consumer Sales (North)  
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## ***Abstract***

*Higher poverty is because of poor governance, poor infrastructure, higher illiteracy and corruptions. FDI is beneficial to those countries who pursued export oriented strategies and negative for those who followed import oriented strategies.*

## **1. Introduction**

1.1 Whether globalization is good or bad for developing countries are one of the hot debated topics among social scientists, economists and social elites. This essay describes some of the previous research in this context and attempts to explain the relationship between globalization and development with reference to developing countries. If we take a look at the growth literature we will see that there is no simple yes or no answer to the said notion. There are strong arguments which say globalization is good for developing countries and it has actually paved the way to economic growth. There is second school of thought which says globalization actually hurts the poor. The first part of the essay summarizes some of the main arguments in favor and against the notion. Later section of the text discusses the factors which contribute or inhibit growth and development in developing countries. The factors primarily explain the dynamics of development in context of developing countries. The prime reason to study these factors is to breakdown this complex phenomenon in more manageable segments.

1.2 One can hardly find a single definition of development in literature. It has been described by different authors in different ways. Lexically development means deployment (Musai, 2011), some consider it as “forward movement of a unified social system” (Jirvand 1991). Michael Todarou, (2000) described development as a change in cognitive processes of a nation resulting in new social construction and better quality of life. Professor Golt described it as instrument for gaining better life through amalgamation of social, economic and institutional processes. Development can be economic (Bahar 1979; Williamson 2000; Musai 2011) or it can be social as well.



1.3. Generally, academicians have developed a consensus over the definition of economic development. It can be described as a process through which countries generate higher levels of income by deploying or changing production processes, which ensures efficient and effective allocation of resources. (Bahar 1979; Musai 2011). "On the contrary social development has different definitions including transformation, through labour division, from the traditional society to modern or industrial society" (Musai, 2011 pp-103). We will be considering development with reference to economic development only in this writing.

1.4 GLOBALIZATION, a term commonly used to refer to the free flow of goods and services, capital, technology, and knowledge, is generating renewed interest in the international economics literature. "More precisely, it can be defined as a process associated with increasing economic openness, growing economic interdependence and deepening economic integration in the world economy" (Nayyar, 2006 pp-137). There is an assumption that World economy has experienced rapid globalization since 1950 due to integration of economies, which is a new phenomenon. However, this integration of economies is not a new phenomenon. Similar integration of economies occurred in early nineteenth century and came to an abrupt end in 1914. The process again started after Second World War and is still in continuation. (Nayyar, 1995). The second phase witnessed remarkable growth in international finance, trade liberalization causing rapid movement of capital across the borders (Nayyar, 2006). Whether globalization is new or old is beyond the scope of this writing. The topic of interest here is the impact of globalization on South, synonymized as developing world. It has gained the attention of many economists and scholars. Most of the debate is characterized by whether globalization is positive or negative for world south. If we study the globalization experience of developing or third world countries we come to know that some countries benefited more than their counterparts. There are arguments in favor of globalization in context of developing countries and against as well. According to World Bank globalization is an effective tool for promoting economic growth and reducing poverty in developing countries. World Bank expressed strong support in notion of globalization as a blessing for developing countries. Sachs & Warner (1995) studied the process of Global Integration and its effect on the growth of reforming countries and suggested that openness leads to beta convergence which means that openness in terms of trade liberalization and reduced economic alterations raises economic growth rates among low-income countries and leads to a convergence of per capita incomes with the higher per capita incomes of developed countries. Many developing countries, such as China and India, have shown rapid economic

growth and poverty reduction as a result of their open economy policies since the 1990s. In addition, Dollar (1992) examined the relationship between economic performance and trade openness and concluded that openness to trade enhanced economic growth.

1.5 There is second school of thought as well which says globalization actually harm the developing countries and talks in favor of income divergence rather convergence. Slaughter (1997) shows that trade liberalization can lead to income divergence. UNCTAD (1995) conducted an empirical study on the developing countries and shows that, except for a few developing countries in Asia, there was divergence rather than convergence between rich and poor countries during the last two decades as a result of trade liberalization. In Lustig's study (1998), wages of skilled workers increased by more than 15 percent while those of unskilled workers fell by a similar margin as a result of free trade. In low-skill and low-income countries, it has been argued that free trade will drive unskilled workers out of the job market, lower their wages, and/or reduce employment opportunities in sectors related to free trade

1.6 These are two schools of thought on the topic being explored but I believe there are certain variables that must be accounted for in order to give verdict on globalization and developing countries. First I will discuss the variables and then we will draw conclusion.

## **2. Institution**

2.1 Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction (North, 1990). Institutions play an important role in smooth functioning of a particular society or economy. Institutions provide the environment for impersonal exchange which fosters economic activity. These are the coercive and coordinating forces among the human interactions. Presence of institutions ensure corruption free environment and enables the information and ideas to flow freely due to which a human interaction becomes profitable. North (1990) used U.S. economic history as an example of institutional changes and suggested that institutions provide the organizations some incentives to engage in productive activity. He also commented on the Third World nation's economic history as being the obverse of the U.S. model where institutional changes encourage organizations to create monopolies and to restrict opportunities which in turn hampers development. He presented that lack of formal institutions in third world countries put a set of payoffs that do not encourage productive activity.

2.2 Cheng & Mittemhammer (2003) suggested “Benefiting from globalization requires complimentary institutions and social development to deal with the risks introduced by greater openness”. They are of the view that when a country opens its boundaries to inward flow of foreign direct investments, it is being exposed to different financial and social risks and it requires some kind of framework to deal with associated risk. The study explored a controversial topic whether globalization benefits or detracts from economic development by analyzing the impact of social capital and institutional factors on globalization experience. It has been concluded that when social capital and institutional factors are included in the model, economic integration has a positive and significant effect on economic development.

2.3. Agenor (2004) studied the relationship between globalization and poverty. The result suggested that there was a certain threshold level of income which a country has to achieve in order to benefit from globalization, Agenor also observed that at low income levels, globalization seems to bring more adverse effects however institutional and economic reforms enabled those low income countries to reach a certain threshold level of income and to reap the benefits of globalization. Dollar and Kraay (2003) conducted an empirical study on the institutional quality and trade and find that countries having better institutions are well off in terms of trade and grow faster.

### **3. Human Capital**

3.1 Most of the modern growth literature emphasized the importance of human capital in the economic success of a particular country (Barro 1991), (Benhabib & Spiegel,1994) Globalization is characterized by increased inflow of foreign direct investment (FDI) which in turn creates transfusion of technology and requires host country to adopt new technologies (Findlay 1978). The diffusion of technology depends on the country’s ability to absorb it. The absorptive capability is described by the stock of host country’s human capital. The stock of human capital in developing county can be a limiting factor which it comes to technology transfusion as explained by Nelsen and Phelps (1966), Benhabib and Spigel (1994).

3.2 According to Levine and Renuit (1992) there is a strong relationship between economic growth, FDI and human capital. Borensztein et al (1999) conducted an empirical study from data gathered on 69 developing countries and found that the effect of FDI on economic growth is dependent on the level of human capital available in the host economy. They used the level of educational attainment as proxy for human capital and observed a strong

positive relationship between FDI and level of educational attainment. Kwabena Gyimah and Mark Wilson (2004) took the idea to a next level by studying the relationship of health human capital and economic growth. They used expanded Solow growth model by applying it on the data gathered from OECD sample and Sub-Saharan African countries. They found that “differences in cross country differences in incomes are positively correlated with cross country differences in the stocks of human health capital”

#### **4. Domestic Market Conditions**

4.1 While reviewing the economic growth patterns for developing countries domestic market conditions are also among the pre-globalizations necessary for any country to take-off and to join the developed world. Kumar (1990) studied the globalization experience of India and suggested that FDI inflow can be increased by investing in socioeconomic infrastructure and supporting policies and it will create a stable and enabling environment. Impacts brought on by globalization depend very much on local socioeconomic conditions. Domestic Market conditions are crucial in determining not only the quantity but also the quality of FDI. Conditions include policy environment of the local country, productive assets available, infrastructure and financial markets. (Alfreto, 2004). Among the domestic market conditions role of financial market is stressed as Alfreto et al (2004) also suggested that country’s tendency to benefit from globalization is high if financial markets are well developed. As we know that globalization cause diffusion of technologies and domestic entrepreneurs must be promoted in order to increase the technology diffusion. Due to the lack of developed financial markets entrepreneurs can’t access the credit markets and can’t have the required funding for technology adoption (McKinnon 1973).

4.2 Joseph Schumpeter (1911) suggested that financial intermediaries are essential for technology innovation and economic development and they do so by providing different services such as savings mobilization, managing risk and facilitating transactions. King and Levine (1993) took on the idea and conducted a study by using the economic data of 80 countries during the period 1960-1989 and suggested that financial markets stimulate economic growth through efficient allocation of resources. Well-developed financial markets increase the level of investment which in turn triggers economic growth. Laura Alfaro et al (2000) studied the role of local financial markets and tried to explore the link between FDI and growth development. They suggested that country’s ability to take advantage of potential FDI benefits can be limited by the absence of well-developed financial markets. Even if financial markets does not allow increase in investment, it allocates the

existing investment in a better way to promote efficiency and growth (Wrugler, 2000).

## **5. Political Environment**

5.1 Political environment plays a pivotal role in attracting FDI to any particular country and if a country is not politically certain it tends to be on the lower side in terms of FDI receiving. Political environment outlines the policies which are not only important in attracting FDI but also the developmental impact of FDI. It also facilitates the host country to exploit the benefits of Globalization (Kumar, 1990). Yougandan (2010) commented on globalization experience of Pakistan by saying "The politically unstable countries in Africa need to understand that not only the political stability but also the political policy stability are critical for any economy that wants to integrate with the rest of the world and this is very true as far as Pakistan is concerned." In other words countries opting for globalization should make themselves politically stable in order to reap its benefits.

5.2 It is considered that the reason for higher poverty is because of poor governance, lacking up of long term political policies, poor infrastructure, higher illiteracy, corruption. (Yougandan G).

## **6. Conclusions**

6.1 The experience of globalization in the post 1980's points that the process of integration has greater benefit in contributing to the economic growth and enabling some of the poorest countries in the world to catch up with the richer countries ( Rudra Prakash Pradhan)

6.2 Balasubramanyam investigated the impact of FDI on economic growth of developing countries during the period 1910-1985 and suggested that FDI is beneficial for those countries which pursued export oriented strategies and negative for those which followed import oriented strategies.

6.3 Bhagwati et al ( 1978) suggested that the effect of FDI on developing countries depends on the country's trading mode i.e, import substitution and export promotion.

