



Review Article

FOOD SECURITY

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Abstract

Food security exist when all people at all-time have physical and economic excess to sufficient safe and nutritious food to meet dietary needs and preferences for an active and healthy life. There are four dimensions of food security availability, access, utilization and stability. Food security is thus fundamental to national security, which is generally ignored. Managing food security in Pakistan also requires an understanding about its dimensions; future challenges of agricultural growth and food security; and impact of agricultural policies on food supply and income, the poor susceptible in rural and urban areas; and what are do-able options. We must balance people and resources this is a challenge for agri business.

1. Introduction

Food security is the people's right to define their own policies and strategies for the sustainable production, distribution and consumption of food that guarantees the right to food for the entire population, on the basis of small and medium-sized production, regarding their own cultures and the diversity of peasant.

The history of food security dates back to the Universal Declaration of Human Rights in 1948 in which the right to food was recognized as an essential element of standard of living and also to the world food crisis of 1972–1974. The food security concept continued developing overtime and approximately 200 definitions and 450 indicators are now available in the literature.

The term —food security refers the access to adequate amount of food for meeting dietary energy needs that implies for many as self-sufficiency as producing required food domestically [Pinstrup-Andersen (2009)].

A country is self-sufficient in food when it can manage the balance between supply and demand by producing domestically—no matter what the equilibrium price would be that could be beyond the reach of majority of the population in a developing economy.

The focus of national and global food security is generally on the supply side of the food equation—whether sufficient food is available [Pinstrup-Andersen (2009)]. The availability of food however cannot assure its access to the people. To ensure food security at the household or

individual level, the access part needs to be addressed. This led the World Food Summit in 1996 to redefine the term as

“Food Security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life”

This definition encompasses five fundamental aspects: availability, access, stability, nutritional status and preferences of food. All of these components are influenced by physical, economic, political and other conditions within communities and even within households, and are often damaged by shocks such as natural disasters and conflicts [UK Parliament (2006)].

Managing food security in Pakistan also requires an understanding about its dimensions; future challenges of agricultural growth and food security; and impact of agricultural policies on food supply and income, the poor vulnerable in rural and urban areas; and what are do-able options

2. Dimensions of food security

Important dimensions of food security are

- a) Food availability
- b) Physical and economic access to food
- c) Stability of supply and access
- d) Preference for food

a) Food availability

The availability refers to sufficient quantities of quality/nutritious food available to every individuals in the country. However, even with sufficient availability of food at the country level, food availability is a serious concern in areas having armed conflicts, non-availability of arable lands, and existence of prolonged droughts—this is true for many areas in Pakistan. The distribution of food stuff in these areas is also faulty.

b) Physical and economic access to food

The access refers to the capacity to produce, buy and/or acquire appropriate nutritious food by the households and the individuals [Timmer (2000)]. Having access requires that sufficient food

is consistently available in the market. But, the availability of sufficient food at country/local level does not guarantee that all people are food secure, since low incomes, lack of roads and infrastructure could deny access to desired quantities of quality food [UK Parliament (2006)]. Therefore, both availability and access parts of food security are inseparably inter-linked [Pinstrup-Andersen (2009)].

This involves both physical access and economic access—the former refers to a place where food is available and the latter denotes entitlement to food [Sen (1982)]. The former requires efficient market infrastructure to have access of people at low cost. The entitlement can be ensured either by own production or having food buying capacity or having access/right to other sources of getting desired food [Staaaz, et al. (2009)]. Therefore, there is direct relationship between poverty and food insecurity since the very poor cannot take safety measures against food insecurity and thus, they would be the most vulnerable [Cullet (2003); Herrmann (2006)].

c) Stability of supply and access

Stability refers to consistent supply of nutritious food at the national level as well as stability in access to food at the household and individuals levels. It is therefore directly affected by the performance of the agriculture sector. Only a small proportion of consumers in developing countries can afford to store food for the whole year. Therefore, besides production, stability requires better management of domestic production, food markets integration, and rational use of buffer stocks and trade [FAO (2002)].

d) Preferences for food

Furthermore, the preferences for food add another dimension to food security that relate to the social and religious norms. People with equal access to food but having different food preferences based on religion, society norms, taste etc. could demonstrate totally a different nature of food security. The foods are to be socially and culturally acceptable and consistent with religious and ethical values [Pinstrup-Andersen (2009)].

The above discussion wrapped around various dimensions of food security—availability, accessibility, stability, nutritional status and preferences, in general and in Pakistan in particular,

highlights the fact that achieving food security is difficult, complex and challenging phenomenon.

