

Role of Agriculture in Reducing Food Insecurity

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INTRODUCTION

Early thinking clearly linked hunger and food insecurity to reduced food availability. Hunger, and particularly famine, appeared to be a result of an acute food shortage, which could be best addressed through steps to increase the production and distribution of food. Thinking on food security was thus largely seen in terms of increasing aggregate food supply, an idea that fitted well with the focus of contemporary agricultural development thinking, particularly in Asia during the era of the Green Revolution. Increasing availability through technology-based productivity improvements seemed to offer the world a way out of hunger, famine and food insecurity. Food accessibility for many people in the developing countries remains closely tied to local food production (FAO 2008a,b; Bruinsma 2009). The World Development Report 2008 stresses the importance of agriculture-led growth to increase incomes and reduce poverty and food insecurity in the least developed and developing countries.

SCOPE AND IMPORTANCE

Despite a dramatic increase in global food availability and substantial progress in poverty reduction, hunger, food insecurity and undernourishment remain at unacceptably high levels and progress in addressing this dimension of poverty has been disappointingly poor.

Almost 850 million people do not have enough to eat and, alarmingly, in many parts of the world, the number is on the increase. Most people accept that agriculture is linked to hunger and food insecurity, but that the link is not necessarily direct or linear. Most also accept that producing more food will not necessarily alleviate hunger. The world already has more than enough food to feed its population adequately. Understanding how agriculture can most effectively contribute to food security remains a

critical question, particularly for policy makers reviewing their approach to agricultural development within the wider framework of economic growth and poverty reduction. Food security and adequate nutrition are determined by a number of factors that can be grouped as:

- a) the availability of food;
- b) economic access to food; and
- c) the way in which food is used (including interactions between diet and disease).

Agriculture is of direct importance in at least the first two categories, and has indirect effects (especially through income) on the third. As the USAID FTF website says, "Recent studies suggest that every 1 percent increase in agricultural income per capita reduces the number of people living in extreme poverty by between 0.6 and 1.8 percent." No other investment has that return.

OBJECTIVES OF THE STUDY

Realising the fact that hunger remains a most disturbing factor and agriculture has a major role to play in reducing this food insecurity, the study comes out with few objectives:-

1. To know the position of India in Global Hunger Index
2. To understand the role of Agriculture in tackling the problem of hunger effectively with reference to India with some facts and figures.
3. To recommend few suggestions to bring in reforms in agricultural sector for a hunger free society.

METHODOLOGY

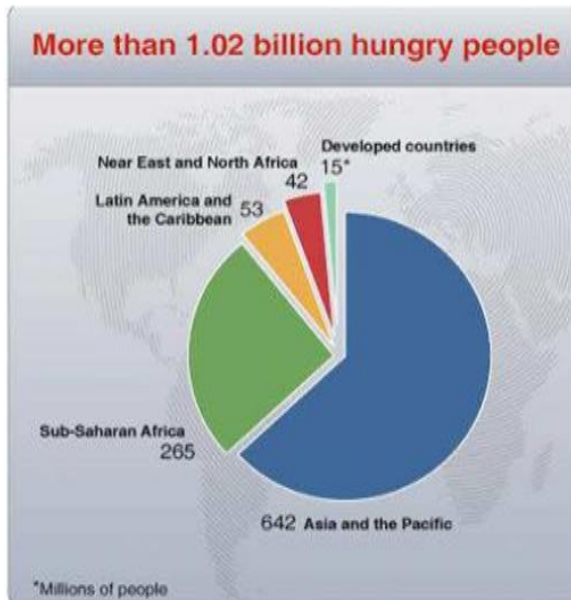
The study is based on Secondary data. The published Research Articles, FAO Reports, Journals and News Papers are referred for the study. The paper is simplified with just a comparative study and analyses of the available data.

Global Food Insecurity

The agricultural policy throughout Europe in the 20th century focused on increasing productivity. Subsidies and grants supported intensive farming during late 1950s into the 1970s. Food commodities accumulated quickly in the EU producing first food mountains, which necessitated greater expenditure on storage and subsidising exports to other parts of the world and policies were changed in the 1980s; and new policies had been introduced since 1988 to control over production (ECIFM 2010). In 2010, the earth is producing enough food for all the 6.9 billion people in the world; 3.05 billion tonnes of food had been produced in the first 7 months (Table 1). However distribution of food continues to be problematic and at least 25,000 people are recorded to be dying of hunger each day even in the 21st century.