# DECADE REVIEW OF FORMAL INSTITUTIONAL AGRICULTURE CREDIT IN PAKISTAN

By

Sardar Ali Khan, Deputy Chief, API

## **Abstract**

*In Pakistan like other developing countries, deficiency of financial resources to farmers is one of the leading constraints to increase farm production. The importance of agricultural credit, especially from the institutional sources is widely recognized as an affective instrument to enhance agricultural productivity. It is an important tool in enabling farmers to acquire commands over the use of working and fixed capital. After the emergence of green revolution, there have been overtime changes in crop production technology and agriculture credit requirements have increased for both inputs for crop production and farm investment. The data analyzed in the paper reveal that during the decade ending 2010-11, the availability of institutional agriculture credit in real terms after 2007-08 on overall basis, per cropped acre and as well as percent of GDP has drastically declined. Moreover, the increase in farm credit remained smaller than the non-farm credit by 97 per cent. This declining trend alongwith increasing per acre cost of production due to increasing prices of inputs, withdrawal of inputs subsidies and levy of G.S.T on agriculture inputs like fertilizer, pesticides may have adverse implication for agriculture growth. Therefore, the small farmers, with limited access to finance should be the logical target group for loaning by the credit institutions. Moreover, problems in getting and returning loan need to be removed to achieve better results and improve quality and quantity of the agriculture produce.*

## **1. Introduction**

1.1 For most of history, society's connection to the land remained much intimate. Human communities, no matter how sophisticated, could not ignore the importance of agriculture. It is an established fact that civilization began with agriculture when our nomadic ancestors began to settle and grew their own food. Consequently, human society changed forever. Not only villages, towns and cities began to flourish, but so did knowledge, the arts and the technological sciences.

1.2 Pakistan is an agro-based developing country where agriculture plays an important role in the economy. It presently contributes 21 percent to GDP and generates productive employment opportunities for 45 percent of the country's labour force. The rural population accounts for almost 60 percent of the total population which directly or indirectly depends on agriculture for their livelihoods. The development of agriculture has direct influence on the improvement of socio economic life of the rural inhabitants. It has a vital role in ensuring food security, generating overall economic growth, reducing poverty and the transferring towards industrialization.

1.3 The average yield of most of our crops is very low as compared to many countries of the world. Amongst various factors responsible for this low yield, the use of conventional farming methods by the farmers seems to be the most important one. The modern technology is capital intensive and can only be adopted if adequate capital is available for the investment in farming. The improved agricultural technologies are not being adopted by majority of farmers due to the lack of capital. The capital is needed for different inputs like improved implements, quality seeds, fertilizers, insecticides/pesticides etc. Agricultural credit plays a key role in improving socio economic conditions of rural people through increased farm production.

1.4 The State Bank of Pakistan takes keen interest in providing credit facilities for agriculture through the development of credit institutions and providing credit lines to these institutions. The State Bank of Pakistan, under Section 25 of Banking Companies Ordinance 1962, effective from 1st December 1972 introduced an Agricultural Loans Scheme. In the absence of adequately developed specialized institutions for this sector, commercial banks with their large network of branches were inducted in mandatory agricultural financing under this Scheme.

1.5 The targets of agricultural loans are set by the **National Credit Consultative Council (NCCC)** and are based on the recommendations of the **Agricultural Credit Advisory Committee (ACAC)**. ACAC was set up in 1972 to assess credit requirements of the agriculture sector in order to assist the NCCC in the preparation of the Annual Credit Plan and to consider the ways and means for improving the disbursement and recovery of agricultural credit alongwith suggesting measures for strengthening of institutional framework of agricultural credit.

1.6 In Pakistan, like other developing countries, there are two types of financial arrangements for agriculture; formal and informal.

## **2. Informal Sources of Agriculture Credit**

2.1 The informal sources of agriculture credit include friends, relatives, commission agents, traders, and private money lenders etc.

## **3. Formal Agriculture Credit Source in Pakistan**

3.1 All banks can provide agricultural credit to farmers/growers. The SBP does not restrain any bank from providing agricultural credit. However, under the Agricultural Credit Scheme indicative targets are given to 21 banks on annual basis. These include; two specialized banks (ZTBL & PPCBL), five major commercial banks (ABL, HBL, MCB, NBP & UBL) and 14 domestic private commercial banks; 1) Askari Com. Bank, 2) Bank Al-Habib, 3) Bank Al-Falah , 4) My Bank, 5) Faysal Bank, 6) Habib Metropolitan Bank, 7) PICIC Com. Bank, 8) KASB Bank, 9) Prime Com. Bank , 10) Saudi Pak Com. Bank, 11) Soneri Bank, 12) Bank of Khyber, 13) Bank of Punjab and 14) Standard Chartered Bank (Pakistan).

## **4. Agricultural Credit Eligibility**

4.1 Any individual farmer (owner, owner-cum-tenant and tenant), livestock, fishermen, corporate firms, cooperative societies/self help groups under-taking livestock related activities, fish catching/ processing /packing companies and fish exporters having sufficient knowledge and relevant experience are eligible to draw agricultural credit from banks.

4.2 The commercial banks are bound not to reject any application for agricultural loan except for the following valid reasons that must be recorded in writing:

- 4.2.1 The applicant is not a genuine farmer;
- 4.2.2 The applicant's name does not appear in the Revenue records;
- 4.2.3 The applicant is a defaulter of the banking system;
- 4.2.4 The applicant is unable to produce proper securities/sureties;
- 4.2.5 Credit proposal in excess of entitlement.

## **5. Agricultural Credit Procedure**

5.1 The applicant fulfilling the following criteria may visit any branch of banks extending the agriculture credit:

- 5.1.1 Applicant must be a genuine farmer/tenant. For this purpose a farmer's name must appear in revenue record and a tenant



should establish this fact through a government acknowledgement or the applicant must be handling Non-Farm activities like livestock, poultry, dairy farming, fishery, forestry or firms/ cooperative societies/self help groups undertaking agriculture related activities;

- 5.1.2 The borrower should be holder of computerized N.I.C in cases of individuals;
- 5.1.3 The borrower should not be a defaulter of any Bank/Financial Institution. This condition may be relaxed in cases where the bank is satisfied with the creditworthiness of the borrower and that the earlier default was circumstantial and not willful;
- 5.1.4 Applicant must produce proper securities/sureties/passbook or other collaterals acceptable to the banks.

## **6. Agricultural Credit Coverage**

6.1 The banks provide agricultural credit for farm sector as well as for non-farm sector. The farm sector credit are such as **production/crop loans** i.e. inputs (seed, fertilizer, & pesticides etc.), **development loans** (tractors & tube wells, agricultural machinery/equipments/implements etc.), corporate farming, marketing, cold storage (godowns) on farm & off farm, silos, processing of crops (other than major crops), fruits & vegetables, grading, polishing, packing, transportation and exports of agricultural goods etc.

6.2 Agricultural credit is also available for non-farm sector such as poultry, livestock, dairy farming, forestry and fisheries, apiculture, sericulture, floriculture, horticulture, etc. There is no provision of financing for procurement of fruits/crops under the list of eligible items for agricultural credit such lending would be covered under commercial or SME financing.

## **7. Types of Agriculture Loans**

7.1 The banks provide three types of loans; short-term (upto 18 months), medium-term (1.5 years to 5 years) and long-term (5-7 years). While short-term loans are provided for working capital, medium and long-term loans are given for developmental requirements such as improvement and development of land, purchase of tractors and other agricultural machinery / equipments / implements related to farm and non-farm sector, etc.

**8. Agricultural Credit Mark-Up Rate**

8.1 The State Bank of Pakistan has removed caps on maximum lending rates in October 1995 and minimum lending rates in July 1997 to be charged by the Commercial Banks on agricultural financing. Commercial banks have to disburse their Mandatory Credit Targets allocated to them. Banks are now free to charge the mark-up from the borrowers on the competitive basis determined under market forces. State Bank of Pakistan is providing credit lines only to ZTBL and PPCB on the prevailing Government T. Bill rates in the market.

8.2 The mark up on agriculture credit (roughly 9-24 %) is comparatively higher than the mark-up rate of Commercial/Industrial Credit. In the post financial sector reforms era, banks' markup rates are not fixed by the SBP for different sectors but are based on their cost structure and risk profile of the borrowers and the sector. Banks are required to use Karachi Inter Bank Open Market Rate (KIBOR) as a bench mark for determining pricing of their loans.

**9. Farm and Non-Farm Agriculture Credit Disbursement in Pakistan: 2000-01 to 2010-11**

9.1 During the decade ending 2010-11, total agriculture credit is estimated to have increased @ 24 per cent per annum, oscillated between 32,654 and 263,022 million rupees. The farm and non-farm agriculture credit during the reference period have augmented approximately @ 20 and 40 percent per annum. It has been noted that the growth in farm credit over the time was not proportionate with increase in non-farm credit owing to its smaller base (non-farm credit). Consequently, increase in farm credit remained smaller than non-farm credit by almost 98 per cent. The change in farm and non-farm credit alongwith percent growth rate over the period under review is given in the Table-1 and graphic tendency has shown in Figure-1 below:

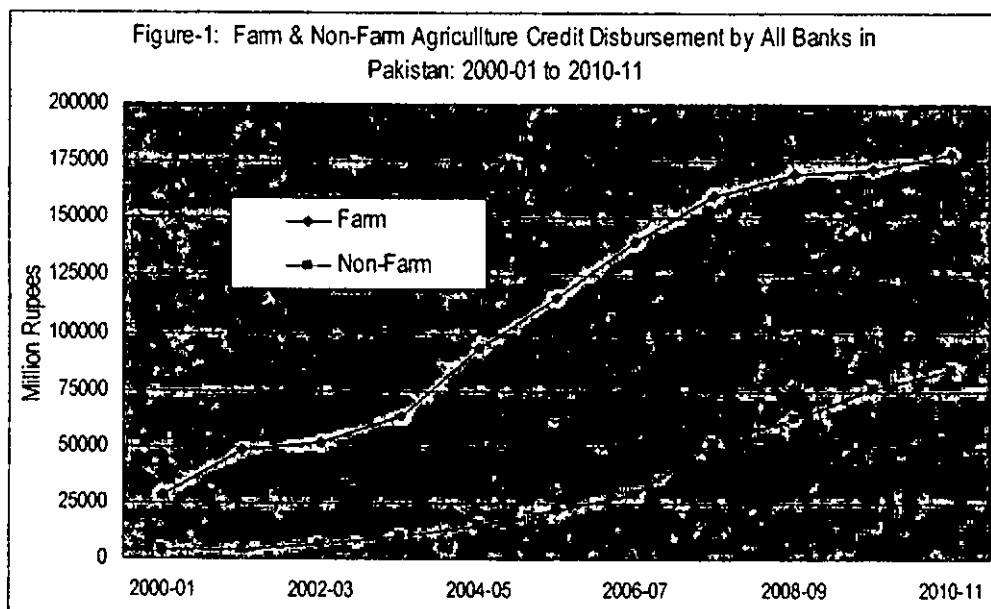
**Table- 1: Farm & Non-Farm Agricultural Credit Disbursements by all Banks in Pakistan: 2000-01 to 2010-11**

(Millions rupees)

Year	Farm	Non-Farm	Total
2000-01	28,233.31	4,420.29	32,653.60
2001-02	48,696.24	4,296.36	52,992.60
2002-03	51,739.97	7,199.91	58,939.88
2003-04	63,363.46	10,110.04	73,473.50
2004-05	93,354.86	15,378.06	108,732.91
2005-06	115,447.41	22,026.99	137,474.40
2006-07	139,491.40	29,339.05	168,830.45
2007-08	159,675.44	51,885.22	211,560.66
2008-09	169,827.27	63,183.03	233,010.31
2009-10	171,744.65	76,375.83	248,120.48
2010-11	178,690.28	84,332.12	263,022.40
<b>Growth rate</b>	<b>20.03</b>	<b>39.59</b>	<b>23.58</b>

**Note:** The growth rates have been worked out by estimating the equation  $Y=a(1+r)^x$  through Ordinary Least Squares (OLS) method.