3. Trends in Food Production, Availability and Food Security

Agricultural production is the foundation of food availability, especially for calories and proteins. Adequate food supply at affordable prices is the basis of food security policy of all nations of the world including Pakistan. Pakistan has made significant progress in terms of increasing food supplies. Per capita (amount for each person) availability of cereals increased from 120 kilograms in 1961 to 137 kilograms 1990-91 and further increased to 154 kilograms in 2008-9 (Ahmad, et al. 2010) of which, more than 80 percent is accounted for by wheat alone.

The government of Pakistan has tried to maintain per capita daily availability at the level of 2400 calories since early 1990s—that increased from 1754 calories in 1961. However, this daily average calories availability is significantly lower than the average of other developing and developed countries by 10 percent and 26 percent, respectively. The changes overtime in the composition of food intake show a lessening share of wheat in total calories availability and a rising share of animals and other sources. The share of livestock products in calorie intake increased from 12 percent in 1970 to 18 percent in 2002 .The share of other items—vegetable oil, vegetable, fruit and sweeteners, has substantially increased from 20 percent in 1970 to 37 percent in 2006. Domestic production, net trade and food aid are the main constituents of food availability at the national level. Pakistan has been introducing significant quantities of wheat, pulses and edible oil to meet domestic needs. The share of imports in wheat consumption during the 1961-2006 has varied from 26 percent in 1961 to less than 1 percent in 2004. The vast food shortage during early 1960s largely reduced during 1970s as a result of Green Revolution technologies. The dependence on wheat imports however, re-emerged later because of unproductivity in wheat productivity. In contrast, Pakistan has been successfully producing enough rice for domestic consumption and even its significant quantities are also exported [Ahmad, et al. (2010)]. However, the daily average availability of calories per person progressively increased over the last five years—even though this availability has not been consistently revealed in decreasing poverty.

Despite significant improvement in aggregate food supply, malnutrition is a widespread phenomenon in Pakistan [Ahmad, et al. (2010)]. Rather, it has been claimed that per capita food intake in the country has been higher than the recommended average at the national level [Khan (2003)]. But, one third of all pregnant women were malnourished and over 25 percent babies had low birth weight in 2001-2. Malnutrition was a major problem responsible for more than 30 percent of all infant and child deaths in the country in 2001-02. The incidence of moderate to severe underweight, stunting, and degenerative among children of less than 5 years of age was about 38 percent, 37 percent and 13 percent, respectively in 2001-02 [Planning Commission and UNICEF (2004)]. Malnourishment among mothers as reflected in body mass index was 21 percent in 2001-02 [Khan (2003)]. The overall undernourishment reported by FAO (2008) was about 24 percent in 2004. Micronutrient deficiency is general in Pakistan, which is regarded as hidden hunger replicating a combination of dietary deficiency, poor maternal health and nutrition, high burden of illness and low micronutrient content of the soil especially for iodine and zinc [Pakistan (2010)].

The prior discussion highlights the fact that higher food security on its own cannot guarantee good nutrition status at the household level [Fullbrook (2010)]. Thus, greater national level food availability in Pakistan has not been translated into actual increase in calorie-rich food intake at the regional or household level reflecting reduced access to nutritious food. Therefore, simply highlighting on increasing food supplies cannot ensure food security. In such circumstances stable nutritious food supply and its distribution is considered to be critical issue [Pinstrup-Andersen (2009)].

Even though the food is predominantly produced in rural areas of Pakistan, yet a majority of the poor have lower economic access to food as likened to urban areas [World Bank (2008); Staatz, et al. (2009)]. Dependence on markets to obtain food for most of the food unconfident people both in urban and rural areas is a public feature. The dependence of the urban poor on food markets is very well-known and documented, while the reliance of most of the rural food insecure among landless, bordering and small sized farmers' classes is rarely recognized [Staatz, et al. (2009)]. In addition to landless rural resident (45 percent) more than 30 percent of the cultivators are net buyers of food staples accounting 62 percent of the rural population who are either partly or totally dependent on market for food needs [Ahmad (2010)].

Factors that influence of food security

The main that factors influencing the food security in Pakistan are the outcomes of both Partial policies and the neglect of R&D activities including:

- Fluctuating food grains Production—generally below the domestic requirements.
- The slow speed of varietal Development in pulses, oilseeds and fodder crops with non-existence of seed marketing system for these crop groups.
- The almost requirement of vegetables sector on imported Seed.
- Poor marketing infrastructure unable to insure timely availability of quality Inputs.
- Low genetic potential of available varieties and slow varietal additional because of unaffordable high prices of certified seed.
- Presence of serious governance issues in food procurement, marketing and distribution system.

