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Revisiting the Global Food Crisis:
Magnitude, Causes, Impact and Policy Options

Arindam Banerjee

Discussion Paper # 170



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Revisiting the Global Food Crisis: Magnitude, Causes, Impact and Policy Options

Arindam Banerjee*

Abstract: The brief period that we have seen of the 21st century has been marked by a drastic intensification of the global food crisis. The phenomenal surge in fuel and food prices followed by the ongoing economic crisis have worked in tandem to increasingly deprive the poor across the world, particularly in the Global South, from their fundamental right to food. The fast expanding incidence of hunger and nutritional deprivation amongst the developing and less-developed countries has emerged as a major concern for academics, multilateral institutions and policymakers, besides the larger society. The magnitude of the food crisis demands urgent action on the part of governments, multilateral agencies and all those who cherish the vision of a hunger-free world. A correct identification of the causes of the food crisis and rising hunger is, therefore, crucial for the adaptation of policies and strategies in this battle against hunger and food-deprivation. In this backdrop, this paper seeks to review the various strains of the discourse that has emerged on this issue. The volatility of food prices in the short run has been an important factor behind the vulnerability of the vast mass of net food buyers across the Third World nations. While the impact of the skyrocketing of oil and grain prices, in the recent past, on the access to food in these countries needs to be traced out, the global financial crisis and the associated loss of livelihood and employment is also crucially linked to the question of food security. Looking at the issue from the lens of a longer historical time-frame, one is also drawn towards a review of the trade policies of developing countries and the export-oriented agricultural production that has gained prominence in large parts of the Global South over the last few decades. In this regard, the structural change in many developing country food stocks policy and public distribution mechanisms is one policy aspect that also assumes importance from the perspective of food security.

The sustainability of any path of economic development is crucially dependent on the food security situation that characterizes such develop-

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ment. The human race has recognized this truism ever since their origin and has resorted to different policies ranging from enhancing food production to barter exchange or modern-day trade to suffice for their needs and requirements and furthering their overall economic development. In the contemporary world, the onus of formulating these policies lies with nation-states often within a multilateral framework. How successful they have been in that endeavour is an issue that needs to be seriously revisited given that in the current conjuncture, food insecurity and hunger have emerged as major constraints to any future economic development with equitable connotations.

The brief period that we have seen of the 21st century is marked by the emergence of a global food crisis. The phenomenal surge in fuel and food prices followed by the ongoing economic crisis has worked in tandem to drastically aggravate food security across the world. There is a sudden increase in food-deprivation for the poor across the world, particularly in the Global South, as a result of the food inflation followed by the global financial and economic crisis. The problem is more intense for the developing and less-developed world in the south essentially due to the fact that there was already a wide hiatus in consumption levels and incidence of hunger between the northern countries and those in the south even prior to the onset of the recent high food prices or the global economic crisis. The latter now threatens to severely exacerbate food insecurity in the developing countries and throw them well off-track from their Millennium Development Goals (MDG) on hunger reduction.

The fast expanding incidence of hunger and nutritional deprivation amongst the developing and less-developed countries in the last couple of years has emerged as a major concern for academics, multilateral institutions and policymakers, besides the larger society. The magnitude of the food crisis demands urgent action on the part of governments, multilateral agencies and all those who cherish the vision of a hunger-free world. A correct identification of the causes of the food crisis and rising hunger is, therefore, crucial for the formulation of policies and strategies in this battle against hunger and food-deprivation. The impact of growing food insecurity on different economies, and more particularly the differential impact on various strata or sections of the population within a particular society, needs to

be identified. This is crucial for the determination of policies to effectively tackle the current emergency.

An issue of concern here is the fact that the origin of the financial crisis in the US and the larger economic crisis across the world has led to considerable shift in attention from the food crisis and rising hunger and vulnerability. The fact that the Wall Street debacle and its aftermath jeopardized the very existence of the powerful and hegemonic international finance capital, which has been dominating the arena of economic policies for quite some time, meant that there were hasty allocations of massive resources by governments and policymakers to tackle the financial crisis. This has caused some neglect of the food crisis, which is unaffordable due to the long run costs and damages that economies will have to bear as a result of prolonged food and energy deprivation. It is necessary, therefore, to reinvigorate the thrust with which the issue of the food crisis is dealt among the global policy domain.

In this backdrop, this paper seeks to review the major aspects of the global food crisis in 2006-08. This will involve an examination of the various strains within the discourse that has emerged on this issue. There exist a large number of studies done by different multilateral bodies and research organisations on the global food crisis and a wide-ranging literature on the more generic theme of food consumption and hunger. Given that it is beyond the scope of a single paper to undertake a detailed review of all such studies and literature and do justice to them, we shall focus our review on a few studies by some of the major organizations. It will also be fruitful to locate the findings and arguments of various studies within the wider theoretical discourse on the issue. For this purpose, the paper will also draw some insights from the experiences of different developing countries, particularly emerging economies like India and China.

The scheme of the paper would be to address four different aspects of the food crisis in different sections. The first section would deal with the primary aspect of the food crisis, i.e. its magnitude and dimensions. The dimensions by which food insecurity has multiplied, following the food and financial crisis, has been estimated by various studies. These studies also

assess the spread of hunger incidence across different regions of the globe. Issues of measurement of hunger and malnutrition and concepts and criterion used for the purpose are important components that need examination while estimating the magnitude of the food crisis. Some of the important studies that have looked at these aspects in the backdrop of the current food crisis are *The State of Food Insecurity in the World, 2008* by the Food and Agricultural Organization (FAO), *Food Security Assessment, 2007* by the United States Department of Agriculture (USDA) and *Global Hunger Index: The Challenge of Hunger, 2008* jointly published by the International Food Policy research Institute (IFPRI), Welthungerhilfe and Concern Worldwide. These studies provide insightful pictures on the global situation with regard to the food crisis.

A detailed analysis of the causes and factors behind the global food crisis is the second important aspect that would be reviewed in the next section. The volatility of food prices in the short run has been an important factor behind the vulnerability of the vast mass of net food buyers across the Third World nations. While the impact of the skyrocketing of oil and grain prices in the recent past, on the access to food in these countries needs to be traced out the global financial crisis and the associated loss of livelihood and employment is also crucially linked to the question of food security. The exact economic processes and policies that have led to the current situation need to be identified in order to speedily arrest the growing food crisis.

Looking at the issue from the lens of a longer historical time-frame, one is also drawn towards a review of the trade policies of developing countries and the export-oriented agricultural production that has gained prominence in large parts of the Global South over the last few decades. In this regard, the structural change in many developing country food stocks policy and public distribution mechanisms is one policy aspect that also assumes importance from the perspective of food security.

In the third section, the facet that will be dealt with is the impact of the food crisis. While a food crisis directly and immediately leads to an increase in hunger or a decline in energy intakes by human beings, it also bears certain indirect effects on the population. Vulnerability with regard to meeting the minimum nutritional norms, the fundamental requirement for a

healthy life, can lead a household or individuals to trade-off specific secondary yet important expenditures like that on education or health services. This in turn leads to high opportunity costs in the long run. Moreover, excessive pressure of consumption expenditures on the household budget due to rising food prices can trigger the selling of durable assets in a bid for survival. This phenomenon is likely to be more prevalent among the relatively poor households, which have a higher share of food in their total expenditure. It is, therefore, also necessary to locate the varying impact of the food crisis across different sections within the population for the purpose of successfully confronting the food crisis.

Finally, both the causes and impact issues bring us to the all-important aspect of the food crisis, i.e. policy options and measures required to fight the scourge of food deprivation and hunger amongst the world population. The various possible policy measures will be discussed in the fourth and final section. A number of studies have tried to suggest policy measures based on their analysis of the current problem. The magnitude, causal factors and different impacts all play an important role in shaping the policies that will prove to be crucial in the battle against rising hunger and under-nourishment.

The FAO and USDA reports mentioned earlier also discuss the reasons for the food crisis and preferred policy options. In addition to these reports, other studies and documents like the World Bank Policy Research Working Paper *Implications of Higher Global Food Prices for Low-income Countries* (hereafter referred as Ivanic and Martin, 2008), World Bank report *Rising Food and Fuel Prices: Addressing the Risks to Future Generations* prepared by their Human Development Network (HDN) and Poverty Reduction and Economic Management (PREM) network (henceforth HDN-PREM study) and the IMF study *Food and Fuel Prices – Recent Developments, Macroeconomic Impact and Policy Responses* (henceforth IMF Report, 2008).