**Source:** State Bank of Pakistan.



## Sardar Ali Khan, Deputy Chief, API

### 10. Nominal and Real Agriculture Credit in Pakistan: 2000-01 to 2010-11

10.1 The Agricultural Loans Scheme has been designed to cover entire Pakistan with no restriction of territorial jurisdiction. Banks are allowed to provide agricultural loans in cash or in kind at the choice of borrowers to make them able to purchase inputs at the bargain price from the market. The bank can also provide running finance for agricultural purposes on the basis of multiple/revolving limits for period of three years in addition to demand finance (single disbursement) under the Supervised Agricultural Credit Scheme. Banks are now allowed to renew the limits automatically not only on 100% adjustment of the previous loans but also in case of partial adjustments if these are regular repayments. Banks will not ask for any fresh document at the time of each renewal.

10.2 During the decade ending 2010-11, the formal agriculture credit disbursement is estimated to have increased @ 22 per cent per annum due to enhancements in agriculture credit by various agriculture credit lending institutions. The agriculture credit disbursement in nominal and also converted in real terms is given in Table-2.

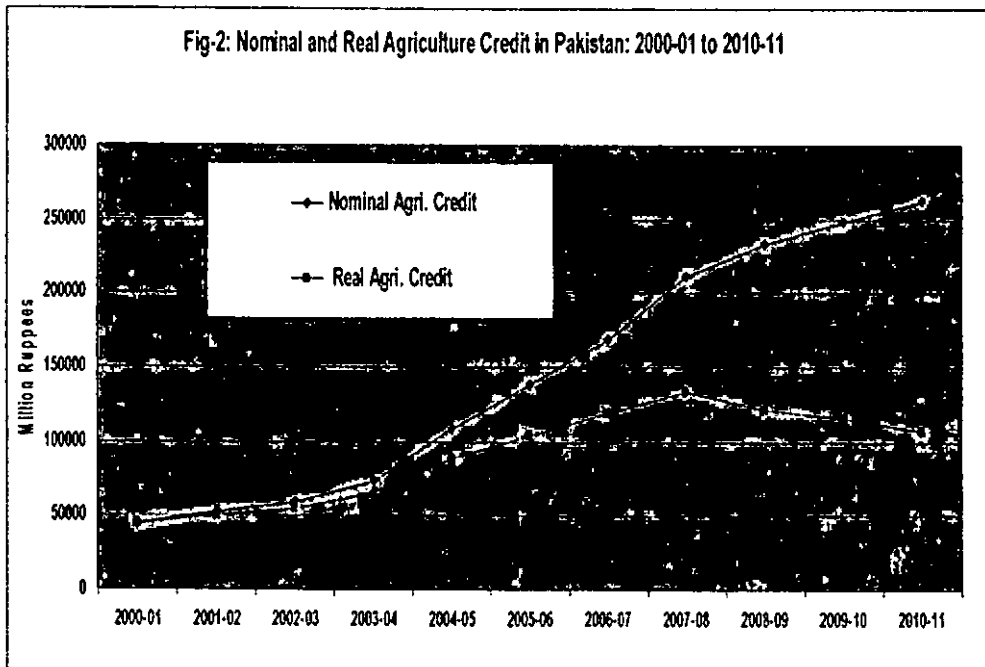
**Table-2: Nominal and Real Credit Disbursement in Pakistan: 2000-01 to 2010-11**

Year	(Million rupees)		
	Agriculture credit in nominal terms	CPI	Agriculture credit in real terms
2000-01	44790	100.00	44790
2001-02	52315	103.54	50526
2002-03	58915	106.75	55190
2003-04	73446	111.63	65794
2004-05	108733	121.98	89140
2005-06	137473	131.64	104431
2006-07	168830	141.87	119003
2007-08	211560	158.90	133140
2008-09	233010	191.90	121423
2009-10	248120	214.41	115722
2010-11	263022	244.26	107681
Growth rate	21.87	9.51	11.29

**Note:** The growth rates have been worked out by estimating the equation  $Y=a(1+r)^x$  through Ordinary Least Squares (OLS) method.

**Source:** Pakistan Economic Survey, 2011-12.

10.3 Table-2 reveals that the nominal as well as real agriculture credit disbursements have been increased overtime in the reference period. However, a huge dissimilarity of increases in both credits has been witnessed. The nominal agriculture credit increased with a compound growth rate of 22 per cent per annum and stood at 263022 million rupees in 2010-11 from 44790 million rupees in 2000-01, whereas the increase in the real agriculture credit was remained @ 11 percent per annum, smaller the growth rate of nominal credit by 94 percent. The real agriculture credit witnessed intermittent increases, reaching at maximum of Rs 133140 million in 2007-08 and afterward arrived at 107681 million rupees in 2010-11 on account of continuous negative growth in the subsequent last three years. The increase/decrease trend in nominal and real terms is depicted in Fig-2 as under.



## 11. Percent Share of Formal Agriculture Credit Financing Institutions

11.1 During the period 2000-01 to 2010-11, the agriculture credit disbursed by various formal financing institutions in Pakistan ranged between 44790 million rupees to 263022 million rupees. The percentage shares of various financial institutions are given in Table-3 below and portrayed at Fig-3.

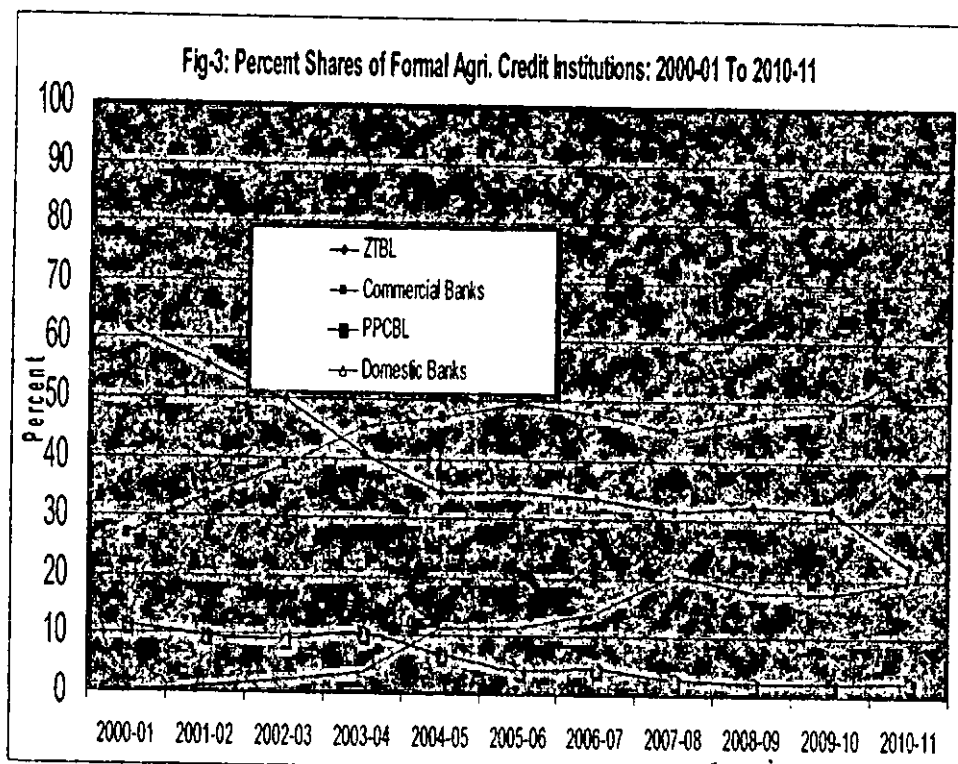
**Sardar Ali Khan, Deputy Chief, API**

**Table-3: Percent Shares of Formal Agriculture Credit Financing Institutions in Pakistan: 2000-01 to 2010-11**

Year	ZTBL	PPCBL	Comm. Banks	Domestic Private Banks	Total	ZTBL	PPCBL	Comm. Banks	Domestic Private Banks
	----- Million Rupees -----					----- Per cent shares -----			
2000-01	27610	5124	12056	0	44790	61.6	11.4	26.9	0.0
2001-02	29108	5128	17486	593	52315	55.6	9.8	33.4	1.1
2002-03	29270	5485	22739	1421	58915	49.7	9.3	38.6	2.4
2003-04	29933	7564	33247	2702	73446	40.8	10.3	45.3	3.7
2004-05	37409	7607	51310	12407	108733	34.4	7.0	47.2	11.4
2005-06	47594	5889	67967	16023	137473	34.6	4.3	49.4	11.7
2006-07	56473	7988	80393	23976	168830	33.4	4.7	47.6	14.2
2007-08	66939	5931	94749	43941	211560	31.6	2.8	44.8	20.8
2008-09	75139	5579	110666	41626	233010	32.2	2.4	47.5	17.9
2009-10	79012	5722	119609	43777	248120	31.8	2.3	48.2	17.6
2010-11	65361	7162	140312	50187	263022	24.9	2.7	53.3	19.1
Growth rate	12.70	1.58	28.12	64.18	21.87	-7.53	-16.65	5.12	34.77

Source: Pakistan Economic Survey, 2011-12.

11.2 It is obvious from Table-3 that at commencing of the referenced period, the major contributors of agriculture credit were the government sponsored banks i.e. ZTBL and PPCBL, contributing more than 70 percent of the total credit while the share of commercial and domestic banks was hardly 30 percent. With passage of time, shares of the ZTBL and PPCB got smaller and smaller and arrived at 28 percent in 2010-11 because of negative growth rates of 8 and 17 percent per annum by the ZTBL and PPCBL respectively. On contrary the collective share of commercial and domestic banks in the total agriculture credit levitated more than 70 percent owing to more or less 5 & 35 percent per annum of the respective banks.