4. Food security policies and their implications

a) Commitments to International Agreements

The Malawi Government has obligations to international agreements and commitments that have a bearing on food security. These include the following:

- The World Declaration of the 1992 International Conference on Nutrition (ICN);
- The United Nations Era Development Goals
- The World Food Summit declaration of 1996 re-iterated in the African Union

Statement on Agriculture and Food Security in Africa (July 2003) and WFSFYL;

- The Site declaration on the challenges of applying integrated and Viable Development on Agriculture and Water in Africa, (February 2004).
- The Dar es Salaam Declaration on Agricultural and Food Security in the SADC region (May 2004).Government will, therefore attempt to comply with the obligations under these arrangements or Implements.

b) Policy goals and objectives

i. Overall Goal

- The long-term goal of this policy is to significantly improve food security of the population.
- The goal implies increasing agricultural productivity as well as variety and supportable Agricultural growth and development.

ii. Specific Objectives

- The specific objective of Food Security, is to assurance that all men, women, boys and girls, Specifically under-fives have, at all times, physical and economic access to Adequate nutritious food required to lead a healthy and active life.
- The ways in which food is produced and distributed should be environmentally friendly and sustainable.
- Both the production and consumption of food are governed by social values that are just and reasonable as well as proper and virtuous.
- The ability to attain food is ensured.
- The food is obtained in a manner that defends human dignity.

5. Major Challenges in Achieving Food Security

The challenge of food security is to assure that all people have access to enough food to lead productive lives, but a large part of food security is assuring the food is safe from a chemical, physical or biological aspect. There are numerous other aspects of food security including the effects of climate change on crop production, the effect of fossil fuel dependence on the import and export of food, the loss of many lines of plant and animal food stock, as well as the impact of the use of food crops to produce biofuels.

a) Climate change

Higher temperatures will have an impact on yields while changes in rainfall could affect both crop quality and quantity. Climate change could increase the prices of major crops in some regions. For the most vulnerable people, lower agricultural output means lower incomes.

b) Growing use of food crops as a source of fuel

Traditional use of biomass as a source of fuel is a cause of deforestation, but it has not conflicted with food production in industrialized economies because of the generally localized use of such resources. The effects of growing biofuel demand are interwoven with tightening grain markets, which reflect demographic shifts and improved diets. In developing countries, as populations grow and incomes rise, diet preferences are shifting from staple crops to higher-value products like meat and dairy.

c) Soaring food prices

The soaring global food prices of 2007-2008 wreaked disorder on millions of families, led to political unrest and contributed to reversing the contentment of governments around the world regarding the unconscionably high levels of chronic hunger. Rising food costs, along with other shocks such as drought, floods and economic crises can have a major impact on food and nutrition security as these push the most vulnerable households further into poverty and weaken their ability to access adequate food. Inefficient food safety system is also a major challenge.

At current rate of population growth, Pakistan needs to increase substantial food production to feed a growing population with some modest additions for export. Substantial increase in crop productivity has to be targeted using lesser land and water resources than are available for agriculture today.

“Food security is possible well into the future. Science provides the tools, agricultural research the modality, intelligent awareness the design of the next revolutions that will help smallholder farmers improve their square yard of earth, and support the world to keep pace with population growth”(Austin, undated).

6. Way forward

a) Following are the priority research areas to be focused on:

- Developing technologies both in terms of inborn modifications of crops that improve water productivity and bring advances in the use of salty water.

- Improving systems productivity by planning new practices for better soil fertility management, soil and water conservation, water harvesting, and integrated pest management etc.
- Cropping system based research to adjust to the climate change courses and opposing natural resources degradation and improving system productivity.
- Identification of factors responsible behind yield gaps and finding solutions to resolve festering productivity in different production systems.
- Research in human food-safety issues in plant and animal origin food chain.
- Developing technological packages to achieve low-cost and high quality product.
- Enhancing balanced use of fertilizer and increasing organic matter availabilities.
- Encouraging small farmers oriented corporate farming.

b) A few institutional initiatives may be undertaken immediately including:

- Strengthening and reorganizing Agricultural Policy Institute (API) so that besides farm economic analysis, we can handle macro level issues, particularly trade and policy analysis
- Strengthening the existing (or establishing new if not existed) provincial Economic Research Institutes with imparting additional command of food policy analysis.
- Establishing “National Commission on Farmers (NCF).

c) Role of the Government:

- Government should be proactive to the commodity crisis rather than act when the crisis already happened.
- There should be systematic commodity predicting mechanism so that food demand-supply mechanism could more effectively be managed.
- A separate food security fund should be created, rather than diverting development resources in case the food production is below the national demands.
- Government may protect price bands in between import and export parity prices, rather than pan-territorial pricing that crowded out private sector.