In the wake of the contemporary food crisis, the UN Secretary-General had appointed a ‘High Level Task Force on the Global Food Security Crisis’ to recommend policy suggestions to address the current concerns on the global food situation. The Task Force has published the *Comprehensive Framework for Action* in July 2008, which would also be an interesting

document for study. These studies not only help us to comprehend the different dimensions of the global food crisis but also reveal some of the lacunae that still remain within the global perspective on the food crisis. A deeper and correct understanding of the latter will be crucial to whether the human race will successfully tide over its current predicament.

Magnitude of the Food Crisis and Measurement Issues

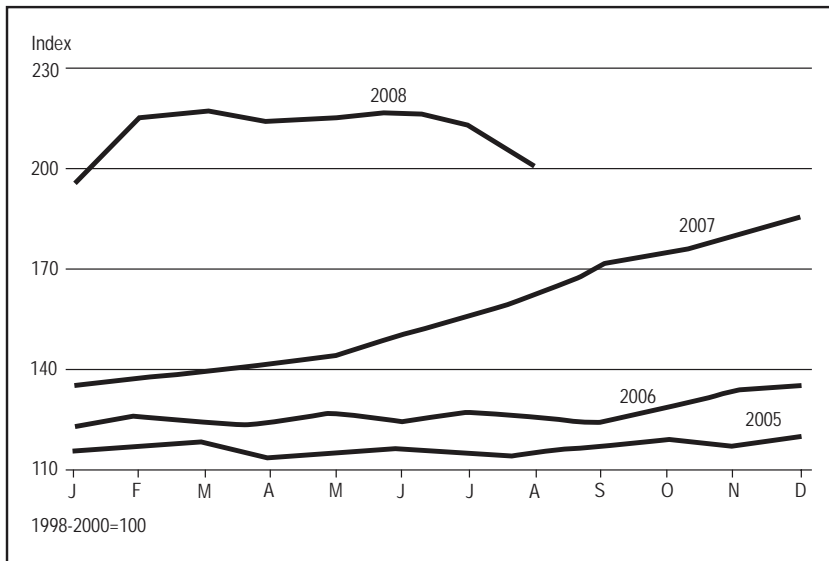
A study of the magnitude of the food crisis will require an inspection of the incidence of hunger or under-nourishment in the period prior to the food price inflation and the period after the same. The FAO Food Price Index (Figure 1) indicates that food prices started increasing exceptionally from around October 2006. The high food inflation persisted for the entire 2007 and continued till June 2008, when the financial crisis precipitated in the US and started shrinking overall world demand and prices.

The FAO 2008 study provides a comparative situation of world hunger for the period 2003-05 and 2007. This reveals a perturbing increase in the absolute number of hungry people in the developing world. The provisional estimates of the study show that the number of chronically hungry people increased by 75 million from 848 million, the average in the 2003-05 period to 923 million in 2007. How devastating the effect of price surge has been for hunger reduction is amply illustrated by the fact that in 1990-92, the baseline period that was used by the World Food Summit (WFS) and the MDG for setting targets for hunger reduction, the number of chronically hungry people were 842 million implying an addition of just 6 million hungry people in absolute terms over a period of 13 years prior to the current crisis.

What this meant in proportional terms was a decline in the percentage of undernourished persons in the world population from 20 per cent in 1990-92 to 16 per cent by 2003-05; this declining trend has now reversed with the figure standing at 17 per cent in 2007. The MDG target of reducing the proportion of undernourished population to half the 1990-92 average level by 2015 stands seriously jeopardized by this development. Similarly, the WFS target of bringing down the number of hungry people to 420 million by 2015 was already facing difficulty given that there was the addition of 6 million hungry people between 1990-92 and 2003-05. This situation

in 2003-05, prior to the exceptional food price inflation, indicates that even before the emergence of the contemporary global food crisis, the world had not actually moved any distance towards reducing the number of hungry people. With the recent drastic increase in the hunger incidence, achieving that target would now require covering astronomical distances.

Figure 1: FAO Food Price Index



Source: FAO, 2008.

The FAO estimates are most likely conservative in nature and do not comprehensively capture the actual increase in the number of hungry post the food price inflation. The USDA (2008) study estimates the addition of undernourished people in 2006-07 at 133 million for the 70 countries that it studied. They estimated the total number of chronically hungry people in 2007 at 982 million. This is much higher compared to the FAO estimate of 75 million for 102 countries. The estimates by the two studies may have been further divergent had the USDA study included China, where a large number of undernourished people are located (123 million in 2003-05, FAO 2008). The underestimation in the FAO study is primarily due to two reasons.

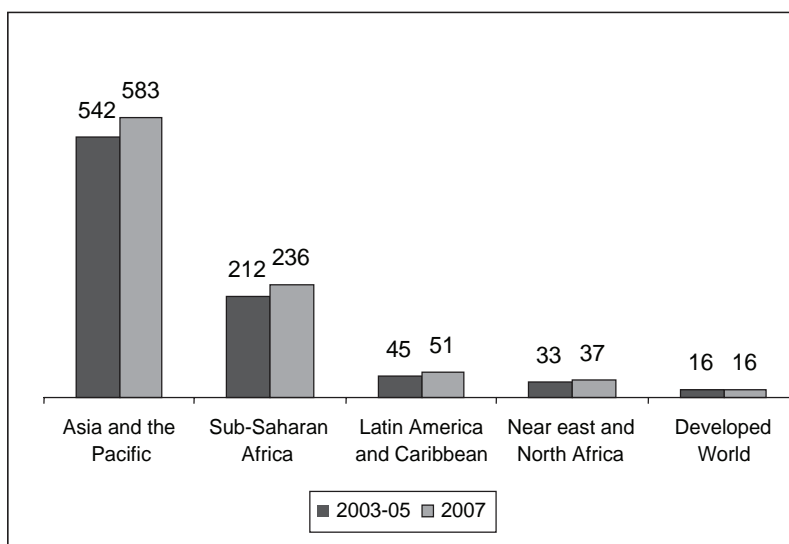
First, the criterion used by the USDA study varies from that used in the FAO study. While the latter uses a Minimum Dietary Energy Requirement (MDER) in the range of 1600 to 2000 Kcal per capita per day across countries for determining the hungry, the USDA study uses a higher uniform cut-off point of 2100 Kcal per capita per day. While the FAO criterion is essentially the *minimum* energy required for a healthy life, it does not account for the additional energy required by the active population engaged in strenuous physical labour. On the other hand, the USDA criterion also draws from FAO's conceptualization of an Average Dietary Energy Requirement (ADER) which also includes the energy required by a person engaged in work or play. In that sense, the USDA estimates are more inclusive in nature.

The second reason why the USDA estimates are probably closer to reality is due to the fact that they account for the changes in the distribution of dietary energy intakes across income classes within a country between the period of 'low' and 'high' food prices. The underlying assumption is that when food prices undergo a phenomenal increase, the actual impact on a person is influenced by the income class in which (s)he is placed. Typically, the share of food in the total expenditure is higher for those belonging to low income classes than those in the higher classes. With the reduction in energy intake due to the food price inflation being more for the lower income classes compared to the higher ones, the skewness of energy distribution within the population increases and more people end up below the threshold requirements than would have otherwise happened. The Food Security Assessment Model used by the USDA incorporates this factor unlike the FAO study.

The spread of the undernourished population (Figure 2) as evident in the FAO study reveals the concentration of hunger not only within the developing world but in certain regions within the latter. Not surprisingly, the average number of undernourished people in the developed world stood at just 16 million in 2003-05, less than 2 per cent of the world total. This is quite expected as the developed North Atlantic countries through their economic transition has historically achieved income and consumption levels that are way ahead of that prevalent in the Third World.

The more interesting insight revealed is that even within the developing world, the incidence of hunger is mainly concentrated in two regions. The Asia and the Pacific regions had the highest number of undernourished persons at 542 million in 2003-05, nearly 65 per cent of the hungry population in the world and much more than the 212 million in Sub-Saharan Africa. In contrast, the latter region had the highest proportion of undernourished in the population. By 2003-05, more than 30 per cent of the population in Sub-Saharan Africa was below the threshold energy levels. The same figure for the Asian region was around 16 per cent in 2003-05.

Figure 2: Distribution of Undernourished Population (millions) across regions: 2003-05 and 2007



Source: Based on FAO, 2008 estimates

The concentration of hunger is further illustrated when one studies the country-wise figures. Nearly 64 per cent of the world’s hungry are located in just seven countries, namely, India, China, the Democratic Republic of the Congo, Bangladesh, Indonesia, Pakistan and Ethiopia. Out of this, just India and China were home to 354 million hungry people, nearly 42 per cent of the world figure.