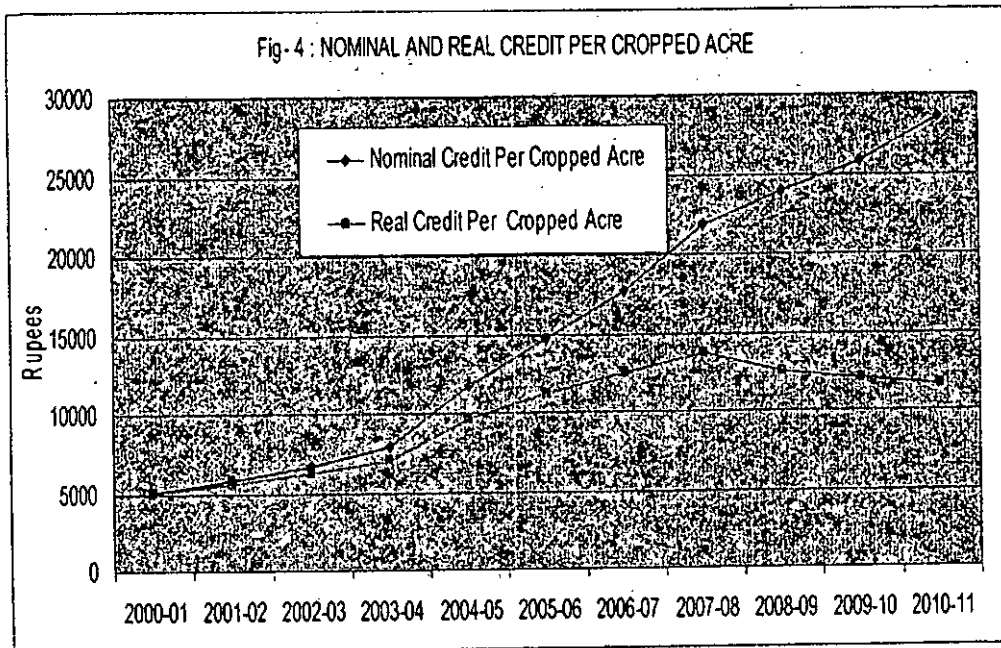
## 12. Formal Agricultural Credit by Land Utilization

12.1 During the decade ending 2010-11, the availability of nominal credit on per cropped acre basis increased continuously and with a compound growth rate of 21 percent per annum, placed at 28569 rupees per acre in 2010-11 from 5022 rupees per cropped acre in 2000-01. While accessibility of real credit per cropped acre also shown likewise trend up to 2007-08 and improved from Rs 5022 to Rs 13783 per cropped acre after which it declined constantly and touched the lowest level of Rs 11696 per cropped acre in 2010-11 owing to continuous negative growth till ending of the decade. As a result, the increase in the real credit per cropped acre in the reference period remained 10 percent per annum, slighter around 100 percent than the growth rate witnessed in nominal credit per cropped acre. The disbursement of Formal Agriculture Credit by land utilization is given in Table-4 and depicted at Fig-4 below.

**Table-4: Formal Agriculture Credit by Land Utilization: 2000-01 to 2010-11**

Year	Total credit (Million Rs)	Total Cropped area (million hectare)	Nominal Credit Per Cropped Acre (Rs)	CPI	Real Credit Per Cropped Acre (Rs)
2000-01	44790	22.04	5022	100.00	5022
2001-02	52315	22.12	5844	103.54	5644
2002-03	58915	21.85	6663	106.75	6242
2003-04	73446	22.94	7912	111.63	7087
2004-05	108733	22.78	11795	121.98	9670
2005-06	137473	23.13	14687	131.64	11157
2006-07	168830	23.55	17715	141.87	12487
2007-08	211560	23.87	21901	158.90	13783
2008-09	233010	24.01	23981	191.90	12497
2009-10	248120	23.76	25805	214.41	12035
2010-11	263022	22.75	28569	244.26	11696
Growth rate	21.87	0.77	20.95	9.51	10.44

Source: Pakistan Economic Survey, 2011-12.





### 13. Institutional Agriculture Credit as Percent of Agriculture GDP

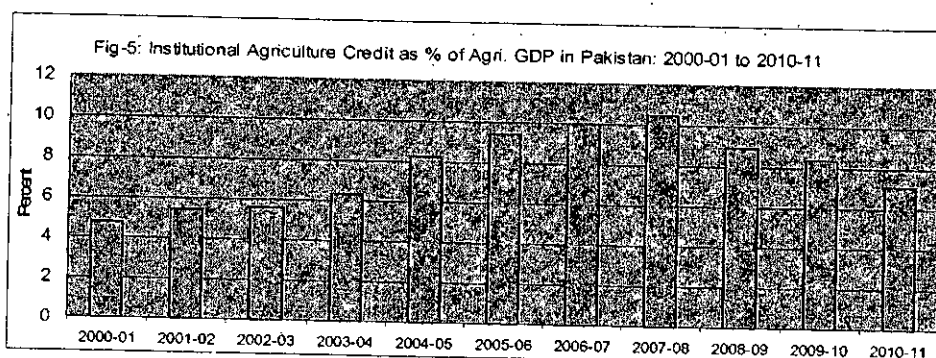
13.1 The ratio of institutional agriculture credit to agriculture GDP expressed in percentage for the period 2000-01 to 2010-11 is shown in Table-5 and pictured at Fig-5.

**Table- 5: Institutional Agriculture Credit as percent of Agriculture GDP: 2000-01 to 2010-11**

Year	Agriculture GDP	Inst. Agr. Credit	Inst. Agr. Credit as of Agr. GDP
	----- million rupees -----		Percent
2000-01	945301	44790	4.74
2001-02	968291	52315	5.40
2002-03	1059316	58915	5.56
2003-04	1164751	73446	6.31
2004-05	1314234	108733	8.27
2005-06	1457222	137473	9.43
2006-07	1685240	168830	10.02
2007-08	2017181	211560	10.49
2008-09	2611526	233010	8.92
2009-10	2972660	248120	8.35
2010-11	3697068	263022	7.11

- Sources:**
1. For 2000-01 & 2002-03: Pakistan Economic Survey, 2003-04
  2. For 2003-04 to 2010-11: Pakistan Economic Survey, 2011-12

13.2 The institutional agriculture credit as percent of agriculture GDP grew from 4.74 % in 2000-01 to a highest of 10.49 % during 2007-08. Afterwards, the credit as percent of agriculture GDP continuously declined with a lowest of 7.11 percent occurring in 2010-11. It shows that after 2007-08, the institutional credits constituted a smaller and smaller portion of the agriculture GDP.



#### 14. Conclusion

14.1 The formal institutional agriculture credit expanded during the decade ending 2010-11. At the outset the ZTBL and PPCBL, government sponsored institutions were the major sources of agriculture credit, contributing more than 70 percent. However, with passage of time share of both banks drastically declined and touched the lowest percent share of 28 percent whereas the share of commercial and domestic banks sharply grew and exceeded than 70 percent. Both farm and non-farm agriculture credit grew overtime, however increase in farm credit remained smaller than non-farm credit. Moreover, the availability of institutional credit per cropped acre increased in nominal as well as in real terms, nevertheless, magnitude of increases of both were not harmonized. Consequently, the increase in real terms remained lower by approximately 94 percent than the increase in nominal terms because of negative growth after 2007-08. The correlation between formal institutional credit and agriculture GDP was positive up to 2007-08 and thereafter it remained inversed throughout.

14.2 The declined availability of institutional credit in real terms after 2007-08 on overall basis, per cropped acre and as well as percent of GDP and increasing per acre costs of production due to increasing prices of inputs, withdrawal of inputs subsidies and levy of G.S.T on agriculture inputs like fertilizer, pesticides may have adverse implication for agriculture growth.

14.3 It is suggested that financial institutions particularly ZTBL and PPCBL, affordable mark up lending institution being government backing banks be encouraged to expand agriculture credit and extend the network of formal institutional credit to larger portion of the farming community, especially small farmers. Moreover, crop insurance scheme against losses from devastating drought, pest attacks, hailstorm, heavy rain and floods and other natural hazards on payment of small premium in addition to credit mark-up, need of the hour to be encouraged.

**15. References**

1. *State Bank of Pakistan.*
2. *Pakistan Economic Survey 2003-04.*
3. *Pakistan Economic Survey 2011-12.*
4. *Agriculture Statistic of Pakistan 2010-11*

# FOOD SECURITY AND ECOLOGICAL FOOT PRINTS AND SUSTAINABLE DEVELOPMENT OF COASTAL ZONE SINDH

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## **Abstract**

*This research presents the status of food security and ecological foot prints, and sustainable development in coastal areas of Sindh, Pakistan. Using the static, non-separable agricultural household model, this paper seeks to examine the effect of change in key exogenous factors on food security and consumption pattern of rural households in rural Sindh. Household level data used were those collected from the cross sectional surveys from August 2007 to September 2009, covering five districts of Coastal areas of Sindh i.e. Badin, Thatta, Keenghar, Gharo ,and Karachi. The overall food security level in all above coastal belts is miserable. A dynamic model of integrated management of coastal zone of food security has been development. The result tends to suggest that household full income, food prices, and women specific variables such as age and time allocation influence household food security. Notably the women specific variables tend to indicate a slightly more significant impact than food prices. The sustainable development of coastal zone of Sindh province in the long run if primitive measures should be taken to secure food. Arguably no single policy can be employed to effectively improved food security of rural households. Instead mix policies are suggested, explicitly addressing issues that are central to raising the productivity of women.*

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*Key words- Food, Security, Coastal Zone, Foot prints, Rural, Sindh*

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## **1 Introduction**

1.1 More than 75% of the population of Pakistan is living in the rural area and depend on agriculture for their livelihood, including food security and employed 50% of the labor force of the country. Small-scale farmers, mostly women dominate the agriculture sector in general and the food sub-sector in particular. Much of the economic growth Pakistan is enjoying today derives from this sector, and food security at all levels depends on small-scale farmers. Paradoxically, growing poverty and food insecurities in rural areas are taking place in the midst of economic growth and national food self-sufficiency. Over three million people are currently estimated to be food insecure in interior Sindh. This paper seeks to explore how food security of the rural households responds to changes in exogenous factors. The food security concept has evolved since the world Conference in 1974 from global and national level and from food availability to food accessibility issues (see for example, Maxwell and Smith 1992,-96). In part this explains the current misconception of food security concept by policy makers in Pakistan. Ensuring food self-sufficiency at the national level is still perceived as a necessary and sufficient condition for food security at lower levels. In contrast, scanty evidence at the household level indicates that nearly 41% of the children below 5 years are undernourished and 14% of the women deliver babies of low weight, and feeding on wild foods by households in some localities. These points to growing food insecurity at the household level and the failure on the part of policy makers to address the food accessibility issues.

## **2. Theoretical Model Specification**

2.1 To examine the determinants of house hold food security, the agriculture house hold model frame work is employed. This frame work is theoretical underpinning from the house hold production theory. The model is continuing to receive a wider application in household production decision, consumption decision. Earlier application model in developing countries either assumed perfect market, perfect sustainability between family and hired labor perfect substitutability of labor between wife and husband or perfect substitutability between purchase and produced foods. These assumptions are too unrealistic for rural households in Pakistan.