7. Concluding remarks

Around the globe there are several measures. Formers, is there is enough food to go round for all people in the world the world population is growing but today the agriculture producing 1/3 more calories necessary to feed all people in the world that means in principle there is enough food for everybody never the less one person in nine goes to bad hunger worldwide there are still 800 million people going hungry. The question is why so many people are going hungry because this is not near global production level. It is also about food is available accessible and useable for everybody at all times if we don't have access to land or water we can't feed our self and your family if we don't have enough money we cannot buy enough food if due to bad sanitation we sick to diarrhea we eat much as we like but not reaches in our body these are some factors that have impact whether the food produced and food can't be absorbed by the body and this is about more than the chronic hunger but why a filled stomach is not enough how much food a person eat is not a matter what's relevant and what's we eat.

It is important to promote local agriculture formers. Government need to invest in instant roads schools sustainable water management sanitary and installation and a functioning financial system the FAO draws it upward and standards for food security and security and provide policy advice to government on legal safeguards for access to land on sprinkling responsible investments on empowering women's and on improving market excess. All around the world the Germany sports the FAO project and advocate training for formers and business issues

Reducing poverty, hunger and food insecurity are essential part of Era Development Goals. Pakistan is a low income developing country and agriculture is its most important sector due to its primary commitment of providing healthy food to her fast growing population. Managing food security in Pakistan requires an understanding about how agricultural policies affect food supply and incomes, the poor susceptible in rural and urban areas. On the other hand, the way government is managing procurement and distribution of food crops for low prices of wheat flour like offering wheat flour at subsidized prices, income support, cheap bread on tandoors etc., which has heavily burdened the national exchequer as well as encouraged development of different cartels and mafias, e.g. wheat flour industry, poultry hatchery and feed industry etc. In

the way forward, some recommendations are made along with highlighting the need of new institutions for developing a R&D based infrastructure as well as defining the role of the government in food sector of Pakistan.

REFERENCES

- Ahmad, Munir and M. Iqbal (2006) Impact Evaluation of Special Program for Food Security (SPFS) in Pakistan. Pakistan Institute of Development Economics, Islamabad.
- Ahmad, Munir, C. Croraton, A. Qayyum, and M. Iqbal (2006) Impact of Domestic Policies towards Agricultural Trade Liberalisation and Market Reform on Food Security in Pakistan.
- Ahmad, Munir, C. Croraton, A. Qayyum, M. Iqbal, and P. Dorosh (2010) Impact of Domestic Agricultural Trade Liberalisation and Market Reform Policies on Food Security in Pakistan. Chapter 5
- Austin, N. R. The Science of Food Security. www.abare.gov.au/outlook/_download/food_austin.pdf
- Benson, T. (2004) Africa's Food and Nutrition Security Situation: Where Are We and How Did We Get Here? Washington, DC: IFPRI. (IFPRI 20/20 Discussion Paper 37).
- Bouis, H. and J. Hunt (1999) Linking Food and Nutrition Security: Past Lessons and Future Opportunities. Asian Development Review 17, 168–213.
- Chung, K., L. Haddad, J. Ramakrishna, and F. Riely (1997) Identifying the Food Insecure: The Application of Mixed-Method Approaches in India. Washington, DC: International Food Policy Research Institute.
- Committee on World Food Security (CFS), Global Strategic Framework for Food Security and Nutrition, 2011FAO (Food and Agriculture Organisation) (1998) Poverty Alleviation and Food Security in Asia
- Cullet, P. (2003) Food Security and Intellectual Property Rights in Developing Countries. Geneva. (IELRC Working Paper 2003-3).
- Evans, A. (2009) The Feeding of the Nine Billion: Global Food Security for the 21st Century. London: Royal Institute for International Affairs