A similar picture of high regional concentration emerges for the increase in the hunger incidence following the high food prices in 2006 and 2007. Figure 2 shows that there was no increase in the number of undernourished people in the developed world. This can be largely attributed to the negligible price increases in recent times in the prices of meat and beef products which form a sizeable share of consumption in the advanced countries. However, within the developing world, the major share of the increase in hunger incidence occurred in the Asian and Sub-Saharan African region; of the 75 million new hungry, 65 million were in these two regions alone (FAO, 2008).¹

A useful analysis done by the USDA study was to estimate the Nutrition Gap (NG) and Distribution Gap (DG) in terms of grain equivalents² for the world as well as for regions and individual countries covered in the study. The average nutrition gap is the gap between the actual food intake and the food consumption required for attaining the average energy intake of the population as per the minimum nutritional standards, which is held as 2100 Kcal per capita per day by the study. In contrast, the distribution gap estimates the additional food consumption required to raise all income classes to the minimum nutritional standard. The DG is normally higher than the NG as in a country, the income distribution and the consequent distribution of dietary energy is skewed towards the upper classes. It is observed that the energy intakes of the thin topmost classes are generally much higher compared to the lower ones and the average energy intake of the population can well meet the minimum norm even when majority of the population is below that norm. Therefore, the additional food required to bring these lower classes to meet the minimum nutritional requirements is much higher than merely raising the average intake of the population to that level.

This aspect of food security is illustrated by the USDA estimates of the NG and DG for the world and across regions (Table 1). The total NG for the 70 countries studied is 16.6 million tons of grain equivalents in 2007. The major source of this large NG comes from the Sub-Saharan Africa, where alone the NG is more than 14 million tons of grain equivalents. Twentysix of the 37 countries studied had an average energy intake less than the 2100 Kcal norm and registered a NG greater than zero. Comparatively, the NG was a modest

1.7 million tons in the Asian region and less than a million in Latin America, Caribbean and the Commonwealth of Independent States taken together.

In contrast, all four North African countries covered in the study had an average energy intake close to 3000 kcal per capita per day, the highest in the developing world, which is why they have a zero NG. The USDA study observes that although the weighted average incomes of these countries are slightly lower than that of the developing countries, they have been successful in maintaining much higher consumption levels primarily through the use of food subsidies, providing food to consumers at much lower prices than that in the market. In fact, this policy has been effective to shield their population from the global food crisis. There has been a consumption shortfall for the lowest 10 per cent of the population in only one country, Morocco. Also this has occurred more due to the near halving of Morocco's grain output in 2006-07 caused by severe drought conditions than due to the global food price inflation.

Table 1: Nutrition Gap and Distribution Gap for Different Regions, 2007 (in 1000 tons of grain equivalent)

Region*	Nutrition Gap	Distribution Gap	DG-NG Ratio#
Sub-Saharan Africa (37)	14392	22684	1.6
North Africa (4)	0	16	-
Asia (10)	1717	18675	10.9
Latin America and the Caribbean (11)	358	2461	6.9
Commonwealth of Independent States (8)	160	295	1.8
World (70)	16627	44131	2.7

* The figures in the parentheses represent the number of countries studied in each region.

Calculated by the author.

Source: Appendix Table 1a, USDA, 2008.

Turning to the DG, which represents the additional food consumption required to make the entire population across all classes to attain the minimum nutritional standard, we come across certain startling facts. As expected,

Sub-Saharan Africa has the highest DG in 2007 at 22.7 million tons of grain equivalents and there was no country in the region, which had its entire population achieving the minimum nutritional norm. However, surprisingly, Asia also has a large DG of 18.7 million tons, which was a staggering 10.9 times the NG (last column in Table 1). A large difference between the NG and the DG, as measured by the DG-NG ratio, indicates that the existence of hungry people is more due to the intra-population unequal income distribution rather than low average levels of income *per se*. Comparatively, in Sub-Saharan Africa, the DG-NG ratio is only 1.6 indicating that hunger is more caused by the low average income levels rather than inequality in these countries.

A more intriguing observation in the Asian case is that bulk of the DG is located in one country, which has also been one of the fastest growing economies in the world in recent times. The DG in India was an enormous 13.4 million tons of grain equivalent in 2007, highest among all 70 countries studied by the USDA and nearly double of the DG of Democratic republic of Congo, the most hungry nation in Sub-Saharan Africa (USDA, 2008). However, the NG was nil for the same time point. Studies in recent times have pointed out that around 87 per cent of the population in rural India were consuming below the 2400 Kcal per day capita in 2004-05, the stipulated norm for measuring poverty in the country (Patnaik, 2007b). The Arjun Sengupta Committee on unorganised sector has also estimated that in 2004-05, 77 per cent of the population in rural India were surviving with a consumption expenditure of less than Rs. 20 per day or Rs. 7200 per year. The average per capita GNP in India in 2004-05 was Rs. 26220 (Central Statistical Organization, India). This point towards the extreme inequality in income distribution in India.

The noteworthy observation that one can draw from the Indian example is that inadequate food consumption or shortfall in energy intake existed within the developing world even before the recent food price surge and the latter has only worked to further worsen the situation. A similar conclusion can be reached also for the Sub-Saharan African countries, where the average energy intakes of the population were already much below the minimum norm and have only further deteriorated as a result of the high food prices. Stagnation and low growth in these economies for a considerable period of time were a primary reason for this.

The *Global Hunger Index: The Challenge of Hunger 2008* published by the IFPRI also provides us with a comparative situation of hunger across the developing world. This study constructed the hunger index for 120 countries using a fairly simple methodology. It uses three variables, namely, the proportion of undernourished as a percentage of the population, the prevalence of underweight in children below five years and the mortality rate of children below five years. The index is a simple average of these three somewhat inter-related variables. The GHI classifies the countries into five categories of hunger situation based on their hunger index score (see Table 2).

Table 2: Categories of Hunger Situation and Number of Countries in Each Category

Range of Hunger Index Score	Situation of Hunger	Number of Countries
< 4.9	Low	32
5.0-9.9	Moderate	23
10-19.9	Serious	32
20.0-29.9	Alarming	26
>30.0	Extremely Alarming	7

Source: Global Hunger Index: The Challenge of Hunger 2008, IFPRI 2008.

The study finds 26 countries in the ‘alarming’ hunger situation and another 7 in the ‘extremely alarming’ category. The bracket of serious hunger incidence contained 32 countries. More than half of the countries covered in the study exhibited serious or worse situation of hunger incidence. Among the regions, Sub-Saharan Africa and South Asia fared the worst with hunger indices at an ‘alarming’ level (23.3 and 23.0 respectively). The majority of the individual nations that have a more vulnerable hunger index are also from these two regions. In contrast, South-east Asia recorded a score of less than 10 while the Near-East and North Africa and Latin America both had the index at just over 5. Similar to the findings of the USDA study, India, with a score of 23.3, figured among the countries with an alarming situation of hunger and ranked 98 among 120 nations in 2008.

This study covered data only till 2006 implying that food deprivation further exacerbated by the recent phenomenal food and fuel price inflation is not captured in the analysis. A large number of nations may have actually entered the category of an alarming situation of hunger incidence after 2006. In fact, the estimates of hunger incidence by the FAO and USDA studies are also probably underestimations of the current situation due to two reasons. First, both the studies use data that does not cover the period of global economic crisis following the collapse of the US housing boom. Inclusion of the second half of 2008 and 2009, during which there has been large number of job-losses every month, the analysis may well see the number of hungry people in the world to have crossed a billion.

The second reason why these studies do not capture the actual number of people below the threshold energy requirements is due to the indirect method of reaching the household consumption estimates. The lack of comparable household consumption data leaves no option but to follow the indirect method of using macro data on food production, food export-import and changes in food stocks and adjusts for seed, feed, wastage etc. to arrive at per capita per day energy intake.³ Banerjee (2008) showed how the *Indian State Hunger Index 2008* (ISHI 2008) published by the IFPRI, New Delhi ran into methodological problems when they found it difficult to reconcile their estimates of hunger incidence based on the National Sample Survey (NSS) consumption data with the GHI, 2008 estimates (drawn from FAO estimates) for India. Using the NSS data, the ISHI 2008 estimated the proportion of hungry in the population as 34 per cent, 1.75 times more than the GHI 2008 study.

The NSS collects cereal consumption data directly from the households and converts them to calorie, proteins and fat intakes using relevant energy conversion coefficients and is, therefore, more reliable as far as actual energy intakes of the population are concerned. In contrast, the indirect method of estimating per household or per capita energy intake from the macro-economic data leaves room for underestimation of the energy leakages, no matter how careful one is, that occur from the food *en route* from the farm

to the plates of the population. Using data from direct household surveys for a country, depending on their availability, will reveal an even greater incidence of under-nourishment compared to those that we have observed in the different studies.