2.2 Each house hold allocates its total time  $T=t^m t^w$  among the productive activities  $F=f^m f^w$ , domestic activities  $H=h^m h^w$  the leisure  $L=L^M L^W$  where superscripts m and w refers to male and female who is either the head or spouse to head of the house hold respectively. The time constraints for the

husband and wife are expressed in equation one. It is assumed that off-farm and hired labor and on farm labor provided by children and other adult members are fixed. It is also assumed that the time allocated to different farm tasks is at least fixed in the short run. The labor inputs of wife and husband are hypothesized to be imperfect substitutes.

$$1. T^d + F^d + H^d + L^d$$

2.3 The rural household in Pakistan grows variety of food crops partly for own consumption and partly for sale. Each household is postulated to produce S output. This paper assumes as separable utility function for food which employ's two stage budgeting hypothesis. At stage one-house holds determine their expenditures on the following broad categories, namely, food, health, education, health and other non-food items. At stage two expenditures are allocated among the item in each broad group. At this stage the household is postulated to maximize group utility function therefore the discussion that follows assumes household to maximize food group utility function. Each rural household postulated to jointly maximize utility as expressed in equation four subject to time and income constraints expressed in equation five and six respectively. The household profit is introduced in the income constraints in Eq. 6, a point of departure from traditional consumption theory.

$$(2) \text{ Max } U1 (X, Z, L^m, L^w, C)$$

Subject to

$$(3) F^d + H^d + L^d \leq T^d$$

$$(4) P_x X + P_z Z + w^m L^m \leq \alpha (p_q, w_w, P_e, N) + S^w + S^m$$

2.4 Under the local no satiation assumption, utility maximizing consumption bundles must meet the income constraint in Eq.4. Give the duality that exists between the direct and indirect utility function, the household is postulated to maximize a joint indirect food utility function that gives the maximum utility achievable at given prices and income as expressed in Eq.5.

$$(5) V1(p_x, P_z, w^w, w^m, M, C) = X, Z, T^m - F^m - H^m - F^w - H^w, C)$$

Subject to

$$P_x X + P_z Z + w^m L^m \leq \alpha (p_q, w_w, P_e, N) + S^w + S^m$$

2.5 How does one processed from Eq.5 given the behavior of the labor markets and very low application of other farm inputs especially fertilizers and improved seeds, in rural Sindh? Imperfections in the labor markets pose a major problem in the empirical estimation of an agricultural household

model, especially in this case where a formal labor market does not exist. Researchers have employed different methods to impute value of labor, especially for those individuals who are self-employed including on farm employment for household members who do not work for a wage. The first category of these studies such as *Senauber et.al.* (1986) and Rosenzweig (1980) assumed the wage rate to be exogenous to the households. The second category of these studies has assumed the shadow wage rate to be determined within the households. Studies (such as *Gronau 1977*, Jacoby 1993; Skoufias 1993 1994 Lambert and Magnac (1994) have used the marginal productivity of labor derived via the agricultural production technology as proxies for wages.

### **3. Data, Estimation Procedures and Techniques**

3.1 The data used were collected from a cross-section survey of 300 households from five districts in rural Sindh from August 2007 to September, 2009 from Coastal areas of Sindh. The data offer unique opportunities to study household food security in rural Sindh. Firstly, data on consumption and production were collected from the same households. This is an important issue in the estimation of a complete agricultural household model. Secondly, data were collected directly from women, the key players in ensuring food security. Thirdly, some data variables such as time allocation and asset ownership were disaggregated by gender. Fourthly, the coverage of the survey ensured price variability across households to circumvent the conventional demand analysis using cross section data, where prices are omitted.

### **4. Effects on Household Size**

4.1 In the five districts, the effects of the household size was negative and statistically significant for all the three measures of household food security. The negative sign is consistent with the findings of Wolfe and Behrman (1983) but contrary to the findings of Rogers (1996) of a positive sign for the Dominican households. In all five districts the impact of household size was significantly higher in daily calories security than other two measures of household food security. Given that the rural households derive much of their consumption from own production, some would argue that the larger the household size higher the food production, and the subsequent improvements in overall household food accessibility, however the overall results for all the five districts suggest the positive.

**Table.1: Results on the production side of the Non-Separable Agricultural Household Model**

Variables	Districts									
	Gharo		Badin		Thatta		Karachi		Keenghar	
	Co-efficient	T-Ratios	Co-efficient	T-Ratios	Co-efficient	T-Ratios	Co-efficient	T-Ratios	Co-efficient	T-Ratios
Extension ser.	0.25	1.45	0.33	1.32	0.55	1.54	-0.3	-1.64	1.33	0.33
Hired Labour	0.27	1.34	0.54	1.10	-	-	0.25	1.30	0.20	0.22
Improved Seed	-	-	0.40	1.22	0.32	1.01	-	-	1.40	0.55
Credit Facilities	-0.53	-1.88*	0.09	-0.17	-	-	-	-	-0.087	-1.9
Farming land	0.34	1.7*	0.31	1.80*	-0.10	-0.17	-0.28	-1.71	-0.12	-0.35
Family Head	.43	-1.78*	0.089	-0.19	-	-	0.015	1.23	-0.098	-0.66
In Size	0.43	-1.88*	1.09	0.25	0.68	3.48	0.90	7.12	-	-
R <sup>2</sup>	0.31		0.21		0.33		0.23		0.19	

**Note:** Significant at 5% level of significant.

4.2 Women's education results indicate significant positive effects on the overall household food production in Badin and Karachi. Educated women have a capacity to process and apply the information passed to them, such as better farm methods and seed selection. Overall, the primary education of the woman had a higher impact on household food production than the other variables in the case of Karachi. Women's education affected not only household food production but also food security. Unlike the consumption side of the model, time spent on the productive activities by a woman was positive and significantly affected household food production except for Karachi. The impact was slightly higher for Thatta.

## 5. Women Labor Supply

5.1 The results of labor supply from a non-separable agricultural household model are reported in Table.3. The number of significant variables varied from district to district. More than 50% of the variables were found significant for Keenghar and Thatta and only less than 50% for Karachi.



**Table-2 Results for Women Family Labor Supply**

Variables	Districts									
	Gharo		Badin		Thatta		Karachi		Keenghar	
	Co-efficient	T-Ratios	Co-efficient	T-Ratios	Co-efficient	T-Ratios	Co-efficient	T-Ratios	Co-efficient	T-Ratios
In meat	0.03	1.20	-0.02	-1.11	-0.02	-0.48	-0.03	-0.38	0.04	0.10
In cereals	0.01	0.27	-0.10	-2.48	0.00	0.20	0.25	1.30	0.20	0.22
In oils	0.02	1.35	0.40	1.22	0.32	1.01	-	-	1.40	0.55
In fresh vegetable	0.45	-1.88*	0.09	-0.17	0.010	0.03	-0.02	0.20	-0.087	-1.9
In legumes	0.34	1.7*	0.31	1.80*	-0.10	-0.17	-0.28	-1.71	-0.12	-0.35
Edu.1	.43	-1.78*	0.089	-0.19	-	-	0.015	1.23	-0.098	-0.66
Constant	0.43	-1.88*	1.09	0.25	0.68	3.48	0.90	7.12	-	-
R <sup>2</sup>	0.33		0.34		0.33		0.28		0.24	

**Note:** Significant at 5% level.

5.2 The impact of exogenous variables on a woman labor supply varied considerably from district to district. The elasticity with respect to woman's access to extension services had a higher impact on her labor supply than any other variable in the case of Gharo. In Karachi headship had a higher impact and size in the case of Badin than any other variables included in the model. Primary education showed a higher influence than health variable in Badin and Keenghar. Furthermore non-reparability of woman labor supply and household production showed up in different variables across the districts, for instance cereals and vegetable price in Gharo and extension service in Keenghar. The significance of joint test on women-specific variables for woman labor supply and household food production in the case of Badin further confirm the non-separability

## 6. Conclusion

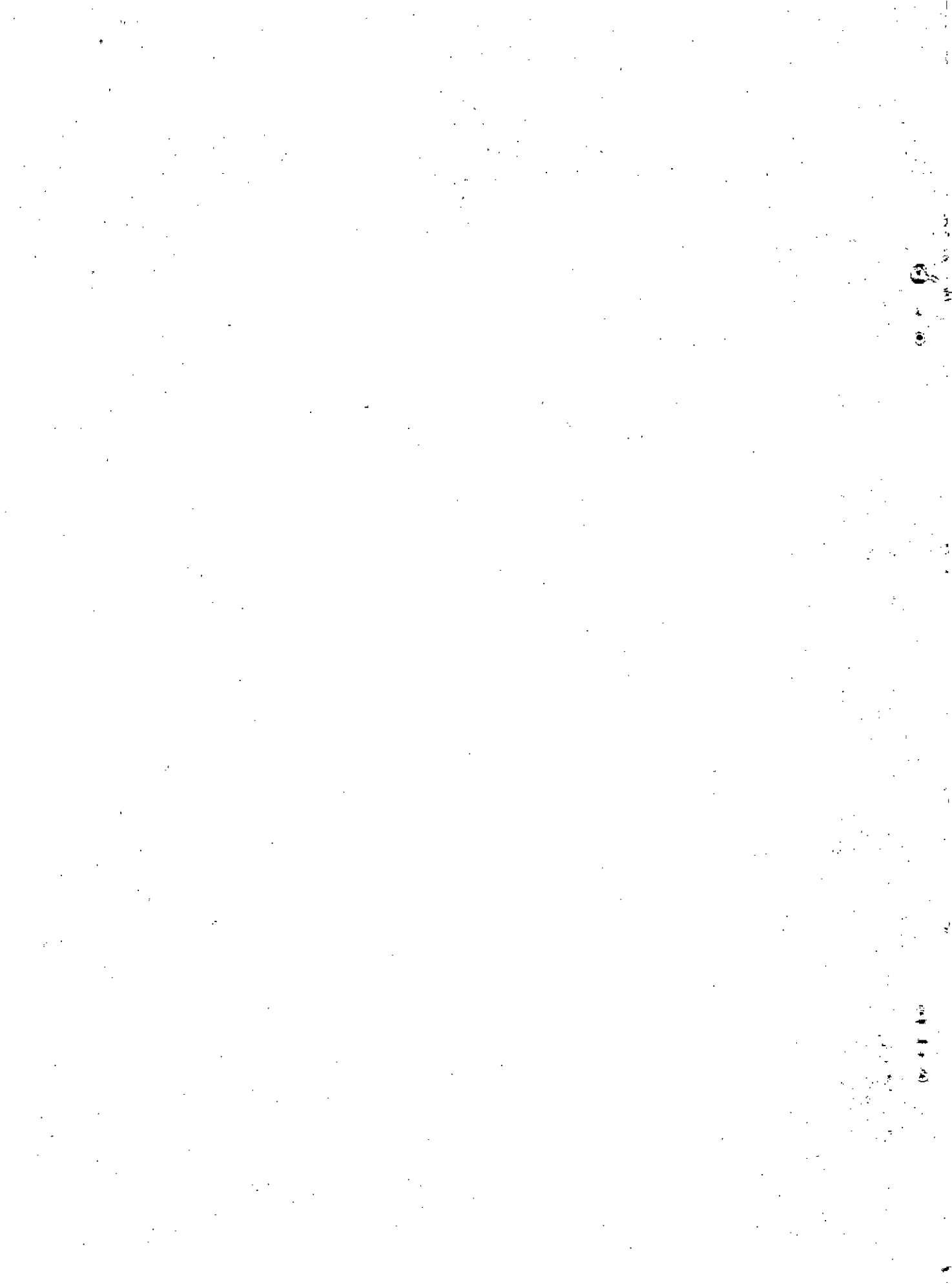
6.1 A quantitative technique was used to measure the food security on micro level and macro level was analyzed. The results of the analysis provide useful inputs for effective household food security planning and decision making processes. The paper is empirically demonstrated how food security of rural households respond to changes in exogenous factors, including the women specific variables. Further more this research demonstrated that a complete non-separable household model effectively be employed to explain the behaviors of rural household. Non-separable of household consumption and production decisions was evident from the findings when some exogenous factors influence both decisions. The estimated results for rural Sindh were 39% of population was food insecure. In Pakistan the policy

makers that can be employed to improve the rural household unfortunately both military and democratic governments has not taken keen interest to address this crucial issue. Rural women should be assisted to improve their productivity on ecologically sound and sustainable basis. Additionally strategic policies should be implemented for improved food security awareness among the rural household.