- FAO (2010) Presentation by FAO Representative about Flood Damages and Coping Strategies in WFP/SDC/SDPI one day joint seminar on —Post Flood Food Security in Pakistan, held at ILO office in Islamabad on 8th September
- FAO (Food and Agriculture Organisation) (1998) The State of Food and Agriculture 1998. Rome: Food and Agriculture Organisation of the United Nations.
- FAO (Food and Agriculture Organisation) (2002) The State of Food Insecurity in the World 2001. Rome: Food and Agriculture Organisation of the United Nations.
- FAO (Food and Agriculture Organisation) (2008) The State of Food Insecurity in the World: High Food Prices and Food Security—Threats and Opportunities. Rome: Food and Agriculture Organisation of the United Nations.
- Farooq, Umar, Munir Ahmad, and Z. Altaf (2009) Agflation and Food Security: Stimuli, Causes, Linkages and Implications for Pakistan. Social Sciences Division, Pakistan Agricultural Research Council, Islamabad. (SSD Working Paper No. 09-01).
- Fullbrook, D. (2010) Food as Security. *Food Security* 2, 5–20.
- Herrmann, M. (2006) Agricultural Support Measures of Advanced Countries and Food Insecurity in Developing Countries. (UNU-WIDER Research Paper No. 2006/141).
- Hoddinott, J. (1999) Choosing Outcome Indicators of Food Security. Washington, DC. International Food Policy Research Institute. (Technical Guide No. 7).
- Khan, M. (2003) Nutrition: A Factor for Poverty Eradication and Human Development. In *Pakistan Human Condition Report 2003*. Islamabad: Centre for Research on Poverty Reduction and Income Distribution, Planning Commission of Pakistan.
- Khan, M. H., and A. H. Akbari (1986) Impact of Agricultural Research and Extension on Crop Productivity in Pakistan: A Production Function Approach. *World Development*.
- Kiani, A. K., M. Iqbal, and T. Javed (2008) Total Factor Productivity and Agricultural Research Relationship: Evidence from Crop Sub-Sector of Pakistan's Punjab. *European Journal of Scientific Research* 23:1, 87–97.
- Maplecroft (2010) Commodity Price Hikes Due to Climate Events Will Hit the Neediest Countries. <http://www.maplecroft.com/about/news/food-security.html>
- Maxwell, S. and T. Frankenberger (1992) *Household Food Security: Concepts, Indicators, Measurements*. New York: IFAD, Italy and UNICEF.

- MinLDD (Ministry of Livestock and Dairy Development) (2010) Preliminary Estimates on Livestock Damages due to Floods.
- Mittal, S. D. Sethi (2009) Food Security in South Asia: Issues and Opportunities. Indian Council for Research on International Economic Relations. (Working Paper No. 240).
- Moser, C. (1996) Confronting Crisis: A Comparative Study of Household Responses to Poverty and Vulnerability in Four Poor Urban Communities. The World Bank, Washington, DC. CESD Monographs Series No. 8).
- Pakistan, Government of (2010b) Budget Speech 2010-11. Federal Budget Speech of Dr Abdul Hafeez Sheikh, Minister for Finance, Finance Division, Islamabad.
- Pakistan, Government of (2010c) Budget in Brief 2010-11. Islamabad: Finance Division, Islamabad.
- Planning Commission and UNICEF (2004) National Nutrition Survey 2001-2002. Islamabad: Planning Commission, Government of Pakistan.
- Reutlinger, S. (1988) Food Security and Poverty in Developing Countries.
- Riley, F. and N. Moock (1995) Inventory of Food Security Impact Indicators. In Food Security Indicators and Framework: A Handbook for Monitoring and Evaluation of Food Aid Programmes. IMPACT, Arlington, Va., U.S.A. Draft.
- Saris, A. (2001) The Role of Agriculture in Economic Development and Poverty Reduction: An Empirical and Conceptual Foundation, Rural Development Department, World Bank, Washington, D.C. (Rural Strategy Background Paper No. 2.)
- Sen, A. K. (1982) Poverty and Famines: An Essay on Entitlement and Deprivation. New York: Clarendon Press.
- Smith, et al. (2000) The Geography and Causes of Food Insecurity in Developing Countries. *Agricultural Economics* 22, 199–215.
- Staatz, J. M., D. H. Boughton, and C. Donovan (2009) Food Security in Developing Countries. Department of Agricultural, Food and Resource Economics, MSU, East Lansing, Michigan. (Staff Paper 2009-03).
- Timmer, C. P. (2000) The Macro Dimensions of Food Security: Economic Growth, Equitable Distribution, and Food Price Stability. *Food Policy* 25, 283–295.
- Timmer, C. P. (2004) Food Security and Economic Growth: Asian Perspective. *Asian-Pacific Economic Literature*, November.

- Timmer, C. P. (2005) Agriculture and Pro-poor Growth: An Asian Perspective. Centre for Global Development. (Working Paper 63).
- WFP (2010) Pakistan Flood Impact Assessment: September 2010. <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp225987.pdf>