Nevertheless, we get a comprehensive picture of the sudden surge in the number of hungry in the world during the food crisis. The magnitude of the global food crisis and their regional concentration that emerges from different studies can help a long way in determining the dimensions of policy interventions both in terms of the volume of funds or food required to mitigate the situation and also the spatial requirements of targeting funds and food aid in the near future. However, the successful tackling of the contemporary food crisis also requires the correct diagnosis of its causal factors, which will also assist in the formulation of appropriate measures. In the following section, we shall discuss and assess the various sources from where the crisis has been generated, which have been cited in the recent discourse.

Factors behind the Global Food Crisis

The identification of the causes behind the global food crisis is a domain where there exists conflicting views. The academic world is divided as far as the factors triggering the food price inflation are concerned. There are at least three lines along which the opinions are bifurcated. The first issue of contestation is whether the food crisis is an environmental phenomenon or a man-made disaster. The second line along which opinions are divided is whether the food crisis is essentially a result of short-run changes and developments in the world or is it the result of the long-run trajectory of economic policies that are driving the capitalist system. Finally, there is also the need to identify the relative importance of the global factors and local ones within the boundaries of nations in causing the widespread and persisting incidence of hunger. While reviewing the range of causes being cited for the food crisis, we shall also look at the arguments forwarded by two other studies, namely the HDN-PREM study of the World Bank and the IMF Report, 2008, apart from the FAO, 2008 and USDA, 2008.

The argument citing environmental factors as the major reason behind the food crisis point towards the phenomenon of global warming and climate change, which had led to shortage in production of grains, particularly in some of the major food-grain exporting countries. The drought-led Australian Wheat Disaster and the exceptional fall in wheat production in Ukraine in 2006-07 due to the excessively hot climate in Europe have been identified as major causes behind the demand-supply mismatch in the global market leading to manifold increase in wheat prices. Other major wheat exporting nations like Argentina also faced a decline in production.

While it is true that that world cereal production declined by 3.6 per cent and 6.9 per cent in 2005 and 2006 (FAO, 2008), driving down the global stocks to a new low, the food prices continued to remain high even after the cereal output recovered in 2007. Also, the fact that the food prices are expected to remain high over the next decade indicates that economic policies and the nature of development process that the world has been witnessing are also playing a significant role in generating the crisis. The increasing conversion of food grains to bio-fuels, changes in consumption pattern among the world population, changing food and trade policies across countries are some of the important policies and developments that have adversely affected the food situation in the world.

The conventional hypothesis places shortage in food production relative to consumption requirements as the central cause for rising food prices. The world cereal output in the current decade (Table 3) exhibits a decline for two consecutive years in 2005-06 and 2006-07. The fall in the supply of grains in the global markets drove the prices up. It is argued that the food prices have not shown any marked inflationary trend since the oil-shock in the 1970s till recently, essentially due to the expansion of food production at par with the consumption requirements of a growing population. The FAO real food price index consistently declined since the mid-1970s till around 2000. After 2000, the trend showed an upward direction which turned into a steep increase post 2006 (FAO 2008).

Table 3: World Cereal Output (in million tons) since 2000-01

Years	Grains Production
2000-01	1839.67
2001-02	1870.11
2002-03	1817.65
2003-04	1859.19
2004-05	2044.47
2005-06	2017.2
2006-07	2000.81
2007-08 (estimated)	2117.42
2008-09 (projected)	2220.71

Source: World Agricultural Supply and Demand Estimates (WASDE), USDA

The supply-demand mismatch argument, however, runs into two problems. The first objection comes from a structural viewpoint of the issue over a longer period. This view questions the very assumption of food inflation keeping low, post the oil-shock, as a result of expanding production. In fact, the per capita cereal production in 1980 was 355 kg and is found to have declined gradually to 343 kg by the year 2000 (Patnaik, P., 2008). Based on this declining per head cereal output, Patnaik argues that there should have emerged a massive food shortage during this period given the fact that average per capita incomes across the world has increased in this period. As the income elasticity of food consumption is positive, per head consumption should have increased and generated inflationary pressures in food prices. According to him, this did not happen due to the deflationary economic policies in the 1980s and after which suppressed mass consumption in large parts of the world and kept prices within control.⁴

The declining cereal consumption is often attributed to the diversification of consumption that occurs with rising income. However, this argument is also erroneous as it is only the direct cereal consumption that declines with dietary diversification that accompanies high level of incomes. On the other hand, the higher volumes of animal products like meat, milk products, etc. that is consumed also embodies food grains that were used as feed to produce the animal product. As there is a loss

of energy from food grains when it is converted to animal products (by using food grains as feed), a greater volume of animal products needs to be consumed to obtain the same levels of energy that is possible to obtain from direct consumption of food-grains. What this essentially means is that the consumption of animal/milk products actually requires a higher volume of indirect consumption of food-grains than would have been necessary if the cereals were consumed directly. A net result of this is that voluntary diversification of the diet towards non-food-grains with increasing incomes lead to a higher total (*direct plus indirect*) consumption of food-grains and not a lower one as is commonly perceived.

Coming back to the issue of food prices, there is a second problem that emerges when we try to explain the contemporary food inflation via the market demand-supply situations. This is so as the high food prices that appeared in 2006 have persisted throughout 2007 and parts of 2008 even when the global grain production recovered to satisfactory levels (see Table 3). The cereal output in the world was 2117.42 million metric tons in 2007-08, nearly 6 per cent higher than the previous year and a similar rise in production is expected in the next year if the USDA projections for 2008-09 are close to the final output. The improved supply of food grains did not trigger a fall in food prices, rather the latter have moderated only after the global economic slowdown in mid-2008 due to a shrink in overall world demand. Even now, the prices are way above the 2005 or 2006 prices that existed prior to the price surge.

**Table 4: World Stock Situation for selected food grains
(in million tons): 2005-06 to 2007-08**

Years	Wheat	Rice	Coarse Grains	Corn
2005-06	147.69	76.47	165.95	125.11
2006-07	128.18	74.90	138.89	108.74
2007-08	122.38	78.54	159.61	129.61

Source: World Agricultural Supply and Demand Estimates (WASDE), USDA.

Looking at the world stock situation of individual crops during the period of food inflation, we find that the April stocks in 2007-08 of major food crops except wheat were already close to the 2005-06 levels. Yet the high prices are continuing for crops like rice or corn. Moreover, there was no marked change in the global stocks of rice, which has witnessed phenomenal increase in prices in this period. The prices of corn increased by 80 per cent between 2005 and 2007, while that of wheat and rice increased by 70 and 25 per cent respectively in the same period (Ivanic and Martin, 2008). By mid-2008, when the food production and stocks were back to normal, real food prices were still 64 per cent above their 2002 levels (FAO 2008). This necessitates one to go beyond the mere demand-supply mismatches to explicate the price surges.

One possible supply-side pressure on the cereal prices can be due to the soaring oil prices in recent times. The indirect use of fuel in agricultural production through industrial inputs has partially transmitted the high oil inflation into food production. Nearly all the studies that we looked at have emphasized that the increased prices of intermediate inputs like fertilizer, chemicals, fuel, lubricants and electricity that are supplied to agriculture by the industry, have raised the break-even prices for all cereal crops. However, this transmission of high oil prices into agricultural production cannot really be the central cause of food inflation as there should have been a similar increase in the prices of commercial primary crops (which did not happen), which in fact uses a greater share of modern, industrial inputs across the world. Also, the crash in the oil prices since the later half of 2008, once the world economy was gripped by a slowdown, has not been accompanied by a similar decline of nominal food prices.