7. **References**

1. Aldmen, H, Garcia, M.(1994). *Household food security and nutrition in Rural Pakistan*, Research report 96, International food policy Research institute Washington DC.
2. Ali, R, and Pitkin, B (1991) "searching for household food security in Africa, *Finance and development*, 28 (4), pp.3-6.
3. Ayres, WS .and McCalla, A.F. (1996). *Rural development Agriculture and food security*.[www.worldbank.org/fandd/English/1296/articles/021296.htm](http://www.worldbank.org/fandd/English/1296/articles/021296.htm).
4. Benjamin, J.R, and Wolfe, B.L, 'more evidence in nutrition demand, income seems over related and women's schooling underemphasized *Journal of development Economics*, 14.p.p0105-128.
5. Benjamin. (1992). 'Household Composition, labor markets, and labor demand: testing for separation in Agricultural household models' *Econometrical*, 60(2), pp.287-322.
6. Bezuneh, M., Deaton, B.J.and Norton, G.W (1988). 'Food aid Impact in rural Kenya. *American Journal of Agricultural Economics*, 70(1) pp.181-191.
7. Bombay T.B.Hill, R.C.Johnson, S.R. (1984). *Advanced Econometric methods*, Springer-Verlag, New York.
8. Caillavet, F., Guyomarrd, Hand Lifran, R. (eds) (1994). *Agricultural Household modeling and family economics*, Elsevier, Amsterdam and Tokyo.
9. Delisle, H., Alladoumgue, M., Begin, F., Nandjingar, K. and Lasoersa, C (1991), *Household food consumption and nutritional Adequacy in Wadi zones of Chad, Central Africa; Ecology of food and nutrition* 25(3).pp 229-248.
10. *Economic Survey of Pakistan 2005-06*.
11. Green, W.H (1997). *Econometric analysis 3<sup>rd</sup> ed*. Prentice Hall, New Jersey.
12. Heien. D, and Wessells, C.R. (1990) 'Demand System Estimation with micro data: A censored Regression Approach; *Journal of Business and Economic Statistics*, (8) 3, pp.365-371.
13. Jacoby, H.G. (1991)'Productivity of Man and Women and the sexual division of labor in peasant Agriculture of Peruvian Sierra. *Journal of Development Economic Studies*, 60, pp.903-921.

14. *Koopman, J (1991), 'Neoclassical Household models and Models of household production: problems in the Analysis of African Agricultural Household Review of Radical Political Economics, 23(3and 4) pp.148-173.*
15. *Lopez, R.E. (1984). 'Estimating labor supply and production Decisions of self employed farm producers; European Economic review, 24, pp.61-82.*
16. *Maxwell, S (1996) 'food security and a Post-Modern Perspective, food policy, 41(2) pp.385-399. Measurements. A technical review, jointly sponsored by UNICEF and IFAD.*



# STATE OF NUTRITIONAL SECURITY IN PAKISTAN

By

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## *Abstract*

*Household Income and Expenditure Surveys have been conducted by FBS at regular intervals. The 2007-08 survey estimated calorie consumption per capita of 1931 units while 2010-11 survey estimated consumption of 2003 units, an increase of 4 percent. Average HHS has decreased from 6.58 to 6.38 persons, a decrease of 3 percent. To maintain dietary level of the food basket about 20 percent more liquidity was required in 2010-11 as compared to 2009-10. NNS 2011 estimates 58 percent households are food insecure and 42 percent are food secure. About 10 percent households are food insecure with severe hunger. Government provides targeted safety nets to the poor.*

## **1. Nutritional Security**

1.1 The 1996 World Food Summit adopted a complex definition. "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 need 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 individual household member that is the ultimate focus.

## **2. Food Consumption in Pakistan**

2.1 The official source of food consumption is the Household Income and Expenditure Survey conducted by Federal Bureau of Statistics at regular intervals. The latest HIES was conducted for 2010-11 and the previous one in 2007-08. The food consumption data in respect of these surveys provides detailed analysis of rural and urban food consumption as well as food consumption at country and provincial level. It also provides a detailed quintile analysis of geographical identities mentioned above. Food consumption in respect of native population range from cereals, meats, vegetables, fruits, pulses, sugar and tea etc. The food consumption in respect of various food items has been converted into calorie intake by applying the

caloric value of each item. The caloric value have been taken from the record of Diabetic Association of Pakistan (Annex-I).

2.2 Average per capita consumption of calories per day at country level has been worked out at 2003 calories by HIES 2010-11.

2.3 A diet is called balanced if it contains all ingredients sourced from cereals, meats edible oils, fruits, vegetables, milk, eggs pulses etc. Keeping in view the dietary requirements of the infants, population below 18 years, above 60 years, lactating mothers and of course the major chunk of population between 18 to 60 years of age.

2.4 According to the household income and expenditure survey of 2010-11 about 2003 calories are consumed a day, about 70 calories more than the 1931 calories he was consuming 3 years ago in 2007-08. In his diet although 70 more calories have been added but it is still not balanced.

2.5 In an average balanced diet menu wheat and rice are assumed to have share of about 30 percent but average Pakistani is consuming about 51 percent and even the richest 20 percent consume 42 percent from cereals. Calories to be derived from milk should be around 20 percent but the average Pakistani is taking 12 percent calories from milk and the richest quintile consuming 16 percent. For a balanced diet menu 20 percent calories are expected to come from all sorts of meat. Even the last quintile consuming highest calories in total does not meet this criteria. Not to speak of fruit consumption and other basic necessities of diet. Inflation, specially food inflation has deprived access to these basic diets.

2.6 However a balanced 2000 calorie per day menu of Diabetic Association of Pakistan (Annex-II) gives a complete consumption chart through the day. It mentions consumption of 400 calories at breakfast, 300 calories in tea before lunch, 500 calories at lunch, 210 calories at evening tea, 490 calories at dinner and 200 calories before sleep. Details of calorie consumption at each meal are available in (Annex-II).

2.7 The HIES provides item wise calorie consumption from 2010-11 survey. The 2003 calorie units consumed in Pakistan per day include 920 calories from wheat, 121 calories from rice, 263 calories from milk, 273 calories from edible oil and ghee, 183 calories from sugar and gur and 240 calories from other edible sources (Annex-III).

2.8 Prima Facia it appears that dieting pattern of Pakistani population is not balanced one. About 80 percent of the caloric intakes of the population of

Pakistan comes from wheat, rice, milk, ghee, oil, eggs and sugar. The poorest of the poor quintile take 91 percent of the caloric intake from these 7 items. The next three quintiles consume almost 89 percent calories from these edibles. The last quintile is the richest of these classifications. These specific items constitute 83 percent calories in their diet. Wheat is the single largest cereal of the diet of an average Pakistani who consumes 45 percent calories from wheat. The poorest of the poor 20 percent take 54 percent caloric intake from wheat. In the next three quintiles consumption of calories from wheat decreases slowly while the cumulative caloric intake of specific items being discussed remain almost constant. The richest 20 percent take only 37 percent calories from wheat. Their next highest edible is milk which accounts for 16 percent of the total caloric consumption from this group.

2.9 About 9 percent of the calories in the diet of the population is from sugar consumption. Ghee and oil provide 14 percent calories, about 5 percent more than the amount received from sugar. All the quintile groups share 13 to 14 percent calories from Ghee and oil. It is worth mentioning that all sorts of meats including mutton, beef, chicken, fish are not included in caloric intake of 88 percent. All sorts of fruits and dry fruits are also not included they are included in 12 percent 'others'. Meaning thereby that their contribution is insignificant in the total caloric consumption of an average Pakistani. However they have a specific significant share in the total diet of the richest of 20 percent.

2.10 The comparison of the two menus brings to fore the differences in actual consumption and recommended balanced diet. There is a need of awakening the people about consumption of nutritious diet for healthy life. Even the people falling in fifth quintile does not have balanced and nutritious diet.

### **3. Daily Per Capita Calories Consumption**

3.1 According to HIES 2010-11 conducted by FBS, Islamabad. Total per capita daily consumption of calories from different sources of food items including cereals, pulses, meats, fruits, vegetables, Milk/Yogurt, sugar and condiments is estimated at 2003 calories at country level (Annex-IV). This calories intake is 72 units more than the 1931 units (Annex-V) estimated by the earlier such survey conducted in 2007-08, about 4 percent calories more than the previous consumption estimate.

3.2 Consumption estimates differ by provinces and rural-urban classifications. Food is produced in rural areas as it is agriculture based therefore access to food by the rural population is more easy. Partly because



they grow their own food and partly because they receive food as kind payment of the work done in the agriculture activity as a farm labour. The urban class has to purchase food from their earnings, received from different activities performed in the urban/rural sector. At the country level the urban-rural differences in calorie intake are estimated at 200 units. The urban class consumes 1872 calories while the rural class consumes 2071 calories with the overall country level calorie intake of 2003 units. The urbanities are poorly fed as compared to the rural population to the tune of 8 percent. These differences are supported by all the four provinces but at varying degrees.

3.3 On the average Punjab population consumes 2029 calories a day, about one percent more than the consumption at national level. Both the urban and rural population of the provinces consumes more calories compared to the national level averages consumed by respective population groups. The urban class in the Punjab consumes 1902 calories in their daily diets while the diet of the rural class in calories is rich as it consumes 2084 calories a day. The urban-rural differences between the two is 182 calories or 9.6 percent a day.

3.4 Sindh province is the most deficient in calories consumption. Its average daily consumption is 1880 calorie units. The population of Sindh consumes 123 units less as compared to the intake of an average Pakistani and 149 units less when compared with brothers living in the Punjab. The diet of the population in Sindh contains 6 percent less calories when compared with national level and 9 percent less calories when compared with Punjab level. The urban rural differences in dietary habits brings to fore some alarming facts. The diet of urbanite in Sindh is calorie deficient as compared to rural population's diet. The urbanites have only 1784 calories a day while that of rural population consumes 1979 calories. The difference between the two is about 195 units a day. Meaning thereby that urban population in Sindh consumes 10 percent less calories than their rural counterpart.

3.5 Diet of the population of KPK is more calorie enriched as compared to Punjab and Sindh. Its population consumes 2041 units a day. The question is why it exceeds in richness in diet of Punjab and Sindh. In KPK beef consumption per capita exceeds with the intake of the two provinces where generally vegetables and pulses are consumed. The rural part of KPK consumes more calorie rich diet as compared to urban part mainly because of more beef consumption. In the rural society of KPK about 2061 calories are consumed while the urban areas consume 1977 calories a day. Higher

calories consumption in rural areas is prevalent in all the provinces of Pakistan.

3.6 Balochistan is the largest province of Pakistan in terms of area at the same time its population has very rich diet as it consumes 2127 calories a day. It is an eye opener as the intake level of population of the province exceeds the national level intake by 6 percent. This excess in calorie level of the province is due to consumption of goat/sheep meet which contains more calories than beef and chicken. Herd rearing is the basic source of income of the inhabitants of the province. In Balochistan also the diet of the rural population is more nutritious as compared to the urban diet. The rural calorie intake in Balochistan is 2157 units which is the highest at country level. Similarly the number of calories consumed per day in urban parts of Balochistan exceeds the calorie consumption of the other urban parts of different provinces.

#### **4. Where Poorest of the Poor Lives**

4.1 The HIES 2010-11 estimates that average per capita consumption of calories per day is 2003 units. The provincial and urban-rural variation has been discussed in detail. Here we have the opportunity to do more rigorous analysis on calorie consumption by using the quintiles data available by provinces with separation of urban and rural areas.