This necessitates us to look beyond the supply-side factors and focus on the changing structure of demand for food-grains in the recent past. A major reason identified behind escalating food prices is the increasing conversion of grains for non-food uses like production of bio-fuels like ethanol or bio-diesels. With high oil prices and concerns over excessive carbon emissions leading to global warming, bio-fuels have emerged as the favoured substitute for fossils fuels like petroleum and diesel. However, the viability of this transformation remains under question, particularly when one assesses the food-energy competition that has intensified with this change. The traditional dual food-feed competition has transcended into

a triangular competition between food, feed and industry. There is now an ever-increasing competition over food-grains between direct consumption for replenishing human energy requirements, feed use of grains for animal products and indirect consumption by the industry for supplying energy, specifically to run automobiles. A number of countries have set targets of bio-fuel use in the near future.⁵

The US has been diverting huge amounts of corn for ethanol production in the current decade. The *Feed Grains Database* of the USDA shows that the US alone used around 995.5 million bushels of corn for ethanol production in 2002, which more than doubled to 2119.5 million bushels in 2005 and further rocketed to 3700 million bushels by 2007. In terms of million tons, this amounts to an increase of corn-use for bio-fuels production from 25.3 million tons in 2002 to 94.0 million tons in 2008; a near four-fold increase within half a decade! Of this, 53.3 million tons of the increase has occurred in just the last three years, between 2005 and 2008, when the maize prices have gone through the roof. This huge amount of corn output diverted to a non-food use like ethanol production by the US alone in the last three years is actually more than the grain required in 2007 to enable all income classes in this world to attain a minimum calorie norm of 2100 Kcal per day per capita.⁶

Mitchell (2008) has shown that considering the use of corn for ethanol production by EU and the rest of the world, the ethanol uses of maize has grown at a staggering 36 per cent between 2004 and 2007. This enormous use of corn output for bio-fuels by the US has serious implications for the corn export markets, given that the US produces one-third of the world corn output and has a two-third share in global corn exports. Not only are maize prices pushed upwards as a result of this but the cereals, which act as the substitute of maize, also witness a rise in demand and prices. There has been a similar trend of diverting large volumes of vegetable oils for production of bio-diesels in recent times although the magnitude is still lesser than the corn-ethanol case. Based on these figures and studies, one can say that bio-fuels production and the conversion of food to industrial energy is definitely one of the primary causes for the contemporary food crisis and hunger.

A dominant argument that is being harped on by the developed world in regard to the current food crisis is the impact of the changing

consumption pattern of the population in emerging economies, particularly in India and China. Among the studies reviewed by this author, the USDA 2008 and the IMF Report 2008 identifies this as one of the central causes behind the food inflation. The argument goes like this. China and India have been the two fastest growing economies over the last decade. With the rising per capita income in these countries, the rich and middle classes in the country are undergoing dietary diversification and fast approaching the western dietary patterns. This should cause an increasing demand for food-grains in these countries based on the premise that diversified diets containing higher proportion of animal products lead to a larger indirect consumption of grains, something that we discussed earlier. In the Event of such a development, the total *direct* and *indirect* demand for food-grains undergoes significant increases.

To assess this line of reasoning, it would be useful to look at the data for total food use or availability for countries like India or China in recent times. The total food availability in the country accounts for both the direct and indirect consumption of food grains.⁷ In the Indian case, neither the total food availability nor the per capita food availability provides any support to the over-consumption theory. Both the variables show a declining trend in the current decade prior to the global food price inflation. The total food availability declined from 189.5 million tons in 2002 to 181.8 million tons in 2006 (Table 1). There have been occasional increases in this variable during the period but the figure has largely fluctuated around 180 million tons and there is no unambiguous rise.

Table 5: Food availability in India: 2002 to 2006

Years	Total Food Availability (million tons)	Per capita Food Availability (kg)
1991	158.6	186.2
1996	163.4	173.5
2002	189.5	180.4
2003	170.6	159.7
2004	183.3	168.9
2005	170.0	154.2
2006	181.8	162.4

Note: Food includes both cereals and pulses as the latter is an important food item in India.

Source: *Economic Survey*, Ministry of Finance, India.

Similarly, the per capita food availability declined from 180.4 kg per year in 2002 to a low 154.2 kg per year in 2005 and again increased only moderately in 2006. In the longer run, the total availability of food has increased when we compare the current decade with the nineties. However, this increase has been slower relative to the population growth in this period and hence the per capita food availability in 1991 or 1996 was much higher than the latest years. On the whole, one can observe that there is no sign of increasing consumption; rather the reverse is more prominent.

The Chinese situation is slightly different from the Indian case although the over-consumption argument is not conclusively validated. We have calculated total and per capita use of the major food-grains, namely wheat, rice and corn, for China and the USA between 2004-05 and 2008-09 using the WASDE April estimates and the population figures for each country from the FAO database.⁸ Unlike India, there is a secular increase in the total consumption of the major cereals for China. Between 2004-05 and 2007-08, there is an increase in the cereal consumption from 363.3 mmt in 2004-05 to 380.4 mmt in 2007-08. The per capita cereal use also increases by a modest 7.5 kg in this period.

Cereal Availability in China and USA: 2004-05 to 2008-09

Years	Wheat (mmt)#	Corn (mmt)	Rice (mmt)	Major Cereals (mmt)	Population (millions)	Per capita Cereal Use (kg)
(i)	(ii)	(iii)	(iv)	v = (ii+iii+iv)	(vi)	vii = 1000*v/vi
China						
2004-05	102.0	131.0	130.3	363.3	1312.4	276.8
2005-06	101.0	137.0	128.0	366.0	1320.5	277.2
2006-07	102.0	145.0	127.2	374.2	1328.4	281.7
2007-08	104.0	149.0	127.4	380.4	1338.4	284.3
2008-09 *	107.0	152.0	130.5	389.5	1348.4	288.9
USA						
2004-05	31.8	224.6	3.9	260.4	296.8	877.3
2005-06	31.3	232.0	3.8	267.2	299.8	891.3
2006-07	30.9	230.6	4.1	265.7	302.8	877.4
2007-08	28.5	261.6	3.9	294.2	306.0	961.5
2008-09 *	34.1	262.6	4.3	301.0	309.2	973.9

* The 2008-09 figures are April Projections by the USDA # million metric tons

Source: World Agricultural Supply and Demand Estimates (WASDE), USDA.

However, this increase is much less compared to what the USA has witnessed in the same period. The total cereal consumption for US increased from 260.4 mmt, in 2004-05 to 294.2 mmt in 2007-08; increases of nearly 34 mmt, i.e. double that of the Chinese figure. The per capita cereal use illustrates the divergence even better. The US per capita cereal consumption has escalated by 84.2 kg in this period, more than 11 times that in China. Intriguingly, the bulk of this increase in the US has occurred in 2007-08, when it diverted large tracts of land for corn production with the purpose of boosting supply to its ethanol industry, a fact that we have already drawn attention to. The FAO 2008 adopts a more realistic position on this issue. They rightly point out that even if there is some increase in consumption in largely populated countries like India or China, it is not a major factor in the world grain market as cereal imports by these two countries have declined from an average of about 14 million tons in the early 1980s to around 6 million tons in the last three years.

With the occurrence of the global food inflation, many countries have imposed certain trade restrictions in order to shield their population from the impact of soaring food prices. Almost all recent studies have noted this as a point of concern. Restrictions on exports by major cereal exporters can add to the inflationary pressures already existing in the world market. The export figures for the major cereals do not show any marked decline in the recent years except in 2008-09. The per capita exports of wheat, rice and corn taken together have also risen in each of the years between 2004-05 and 2007-08. The notable fact is that the decline in both the volume of exports and the per capita exports in 2008-09 is mainly on account of a squeeze in corn exports. The major share of the 23 million tons of corn export decline is again accounted for mainly by the fall in corn exports by the US. This also points toward the linkage that falling food exports has with increasing ethanol production.

The other significant contributor to the escalation of food prices, which cannot be ignored, is commodity speculation in the futures market. Prior to the collapse of the US housing boom, finance was already shifting from the stagnating housing assets to the commodity markets, particularly in the

grain futures markets (FAO, 2008; UN, 2008; Ghosh, 2009). The speculative activity in the wake of excess grain demand has led to fast increases in major grain prices starting from 2006.

World Exports of Major Cereals and Per Capita Exports; 2004-05 to 2008-09

Exports	Wheat	Corn	Rice	Total	Popula- tion	Per capita Exports
	(mmt)	(mmt)	(mmt)	(mmt)	(million)	(Kg)
2004-05	111.13	78.27	28.24	217.64	6436.8	33.8
2005-06	116.16	80.93	30.21	227.30	6514.8	34.9
2006-07	111.58	93.80	31.32	236.70	6592.9	35.9
2007-08	116.95	98.34	30.83	246.12	6677.5	36.9
2008-09	128.04	75.31	29.33	232.68	6763.2	34.4

Source: World Agricultural Supply and Demand Estimates (WASDE), USDA.

The examination of the different causes leading to the food inflation points towards the demand side factor of usage of excessive food grains for the production of bio-fuels as a driving force behind grain shortage for human consumption and high food prices in the world market. Speculative activities by finance in the commodity futures markets have also been the other major reason behind the food crisis. The deteriorated access to food as a result of high prices has been further aggravated by the global economic crisis that gripped the world in 2008. The collapse of the housing boom in the US, which was based on unregulated and risky financial operations, have caused a significant slowdown and crisis in the real economy also. The slowdown in the Northern economies has adversely affected the export activities in the developing countries. The loss of income and livelihood in the globally integrated economies of the Third World has deepened the vulnerability of their poor population as far as nutrition and hunger is concerned.