4.2 The first quintile refers to the least consumption categories followed by second, third, fourth and fifth quintiles where the consumption level increases by quintile hierarchy. The average per capita calorie consumption per day as estimated for the first quintile is only 1473 units, about 27 percent less than the per capita consumption of the average Pakistani of 2003 units. In the second and third quintile the consumption level is 1782 and 1977. Both of them are still less by 11 and 2 percent when compared with the national level consumption estimate. These comparisons indicate that more than 60 percent of the population is deprived of the estimated calories of 2003 units. The situation improves at fourth and fifth quintile position as their intakes are 2203 and 2606 units respectively, which exceed the average by 9 and 30 percent, respectively.

4.3 Calorie intake in Balochistan is the highest and it is the lowest in Sindh. The rural areas enjoy more calorie rich diet than the urbanite. Further more as a way of analysis calorie consumption increases by quintiles. Population falling in the first quintiles consumes the least calories and in the fifth quintile the highest calories.

4.4 Further analysis indicates that poorest of the poor lives in urban Punjab as the urbanites falling in the first quintile of the province have only 1313 calorie units in their daily diet. The consumption figures of all the areas and in all the quintile groups exceed this number. Unlike the national level consumption that the 60 percent population of Pakistan is not consuming the 2003 units. In case of Punjab 80 percent of the population is surviving below average per capita consumption of 2036 calories per day. The Sindh situation matches with the average figure of 60 percent. The situation in KPK and Balochistan is encouraging as only 40 percent of the population is not getting the average per capita daily calorie intake.

4.5 Highest calorie consumption is estimated for the fifth quintile group of Balochistan in both urban and rural areas. For the urban areas it is 2692 units and for rural areas it is 3320 units which is 65 percent more than the national average.

## **5. Comparison of Per Capita Calorie Consumption: 2007-08 Vs 2010-11**

5.1 Household income and expenditure survey provides data on dietary item which contain variable amounts of calories by geographical and economic classification of households. The survey is conducted after three years. The current estimates refer to 2007-08 and 2010-11 surveys conducted by FBS. Pakistan Economic Survey also estimates per capita calorie consumption through balance sheet method. Calorie consumption estimates of both the years are available in the economic survey of 2011-12. Estimates of consumption have also been estimated by API by processing the HIES data of the respective years.

5.2 HIES estimate captures consumption of food intake within the house. It does not cover food consumption elsewhere which includes food consumed in hotels, restaurants, hostels, marriage parties and other arranged functions. Economic Survey captures, food consumption through balance sheet method which accounts for all the food produced domestically, imported and exported during the year, and stocks available. Due consideration is made of grain required for use as seed and for industrial purpose as well.

5.3 The difference between the two has already been explained above which is of the order of 400 units and is narrowing down over time. HIES estimates enhanced calories consumption by 4 percent while economic survey estimates marginal enhancement.

5.4 HIES provides estimates by quintile grouping. Poorest of the poor falling in the first quintile on the basis of calories consumed and finally the fifth quintile group takes highest caloric intake. Population falling in the first 20 percent group is estimated to have consumed 1773 calories in 2010-11 against 1805 unit consumption in 2007-08, a decrease of 32 calories or 2 percent. However consumption in the other quintiles has increased but at varying degrees, second quintile 2 percent, third quintile 4 percent, fourth and fifth quintile 5 percent each. It simply brings to fore the fact that the poor is becoming more poor.

5.5 Generally 2100 calories per capita per day are required for healthy living. Estimates of quintile consumption on the basis of economic survey results have been worked out by API using HIES quintile ratings with the overall country diet estimates. They narrate similar story as have been worked out by the pattern of HIES estimates (Annex-VI).

## **6. Eradication of Extreme Poverty and Hunger**

6.1 UN has set various Millennium Development Goals. It inter alia included eradication of extreme poverty and hunger. It was prioritized as Goal-1 the target set was to half between 1990 and 2015 the proportion of population whose income is less than \$ 1 a day. The calorie based attainment was set at 2350 calories per adult equivalent per day. In 1990-91 about 26.1 percent population was living below poverty line and the MDG target for 2015 was to reduce it at 13 percent. Targets set was generalized in nature and ground realities on country to country bases should have been taken into account while fixing targets for 2015. Flood in 2010 and 2011 and inflation in the economy are important factors in reducing poverty considerations under the prevailing situation achievement of MDG-1 in case of Pakistan seems a far cry.

6.2 During the HIES Surveys of 2007-08 and 2010-11 headline core inflation index of food gained 112 points moving from 174 to 286 points. Asian Development Bank has estimated that in case of Pakistan 10 percent increase in food prices results 2.2 percent change in poor living below poverty line or addition of 3.47 million people in poverty scorecard. Addition of 112 points in food related inflation simply means addition of 39 million people in poverty scorecard (Annex-VII).

## **7. Effect of Household Size on Per Capita Calorie Intake**

7.1 Household size has a significant impact on per capita calorie intake. According to HIES 2007-08 average per capita calorie consumption was 1931 at country level with average household size of 6.58. The calorie intake increase from lowest to highest quintile and HHS decreases accordingly. Meaning thereby that there is negative relationship between HHS and calorie intake. As the HHS increases the intake decreases and vice versa.

7.2 The results of HIES 2010-11 reflect per capita consumption 2003 calorie with HHS of 6.38. The comparison between the two HIES survey reflects increase in intake and decrease in HHS. The quintiles group reflects the same pattern of relationship as was observed in 2007-08.

7.3 The regression analysis of HIES 2007-08 bring to fore the relationship of  $y = 369 - 221 X$  meaning thereby that increase of one additional member in HHS decreases 221 calories per capita.

7.4 The HIES 2010-11 regression analysis is  $y = 42 - 294 X$ . It reflects reduction of 294 calories for addition of one household member.

7.5. The combined regression analysis of two surveys is  $Y = 250 - 224 X$ . It points out that for addition of one household member results in reduction of 224 calories per capita.

7.6 The foregoing analysis is indicative of the fact that food security is directly related to population change.

## **8. National Nutritional Survey 2011**

8.1 Agha Khan University in collaboration with UNICEF conducted a country wide nutritional survey in 2011. It surveyed 30000 households. According to the survey estimates the food security level of the country has become one of the major national problems of Pakistan.

8.2 The survey highlights that only 42 percent households in the country are food secure and 58 percent are food insecure. Among the food insecure 28.4 percent are food insecure without hunger, 19.8 percent food insecure with moderate hunger and 9.8 percent are food insecure with severe hunger. Households in rural areas are more food insecure when compared with urban areas. In the urban area 52 percent households are food insecure while in rural area food insecurity exists in 60.6 percent households.

8.3 Sindh is the most food insecure province where .72 percent of the households are food insecure and 16.8 percent of them are food insecure with severe hunger.

8.4 Food insecurity at household is 63.5 percent in Balochistan with 11.5 percent of households are food insecure with severe hunger.

8.5 In the Punjab the household food insecurity is 59.5 percent and households with severe hunger are 8.5 percent.

8.6 In the AJK food insecure households are 57.1 percent and 4.3 percent are food insecure with severe hunger.

8.7 In G.B. households food insecurity is 39.8 percent and 8.9 percent are with severe hunger.

8.8 In KPK food insecurity is the lowest with 26.2 percent.

## **9. Food Basket, Based on Minimum Nutrition Requirement**

9.1 Nutrition section of the Planning Commission of Pakistan has developed a food basket based on minimum essential food items. The food basket was targeted to provide 2150 calories and 65 gm protein per day per person. The food basket has been used in five year plan 2001-05 and MTFD 2005-10 for measuring targeted dietary change. API has used this basket to workout cost estimates over time and changes therein by applying retail prices in 2010-11 over 2009-10.

9.2 The cost of food basket was Rs 1411.5 in 2009-10 and 1681.5 in 2010-11 an increase of 19.13%. Meaning thereby that about 20 percent more liquidity is required to maintain the minimum diet level.

## **10. Conclusion**

10.1 Due to inflationary pressure poorest of the poor that is the lowest 20 percent are facing nutritional diet deficiency. Incidence of marginal decline in wheat and wheat products supports this fact. It is therefore in the fitness of things that food safety nets may be targeted to deserving strata of the society. Holders of BISP cards may further be accommodated by the USC by offering further subsidy on wheat flour which they are already offering in the USC stores to them.

10.2 Caloric intake by the rural classes outnumber the caloric intake to the urban class which is indicative of the fact that

food being agriculture based is grown in rural areas. Either the people in rural areas grow their own food or work as farm labour and receive food as kind payments in lieu of the services done at the farms. Moreover food is available in the rural markets at cheaper rates as compared to urban markets. In the urban markets the prices are inflated because of marketing, transportation and related costs. The wage earners in urban areas find it difficult to maintain their caloric intake level. The right step in this direction may be to increase the minimum wages at a suitable level and literally implemented to balance out caloric intake levels of urbanites.

- 10.3 For healthy living about 2100 calories per day per person is required. The government estimates per capita caloric intake level as mentioned by economic survey is well above 2400 calories which is a happy sign. Moreover the intake level is on the increase both in calories and protein intake.
- 10.4 The average per capita calories consumption as indicated by the HIES 2010-11 is 2003, which is 4 percent above the 1931 calories consumed in 2007-08 as reported by HIES 2007-08. The difference between the caloric intake level by HIES and Economic Survey is explained by the fact the estimates of economic survey are based on balance sheet method and HIES estimates are based on food consumed in the household. The food consumed in eating places hotels, restaurants, marriage parties other social gathering is not accounted for in HIES.
- 10.5 In the NWFP and Balochistan caloric intake level is high because of more consumption of beef and mutton. In the Punjab and Sindh the consumption of vegetables and pulses is on the higher side.
- 10.6 Effect of household size and caloric intake level is significant. The two have negative relationship. On the average increase of one household member decreases 221 calories per capita in the household. Food security at household level is related to household size which may be kept limited for healthy living.

11. *References*

1. *Daily Times, Lahore, May 4, 2007*
2. *Food Security in the Global Age: South Asian Dilemma, 2001, SAWTEE, Pro-Public and CI-ROAP, Kathmandu*
3. *International Campaign on the Right to Food, Actionaid International, Campaign Strategy, 2007-2011*
4. *Global hunger and food security after the World Food Summit, ODI Briefing Paper, 1997 (1), London: Overseas Development Institute*
5. *Rome Declaration on World Food Security and World Food Summit Plan of Action, 13-17 November, 1996, Rome*
6. *Article, Business Recorder, Karachi, October 16, 2004*
7. *Food Insecurity in Rural Pakistan 2003, World Food Program (WFP) Pakistan, SDPI, Islamabad*
8. *United Nations Statement on Food Security in Pakistan 2000, United Nations System in Pakistan, Islamabad*
9. *Mazhar Arif, Land, peasants and Poverty: Equitable Land Reforms in Pakistan, 2004, The Network Publications, Islamabad*
10. *United Nations Statement on Food Security in Pakistan 2000, United Nations System in Pakistan, Islamabad*
11. *National Coordinated Wheat Programme, Briefing Paper, Pakistan Agricultural Research Council (NARC), Islamabad*
12. *World Bank, Rural Poverty Report on Pakistan, April 2007*
13. *United Nations Statement on Food Security in Pakistan 2000, United Nations System in Pakistan, Islamabad*
14. *World Bank, Rural Poverty Report on Pakistan, April 2007*
15. *United Nations Statement on Food Security in Pakistan 2000, United Nations System in Pakistan, Islamabad*
16. *HIES 2007-8 FBS, Islamabad.*
17. *HIES 2010-11 FBS, Islamabad.*



**Annex-I**

**Number of Calories per 100 Gram**

Major Food Items	Calories
Wheat and wheat flour	346
Rice and rice flour	345
Biscuit	346
Gram (whole)	372
Gram (split)	372
Mash	347
Moong	348
Masoor	343
Other pulses	346
Milk (fresh and boiled)	117
Milk packed	117
Milk dry	496
Butter Margarine & cream	729
Ghee desi	900
Curd and Yogurt	60
Vegetable ghee	900
Cooking oil	900
Mutton	180
Beef	200
Fish	170
Chicken meat	129
Eggs	194
Banana	116
Citrus fruit (Mossaumi etc)	43
Apple	59
Other fruit	50
Dry fruits	575
Potato	97
Tomato	20
Onion	50
Other vegetables	45
Salt	0
Chillies	346
Sugar (desi and milled)	398
Gur and Shakar	398
Honey	319
Tea black and green	30

**Source:** Diabetic Association of Pakistan.

**Annex-II**

**A 2000 Calorie Per Day Menu**

Time	Food items	Calories
Breakfast	Milk with out cream	150
	Shami Kabab	100
	Chicken Sandwitch	150
Tea before lunch	Tea cup	30
	Egg tomato sandwitch	100
	Apple	70
Lunch	Potato Meat Curry	250
	Two Chapaties	200
	Some sweet	50
Evening tea	Tea cup	30
	Shami Kabab	100
	Two Biscuits	80
Dinner	Boiled Rice	210
	Pulse cooked	200
	Saled	80
Before Sleep	Milk (200 ML)	120
	Boild Egg	80
<b>Total</b>	<b>2000</b>	<b>2000</b>

Source: Diabetic Association of Pakistan.

**Annex-III**

**Consumption of Calories by Edible Items**

Pakistan						
	Quintiles					
	Total	1	2	3	4	5
Wheat	920	806	900	940	980	976
Rice	121	88	117	121	134	146
Milk	263	136	191	237	297	448
Oil	273	192	240	273	306	348
Egg	16	6	9	13	18	21
Sugar	183	137	167	187	202	222
<b>Sub-total</b>	<b>1776</b>	<b>1364</b>	<b>1623</b>	<b>1771</b>	<b>1937</b>	<b>2160</b>
<b>Total</b>	<b>2003</b>	<b>1481</b>	<b>1787</b>	<b>1975</b>	<b>2192</b>	<b>2550</b>

Pakistan Urban						
Wheat	801	730	788	814	819	809
Rice	110	89	95	105	115	125
Milk	257	110	163	194	245	391
Oil	285	192	237	258	294	342
Egg	21	6	10	14	20	36
Sugar	162	113	145	155	167	186
<b>Sub-total</b>	<b>1637</b>	<b>1239</b>	<b>1439</b>	<b>1539</b>	<b>1661</b>	<b>1890</b>
<b>Total</b>	<b>1872</b>	<b>1349</b>	<b>1589</b>	<b>1720</b>	<b>1885</b>	<b>2242</b>

Pakistan Rural						
Wheat	986	825	939	998	1089	1199
Rice	117	84	117	120	135	148
Milk	264	142	201	257	331	518
Oil	267	195	240	279	315	357
Egg	13	6	8	12	16	29
Sugar	195	142	175	200	224	269
<b>Sub-total</b>	<b>1841</b>	<b>1393</b>	<b>1680</b>	<b>1866</b>	<b>2110</b>	<b>2520</b>
<b>Total</b>	<b>2071</b>	<b>1513</b>	<b>1849</b>	<b>2089</b>	<b>2397</b>	<b>2971</b>

Source: HIES 2010-11.

**Annex-IV**

**Calorie Consumption (Per Capita) 2007-08**

AREA	Quintiles					
	Total	1	2	3	4	5
PAKISTAN	1931	1487	1746	1909	2071	2443
HHS	6.58	8.57	7.61	6.83	6.08	4.99
URBAN	1796	1331	1495	1657	1782	2173
HHS	6.31	9.11	8.26	7.3	6.37	4.93
RURAL	2008	1519	1828	1988	2260	2728
HHS	6.72	8.46	7.41	6.65	5.92	5.06
PUNJAB	1987	1504	1772	1921	2097	2496
HHS	6.33	7.99	6.99	6.62	6.07	5.1
URBAN	1841	1343	1534	1699	1773	2215
HHS	6.28	8.27	7.64	7.13	6.47	5.15
RURAL	2052	1547	1852	2004	2270	2750
HHS	6.35	7.94	6.8	6.44	5.88	5.05
SINDH	1764	1401	1619	1788	1946	2160
HHS	6.5	9.31	8.05	6.72	5.63	4.46
URBAN	<b>1686</b>	<b>1275</b>	<b>1361</b>	<b>1516</b>	<b>1695</b>	<b>2020</b>
HHS	6.04	10.36	8.94	7.33	6.05	4.46
RURAL	1838	1430	1740	2004	2329	2967
HHS	6.97	9.11	7.67	6.3	5.1	4.41
KPK	2019	1569	1817	1986	2244	2614
HHS	7.63	9.94	9.01	7.79	6.94	5.43
URBAN	1997	1535	1768	1910	2197	2457
HHS	7.23	9.86	9.04	8.02	7.04	5.48
RURAL	2027	1577	1833	2013	2284	2675
HHS	7.71	9.96	9.01	7.76	6.91	5.41
BALUCHISTAN	1858	1461	1809	2084	2435	2656
HHS	7.75	8.98	8.05	7.06	6.33	6.1
URBAN	1796	<b>1277</b>	1642	1785	2023	2478
HHS	8.17	11.58	9.03	8	6.8	6.25
RURAL	1931	1547	1908	2269	2756	3213
HHS	7.59	8.56	7.8	6.69	6.05	5.72

Source: HIES 2007-08

Annex-V

## Calorie Consumption (Per Capita) 2010-11

AREA	Quintiles					
	TOTAL	1	2	3	4	5
PAKISTAN	2003	1481	1787	1975	2192	2562
HHS	6.38	8.05	7.24	6.7	5.93	4.93
URBAN	1872	1349	1589	1720	1885	2242
HHS	6.19	8.39	7.65	6.8	6.35	5.02
RURAL	2071	1513	1849	2089	2397	2971
HHS	6.49	7.98	7.12	6.65	5.7	4.81
PUNJAB	2029	1477	1764	1972	2207	2635
HHS	6.16	7.66	6.89	6.39	5.69	5.05
URBAN	1902	1319	1580	1743	1897	2289
HHS	6.18	8.22	7.4	6.44	6.19	5.33
RURAL	2084	1513	1825	2070	2373	3002
HHS	6.15	7.56	6.73	6.36	5.45	4.78
SINDH	1880	1442	1775	1887	2051	2277
HHS	6.39	8.43	7.43	6.9	6.13	4.5
URBAN	1785	1339	1524	1653	1787	2111
HHS	5.92	8.52	7.7	7.15	6.38	4.44
RURAL	1979	1465	1903	2087	2496	2982
HHS	6.9	8.4	7.3	6.72	5.74	4.79
KPK	2041	1576	1859	2059	2285	2631
HHS	7.17	9.33	8.08	7.42	6.5	5.1
URBAN	1977	1524	1804	1881	2082	2315
HHS	7.17	9.1	8.81	7.52	6.92	5.6
RURAL	2061	1588	1861	2090	2347	2740
HHS	7.17	9.37	7.98	7.4	6.41	4.92
BALUCHISTAN	2127	1484	1837	2149	2514	3032
HHS	7.08	8.09	7.65	7.2	6.55	5.64
URBAN	2031	1361	1629	1888	2340	2648
HHS	7.46	8.21	8.23	7.56	7.26	6.55
RURAL	2157	1504	1878	2224	2583	3299
HHS	6.97	8.06	7.54	7.1	6.3	5.14

Source: HIES 2010-11.

**Annex-VI**

**Per Capita Calorie Consumption: 2007-08 and 2010-11**

	2010-11		2007-08	
	HIES	Economic Survey	HIES	Economic Survey
Total	2003	2420	1931	1940
Quintiles				
1	1481	1772	1487	1505
2	1787	2143	1746	1741
3	1975	2378	1909	1910
4	2192	2650	2071	2101
5	2562	3134	2447	2483

- Sources:**
1. HIES 2010-11 and 2007-08, FBS, Islamabad
  2. Economic Survey of Pakistan 2011-12 M/o Finance, Islamabad.

**Annex-VII**

**Impact of Food Price Increases on Poverty (\$1.25-a-day poverty line)**

	Change in Percentage of Poor (in percentage points) with an Increase in Food Prices by			Change in Number of Poor (in millions) with an Increase in Food Prices by		
	10%	20%	30%	10%	20%	30%
Bangladesh	2.5	5.0	7.5	3.83	7.65	11.48
India Rural	2.9	5.8	8.8	22.82	45.64	69.45
India Urban	2.1	4.3	6.4	6.68	13.36	20.04
Pakistan	2.2	4.5	6.7	3.47	6.94	10.41
Bhutan	1.8	3.5	5.3	0.01	0.02	0.03
Philippines	1.6	3.2	4.9	1.37	2.75	4.12
Sri Lanka	1.2	2.4	3.6	0.24	0.47	0.71
Thailand	0.1	0.2	0.2	0.05	0.10	0.15
Viet Nam	1.9	3.7	5.6	1.55	3.10	4.65

**Source:** ADB staff calculations using the latest POVCAL database (accessed 18 February 2011).

**Annex-VIII**

**National Nutritional Survey 2011: Food Insecure Households**

	Food Insecure	Without hunger	Moderate hunger	Severe hunger
	Percent			
Pakistan	58.0	28.4	19.8	9.8
Urban	52.0	26.5	17.7	8.2
Rural	60.6	28.3	20.7	10.5
Punjab	59.5	32.2	18.5	8.5
Sindh	72.0	21.1	33.8	16.8
KPK	28.2	21.0	6.0	4.5
Balochistan	63.5	33.9	1.8	11.5
FATA	58.4	27.4	8.4	5.8
GB	39.8	9.2	21.5	8.9
AJK	57.1	31.2	21.6	4.3

**Source:** NNS conducted by Agha Khan University in collaboration with UNICEF



**Annex-IX**

**Food Basket, Based on Minimum Nutrition Requirement:**  
**2009-10 to 2010-11**

Edibles	Kgs	2009-10	2010-11
		---- Rupees ----	
Wheat	10.00	288.50	301.30
Rice	2.30	102.20	115.00
Pulse	1.00	75.00	100.00
Sugar	1.50	86.50	115.40
Fats/Oils	1.25	160.70	196.40
Meat	1.30	238.3	281.70
Milk	4.50	191.90	221.70
Vegetables	10.50	268.40	350.00
Total		1411.50	1681.50

**Source:** Estimated by API on the data of Nutrition Section of Planning Commission of Pakistan