Given the state of affairs, a successful battle against hunger and malnutrition requires a two-pronged strategy. On the one hand, it is now

necessary to adopt policies that try to resolve the competition over grains between consumption as food and production of industrial energy. On the other side, it is important to arrest the current economic crisis, which has hit the poor in the hardest manner. The generation of new employment and livelihoods in the developing countries is extremely necessary in the current scenario. Before discussing the policy options, we shall briefly look at the different impact of the food crisis on low-income economies and their population in the next section.

Impact of the Global Food Crisis

A discussion of the impact of the global food crisis needs to take into account the effects at the macroeconomic level for a country and also the impact on the welfare aspects of households and people in the developing countries. High food and fuel prices have the potential to adversely affect the balance of payments (BoP) and the overall inflation situation in a country. The extent of poverty incidence also increases as a result of a crisis that we currently have on our hands. At the level of the people, there is the likeliness of several indirect effects of soaring food budgets and food deprivation, apart from the more obvious worsening of the situation of hunger and malnutrition.

The IMF Report 2008 tries to make an assessment of the macroeconomic impact of the recent food and fuel inflation for low and middle-income countries. According to the study, the recent increases in oil and food prices have strongly affected many developing countries unlike the earlier rise in the oil prices that occurred in 2003. Both the food and oil-importing countries have experienced unfavourable effects on their BoP situation, although to varying degrees, in 2007 and 2008. According to the study, 33 low-income net food-importing countries have had an adverse BoP impact due to rising food prices equivalent to 0.5 per cent of their annual 2007 GDP in a 16 month period (between January, 2007 and April, 2008). The same impact for 59 low-income oil-importing countries have been larger at 2.2 per cent of their 2007 GDP.

The study also tried to assess the impact of a 20 per cent higher food and oil prices in 2008 and 2009 compared to the World Economic Outlook baseline projections for those two years. A country is identified as having a

'high impact' if the price increases lead to a reduction in reserves by more than 0.5 month of imports of goods and services and a reserve level that is lower than three months of imports of goods and services in the next year. On expected lines, the impact of the oil price shock was more widespread than the food price increases. Oil imports are typically 2.5 times food imports for low-income countries and twice the food imports in middle-income countries. Out of the 74 low-income countries, 48 countries were found to have a 'high impact' due to oil-price shock and 13 due to the rise in food prices. The combined shock of a further 20 per cent price rise in oil and food is estimated to affect 42 low-income countries in 2008 and 2009. Among the 71 middle-income countries studied, 33 and 3 countries were expected to be affected by the oil shock and the food shock respectively.

While the oil prices have reversed their high trends in recent months, the hypothetical study by the IMF Report 2008 still throws some light on the severe BoP problems that countries shall have to cope with as a result of inflating food import bills. The report also notes that the food price inflation has played a much greater role in the overall headline inflation, particularly for the non-OECD countries. For the 120 non-OECD countries, the share of food in the Consumer Price Index (CPI) basket was 37 per cent compared to the low 7 per cent fuel share. Adjusting for the indirect fuel use via intermediate goods still reserves a higher weight for food in the CPI in developing countries.

On the issue of impact on poverty in developing countries, the report identifies the urban poor as well as food-deficit farmers to be more vulnerable as a result of the food inflation. As the majority of smallholder farmers in Africa and Asia are net food buyers, an overwhelming proportion of the rural population also stands at the threat of slipping into poverty or intensification of their already existing poor standards of living. While high food prices can potentially raise the incomes of the few food-surplus farmers, the report cautions against hasty conclusions in this regard. It cannot be stated definitely whether the food-surplus farmers are benefiting from the recent price surges as input costs like fuel, fertilizers and transportation have also risen at a faster rate and the possibility that this can nullify the premium of high food crop prices cannot be ruled out.

Ivanic and Martin (2008) analyses household level data for nine low-income countries to assess the net effect of food inflation on poverty. The central focus of their study is to examine whether the positive impact of high food prices on net food sellers in poor nations is outweighed by the negative impact of the same on net food buyers. While noting that the food producers in developing economies stand to benefit from high food prices,⁹ the authors caution that the extent of actual benefit is determined by the net sales of food by the food surplus farmers. Typically, large portions of the food produce are used for own consumption in the global south, which partially offsets the positive effects of high food prices on food cultivators.

The paper engages in two experiments using household survey data from nine countries, namely, Bolivia, Cambodia, Madagascar, Malawi, Nicaragua, Pakistan, Peru, Vietnam and Zambia. High quality household data on income and net sales of food-grains was required for the study, which restricted it to these nine countries. First, it employs a partial equilibrium analysis to detect the impact of a hypothetically small (10 per cent) price increase of certain food items on poverty headcount and poverty gap. In the second experiment, the impact of the actual price increases between 2005 and 2007 on the poverty indicators in each of the nine countries and as a whole is estimated. The separate examination of the rural and urban households also helped in identifying the differential impacts of the price rise. While food-surplus farmers in rural areas play a role in offsetting some of the negative impacts of the food inflation, the urban areas are expected to unambiguously experience a rise in poverty due to high food prices.

Except for Vietnam and Peru, the hypothetical 10 per cent rise in food prices led to a rise in both the poverty headcount and the poverty gap. In the case of Peru, higher beef prices have a positive impact on poverty given that most households in both rural and urban areas are net sellers of the commodity. The rural poverty in Vietnam is significantly reduced when rice prices increase and this offsets the smaller negative impact of higher rice prices in the urban areas leading to an overall improvement in the poverty situation. Among the other countries, Pakistan experienced a small decline in rural poverty due to higher rice, wheat and diary product prices but the overall

poverty in the country enhanced due to stronger negative impacts of the price rise in the urban areas. In the overall scenario, the poverty headcount increased by 0.5 per cent in rural areas and by 0.8 per cent in urban areas due to a 10 per cent increase in food prices; the overall increase in poverty was estimated at 0.6 per cent. The impact on the poverty gap also exhibited similar trends across crops and countries.

Coming to the second experiment which deals with the actual price increases between 2005 and 2007, the increase in the poverty indicators are much higher compared to that due to the 10 per cent price increases. The rural poverty headcount ratio for all the nine countries increased by 2.6 per cent while that in the urban areas enhanced by 3.6 per cent points; a combined increase of 3 per cent in the poverty headcount ratio. Nicaragua experienced the highest increase in urban poverty (10.7 per cent) mainly due to higher dairy, maize and wheat prices. On the other hand, Zambia, already with exorbitantly high initial poverty rates (72.2 per cent) recorded the highest increase in rural poverty (7.4 per cent). This was caused solely by the escalation of maize prices. The actual increases in prices have led to a rise in the rural poverty in Pakistan also unlike the hypothetical small increase. Peru and Vietnam were once again the only countries, which seem to have benefited from the recent food inflation. While rice played the major positive role in the rural poverty reduction in Vietnam, the high prices of almost all commodities except wheat helped in reducing rural poverty in Peru. Equitable access to land in rural Vietnam also plays a crucial role behind this outcome of high food prices. The urban poverty, however, increased in these two countries also like the rest. Considering all the nine countries together, the price rise of maize, wheat and dairy products had the highest adverse impact on poverty rates in that order.

The cross-country study by Ivanic and Martin (2008) points to the fact that in most cases there is no net positive effect of the recent food inflation on the poverty situations in low-income countries with large proportion of population engaged in agriculture. Rather, the authors caution that their estimates of the price impact on poverty can be on the conservative side as they have excluded the first quarter of 2008 in their analysis when the prices

were further moving northwards. The oft quoted proposition that agricultural population in the global south stand to benefit from higher food prices is quite a weak one as shown by this study.

The FAO 2008 also undertook an analysis of the impact of higher food prices based on household data from nine countries.¹⁰ This study reasoned on similar lines as the study by Ivanic and Martin that the proportion of net food buyers and net food sellers is crucial in determining the overall effect of inflation on welfare. It investigated the impact of high prices on different classes in the population in these countries. The study estimates the change in welfare for five expenditure quintile classes in the population. The welfare change was captured by the amount of real income lost/gained due to high food prices by each class. In the urban areas, there is clear evidence that the lowest expenditure classes have been most adversely affected and the negative impact of high prices diminished as one moved to the upper expenditure quintiles. In the rural areas also, except for a rare country like Albania or Vietnam, the poorest expenditure class households have lost relatively more of their real incomes than the upper classes.

The study notes that poorer households have been worst hit by the current food crisis. At the same time, there was a differential impact even among the poorer households depending on some other factors. The landless poor have invariably faced a tougher challenge to maintain their income levels as compared to those with some access to land. The only exception seemed to be Malawi where the poor households owning some land seemed to be as worse-off as the landless. Again, the poor households with livelihoods based in agriculture were slightly more insulated from erosion of real incomes compared to those outside agriculture. The study also notes that typically, female-headed households within poor households were relatively under greater stress due to the high food prices.

The HDN-PREM study supported by the World Bank emphasizes that while there is an increase in the poverty count as a result of the recent food inflation, there is an increase in the depth of the poverty to an even greater extent. The study cites recent estimates of increase in poverty depth which reveal that 88 per cent of the increase is due to poor households sliding

further down into poverty and only 12 per cent is accounted by non-poor households falling under the poverty line. While noting this and the need to prioritize the more vulnerable sections of the poor in the battle against the food crisis, the study goes on to enumerate the implications of high food prices for health and education. It draws upon the experiences of earlier economic crisis in different countries in order to locate the possible impacts of high food prices.

An extra-ordinary rise in food prices typically aggravates malnutrition among the poor with worsening health indicators in the longer run. Rising food prices adversely affects the nutritional status of households as they reduce food consumption or switches over to cheaper low-value coarse cereals. As a result there is either a reduction in the calorie intake of the affected population or the emergence of micro-nutrient (like iron or iodine) deficiency. This has a more serious and longer-term impact on infants (below 2 years) whose development can be irreversibly damaged. Apart from this, pregnant or lactating mothers and the already malnourished are also vulnerable. On the other hand, there is natural gender discrimination with regard to food allocation within households at times of declining consumption. This also affects female children more than the male in terms of their future health. The drastic impact on infants and children during the Peruvian economic crisis in 1988-92 and the Indonesian crisis in 1997-98 are cited by the study to substantiate the above inferences.¹¹

The other major social impact of the escalation of expenditures behind food is the curtailing of education for children. The expenditure behind the education of children is also squeezed by the expanding food budget leading to increasing dropout of children. The study notes that although there is a reduction in the opportunity costs of children staying at schools at times of economic crisis as employment is rarely available and wages are low, it is still most likely that poor households are unable to provide education to their children when their incomes are spent mainly to acquire food at high prices.

The discussion of the impact of the food crisis in this section along with the dimensions and causes behind the food crisis, deliberated in the

earlier two sections, underscore the importance of a careful formulation of policies to tackle the situation of food deprivation and hunger in the contemporary world. The differential impact of the current crisis in different locations and sections of the population implies that a certain degree of prioritization is necessary in terms of geographical locations and income classes within the population while determining the strategies for tackling the global food crisis. In this light, we shall now look at the various food security enhancing policies and actions that are being prescribed by different multilateral organizations including the High-level Task Force of the United Nations. In the next and final section, we shall also examine the feasibility and effectiveness of these recommendations in the contemporary world situation.

Policies and Action against the Food Crisis

Given the global character of the food crisis, it is impending to build a coordinated framework of policy response. Scholars and multi-lateral agencies have correctly noted this and are working towards formulating such a response. However, while coordination among nations is an important condition behind a successful endeavour to tackle the food crisis, one must not undermine the specificities of individual countries in the process. Ignoring the variations across countries and regions with regards to hunger and malnutrition and the effects of the contemporary crisis may render any policy package that is adopted to be counter-productive in its effect.

There are not only significant differences within the developing world itself with regard to the extent and depth of hunger but the consequences of high world prices for food are varying across nations depending on whether they are net-exporters or net-importers of food-grains. The rural-urban composition of the population, existing income inequalities across population classes and the occupational structure of the workforce are all factors that vary considerably across national boundaries and at the same time, these variables are crucial in determining the effects of any economic crisis or the suitability of remedial measures that are adopted. In this light, we shall examine some of the policies that have been recommended by studies and multilateral agencies to tackle the food crisis and try to identify the most urgently required measures.

The FAO 2008 study prescribes two sets of policies to mitigate the shortfalls in food production and consumption and nutritional deficiencies. The study locates the need to boost smallholder agriculture, enhancing food production in the context of high food prices. The emphasis on smallholder agriculture for increasing food output is due to two reasons. First, it is a welcome measure as nearly two-third of the people residing in rural areas in this world is dependent on incomes generated by around 500 million small farms (each less than 2 hectares). Around 80 per cent of the African agriculture constitutes of such small-scale farming. Given the dominance of small-scale cultivation in the developing world, any substantial increase in food production to correct demand-supply imbalances cannot be a distinct reality without an inclusive participation of smallholder farmers. The other reason for promoting smallholder agriculture to tackle the food crisis emerges from the fact that a vast majority of these small-scale cultivators are also net food buyers and represent nearly 90 per cent of the rural poor. Any escalation in their food output as part of a 'Food First' approach can effectively increase their food consumption and reduce the persisting hunger and nutritional deficiencies among the rural poor.

In order to rejuvenate small-scale food production, the report suggests a multi-pronged strategy where provision of cheaper inputs, advanced technology, market access, infrastructure facilities and credit needs does not act as a constraint for small and petty producers. The recent trends in farm input prices, which have escalated at a higher rate than output prices due to high fuel prices, have nullified the producer's premium of high food prices in the process. The provision of subsidized inputs to farmers is of central importance if the high food prices ruling in the world markets have to be used as an opportunity to enhance food production.

The second policy that is recommended by the FAO is to increase the access to food, particularly of those afflicted by hunger and malnutrition. The report suggests the introduction of safety nets and social protection systems that can enhance the purchasing power of the population as well as prevent households from falling into the 'poverty trap'. 'Safety Nets' can include several components ranging from food distribution programmes

and feeding programmes, which increase the access to food directly or cash transfer schemes and employment schemes, which increase the income and purchasing power of households. Moreover, programmes that supply fortified food items, rich in micronutrients, targeted at children and pregnant and lactating mothers can help in preventing the emergence of long-term nutritional deficiencies among the population. The development of an effective public food distribution system in the poor developing countries in the longer run can also prevent the coexistence of excess grain supplies and food and energy deficiency among the population.

There are two concerns regarding the FAO approach that demands a cautious look. While dealing with smallholder cultivators, the report commits the mistake of considering them largely as a homogeneous group. Based on this assumption, they point out that small farms would be more efficient in the use of family labour and more productive and, therefore, any policy targeting this group can enhance the food production. In reality, it has been observed that the peasantry in the developing countries are highly differentiated and with the penetration of modern inputs and capitalist modes of production, the inverse relation between farm-size and productivity has largely ceased to exist. The productivity varies even between different farms within the same size-group depending upon their varying capital assets and production relations and larger farms with a history of greater capital accumulation are often more productive than the others. Land and credit relations play an important role in the shaping of a heterogeneous peasantry. It is important to recognize this heterogeneity, as policies framed with a homogeneous group of cultivators in mind may not yield the intended result of enhancing food production and achieving food security.

The other recommendation of the report to integrate the small-scale cultivators with the global value-chains for better market access must also be dealt carefully. An integration of developing country commodity producers with the food value-chains controlled by the large food corporations has not always produced the desired positive results. Although contract farming organizes production with better monitoring of inputs used and cultivation techniques and leads to higher production, the fact that the food corporations

are driven solely by profit motive often leads to an adverse bargaining position for the cultivators or even unwarranted environmental impacts. Historical experience in developing countries reveals that the long-run impact of contract farming on smallholder agriculture has always not been definitely positive in nature. As far as issues like input provision and market access to small-scale cultivators are concerned, the government needs to play a major role in the development of marketing institutions and disbursal of inputs along with putting in place proper regulations for private operations in these domains such that the interest of the cultivators' remains protected.

The United Nations High Level Task Force (HLTF) has formulated a Comprehensive Framework of Action (CFA) to challenge the global food crisis. The CFA adopts a twin track approach incorporating short-term measures to mitigate the current emergency situation and also recommends policies to be implemented in the long run to ensure sustainable food security in the future. The long-term measures are particularly necessary as widespread hunger-incidence and malnutrition was prevalent across the developing world even before the recent food crisis occurred.

Among the immediate policy requirements, the CFA places topmost priority to the emergency food assistance, nutrition interventions and enhanced safety nets for the people. The objective is to protect the basic consumption needs of the poor and prevent any aggravation of nutritional deficiencies. Programmes targeted at children and the elderly like school feeding and adjustment of pensions to higher prices have been recommended by the CFA. The other important short-run policy to cope with the current emergencies is to enhance food production by smallholder farmers, something that the FAO has also conceived as a necessary measure. The CFA outlines various measures like the provision of productivity enhancing support, strengthening the rural and agricultural infrastructure and reducing post-harvest crop losses for expanding the volume of food production.

Apart from the above two policies, the CFA also suggests that strategic grain reserves should be effectively used in order to keep food prices low in the economy. It also feels that there should be minimal trade restrictions,

particularly by food exporting countries, at times of crisis so as to prevent further volatility of food prices in the world market. In its long-run measures to sustain the fight against hunger and poverty, the CFA points towards the importance of expanding the safety net programmes adopted to tackle the immediate emergency and also to sustain the improved food production by small cultivators in the future. In addition, the CFA envisages the need for improving international food markets such that they are more capable of meeting the needs of low-income countries and also be able to prevent speculation in food items that drive up prices even without the existence of serious demand-supply imbalances.

The important concern that the CFA raises is regarding the large-scale diversion of certain food-grains for the production of bio-fuels. We have seen while examining the causes behind the food crisis that the diversion of large volumes of maize for ethanol production in the US is one of the primary causes behind the decline in the food availability in the world. The volume of maize used for bio-fuel production was also more than enough to suffice for the shortfall in grains required to mitigate the hunger for all income classes in the world. The CFA calls for an international consensus on the production of bio-fuels and the financial support provided to the same. It notes with concern that there has been adverse impacts on food security as a result of using food crops for bio-fuel production. In the wake of increasing green house gas emissions and climate change, the CFA feels that an optimal solution has to be reached on the issue adopting some harmonization between multiple concerns like food security, climate change, environmental and energy policies. There is also a need to identify non-food primary products that can be used for the purpose of bio-fuel production.

The focus on the smallholder agriculture to increase food production as well as to raise the income levels of the vast majority of small-scale cultivators in the developing world has been correctly identified as an essential policy to mitigate the food crisis. However, while dealing with smallholder agriculture, we must also take into account the recent history of developing world agriculture under neo-liberal policies at the time of formulating the specific policies. One cannot remain oblivious to the transformation that

occurred in agricultural production in the majority of the poor Sub-Saharan African and South Asian countries as they moved from 'Food-First' to 'Export-First' regimes in the 1980s and the 1990s and promoted export-oriented agriculture under the guidance of the Bretton Woods Institutions. The goal of internal food security and augmenting food production was pushed to the backyard of policy-making in these developing economies. The fact that a majority of the hunger-afflicted countries today are also net importers of cereals is precisely due to the export-oriented non-food cultivation that was encouraged by these countries two or three decades back.

The other reality that existed in these developing economies and was largely ignored at the start of this transformation process is that majority of the cultivators and primary producers in these countries were net food buyers. A move away from 'Food-First' regime to an export-oriented one meant undertaking the risky affair of trying to attain food security for the population in these countries through trade in the world markets. With primary product prices falling and fluctuating erratically in the world market and food price trends relative to that of the primary products generally remaining adverse, cheaper food imports to feed one's population was a dream that never got cherished in most cases. With world prices affecting domestic prices under a trade-liberalized regime, the returns to agricultural production started falling even within the domestic economies further compounding the problem for the large rural populace in these countries.

The small-scale cultivators who are being banked upon to play a major role in enhancing the world food production have come to suffer from vulnerabilities caused by low income and accumulated debts under export-oriented agricultural policies in many developing countries. For example, India has witnessed the precipitation of an agrarian crisis even during her high growth years with mass suicides of farmers occurring in the countryside. The point is that any automatic shift of commercial crop cultivators to food cultivation will remain in the realm of fantasy unless the governments in these countries acknowledge the need to return to a 'Food First' regime and provide the required support to farmers for this. Also, given the adverse effects of a free trade regime and export-oriented agricultural policies on food security, food

supplies to hunger-afflicted countries has to be provisioned for collectively by the food-surplus nations under the aegis of some multilateral framework through programmes like the World Food Programme.

Restrictions on the diversion of food-grains for bio-fuels production should be another cornerstone of any framework to reinstate food security precisely due to the sheer volume of maize that has been diverted for ethanol production by some advanced nations in the past few years. Acknowledging the growing threat of global warming and the need to reduce the greenhouse gas emissions, the world has to not only reach an optimal solution with regard to use of bio-fuels but will also have to reach a consensus regarding the environmental sustainability of the average lifestyles that are currently characteristic of the developed world.

Finally, any fight against the persistence of hunger and nutritional deprivation cannot be carried out comprehensively without recognizing the aspect of rising inequality and mass income deflation that has occurred primarily within developing nations over the past few decades. The decline in the per capita food consumption in the world in the last couple of decades of the 20th century that we discussed while assessing the causes of the food crisis explicates the role of demand deflation in the developing world in keeping world food prices low. Prices could be kept low to their baseline figures at the cost of persisting hunger and meagre gains in the MDG goal on hunger reduction in the Third World. The issue of income and demand deflation assumes all the more significance in the context of the present economic crisis, which the world is passing through. The slowdown of economies and rising unemployment will intensify the problem of people not having enough income to purchase food even when food supplies are not scarce.

Therefore, apart from policies that target food production and hunger directly, there is need for governments in different countries to inject demand in their economies via fiscal stimulus packages and large-scale employment programmes. The strategy to counter the deflationary effects of the global crisis on the world economy and prevent any further collapse of the latter would require a marked departure from the dominant economic philosophy

of the neo-liberal school of thought. In the context of the ongoing economic crisis, any successful effort to assuage the global food crisis would require the adoption of a Keynesian policy framework within which smallholder agriculture can be boosted along with raising the purchasing power of the poor and hungry people of this world.

Endnotes

- ¹ Although the actual estimates of hungry people in 2007 by the USDA study, the regional concentration of hunger incidence that emerges is similar to the FAO study.
- ² See box on page 4, USDA (2008) for the methodology of conversion of different food items into grain equivalents and for other definitional aspects.
- ³ For a detailed version of the FAO methodology followed for their yearly estimations of the proportion of under-nourished population, see FAO Methodology for the Measurement of Food Deprivation, FAO Statistics Division, October 2003 available at http://www.fao.org/faostat/foodsecurity/Files/undernourishment_methodology.pdf
For the methodology of the USDA study, refer to footnote 2.
- ⁴ To test this hypothesis in a more direct manner, we used the WASDE (USDA) data on food production and consumption and FAO population figures to calculate the three-year average per capita production and per capita consumption for the two periods 1979-80 and 1999-2001. We found that the per capita production declined from 325.9 kg in 1980 (median year of first period) to 303.8 kg in 2000 (median year of second period). Our estimates from WASDE data are lesser than Patnaik (2008) estimates, which used FAO data on food production but the trend is similar. On the interesting side, the per capita consumption calculated by us shows a similar decline from 325.8 kg in 1980 to 306.5 kg in 2000. This largely supports the Patnaik hypothesis.
- ⁵ The E.U. has set a goal of 5.75 per cent of motor fuel use from bio-fuels by 2010. The U.S. has mandated the use of 28.4 billion liters of bio-fuels for transportation by 2012. Brazil has stipulated that all diesel oil contain 2 per cent bio-diesel by 2008 and 5 per cent by 2013 while Thailand will require 10 per cent ethanol in all gasoline starting in 2007. India has mandated a 5 per cent ethanol blend in nine states while China is currently requiring a 10 per cent ethanol blend in five provinces.
- ⁶ As mentioned in the last section, the USDA 2008 estimate of the distribution gap in 2007 was 44 million tons of grain equivalents.
- ⁷ The food availability/use for a country is the Net production (after adjusting for seed and wastage) *plus* Net Imports *minus* Net Addition to Stocks.
- ⁸ The FAO Population database provides figures till 2006. We have projected the figures for China and USA in 2007 and 2008 using the trend growth of population that prevailed in these countries between 1996 and 2006.
- ⁹ Seven food items were considered for the first experiment namely, beef, dairy, maize, poultry, rice, sugar and wheat. For the second experiment, beef and sugar were excluded as the price increases of these items were negligible between 2005 and 2007. The per centage price changes in this period for dairy, maize, poultry, rice and wheat were 90, 80, 15, 25 and 70 respectively (Ivanic and Martin, 2008)
- ¹⁰ The countries included in the FAO study were Albania, Bangladesh, Ghana, Guatemala, Malawi, Nicaragua, Pakistan, Tajikistan and Vietnam. Their results for Vietnam endorse that found by Ivanic and Martin (2008), i.e. rural welfare improves while the urban welfare diminishes

due to high prices. For all the other countries, the welfare of the population declines in both rural and urban areas.

- ¹¹ See 'Rising Food And Fuel Prices: Addressing The Risks To Future Generations' by the HDN-PREM Network, World Bank

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