Table 1 :World Food Scenario, 2nd October 2010

Food produced:	3.95 billion
Undernourished people in the world:	1.02 billion
Overweight people in the world:	1.15 billion
Obese people in the world:	343 million
People who died of hunger each day:	28,500



Source: FAO 2009

Figure 1 Regional distribution of hungry people in the world

Global Hunger Index

The efforts to meet this goal of reducing the undernourished have been inadequate and the number of undernourished people in the world has increased from 824 million in 1990 to 1.02 billion in 2009. Over a billion people are undernourished in the world today; on the other hand 1.15 billion are overweight and 343 million are obese, which is problematic for health security (Tab. 1). FAO estimated that 80% of malnourished children living in the developing world produce food surpluses. Further many people in food rich nations are underfed. The existence of malnutrition is related to problems of food distribution and purchasing power rather than food shortage since there has been sufficient food to feed the entire population of the world (Sen 1981). Even in Africa and South Asia where hunger is most severe, there is enough food to feed all the people in the country. The Global Hunger Index (GHI) was developed by International Food Policy Research Institute (IFPRI) to measure the progress and failures in the global fight against hunger). This statistical tool is calculated as follows:

$$GHI = \frac{PUN + CUW + CM}{3}$$

PUN is the proportion of the population that is undernourished; CUW is prevalence of underweight children under five and CM is proportion of children dying before the age of five. The data used for the 2009 GHI are for the period from 2002 to 2007. The data for PUN are based on UNFood and Agriculture Organization for 2003-2005; CUW is based on World Health Organisation (WHO) and Demographic Health Survey (DHS) data; and CM data are from UNICEF. The index ranks countries on a 100 point scale, with 0 being the best score, values less than 4.9 reflect "low hunger", values between 20 and 29.9 are "alarming", and values exceeding 30 are "extremely alarming" hunger problem. In 2009, GHI included 121 developing countries and countries in transition and the focus was on the connection between hunger and gender equality. The impact of the financial crisis on the hunger situation was also analysed. GHI has reduced only by a quarter between 1990 and 2009. Southeast Asia has reduced hunger significantly in the last decade. There has been some progress in South Asia, however GHI still remains to be alarmingly high.

Position of India in Global Hunger Index

Table 2 Global Hunger Index (GHI) for some Countries, 1981 - 2009

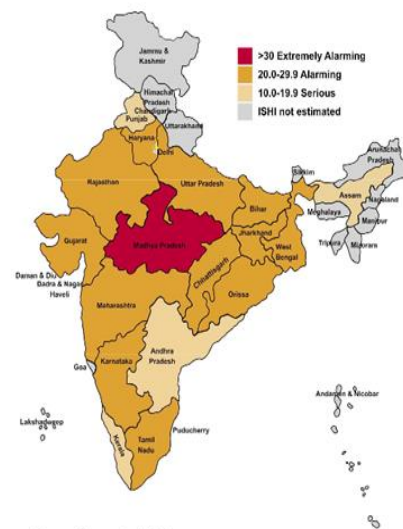
GHI Rank (2009)	Country	1981	1992	1997	2003	2009
N/A	Brazil	10.43	8.50	6.70	5.43	<5
5	China	20.10	12.57	8.57	8.23	5.70
65	India	41.23	32.80	25.73	25.73	23.90
35	Sri Lanka	24.90	22.40	21.87	16.63	13.70
58	Pakistan	33.60	25.97	23.60	21.77	21.00
67	Bangladesh	44.40	36.50	35.73	28.27	24.70
55	Nepal	43.30	27.77	27.77	24.50	19.80

Source: Wiesmann, Doris 2006

China despite of its population has been successful in increasing agricultural productivity and lifting many out of poverty through introducing right agricultural policies, investments and entrepreneurship. China has achieved significant progress to manage its challenges of food security and been able to halve its global hunger index between 1990 and 2009 (Table 2). Decades of war in China had led to food shortages. But India is still striving hard to achieve progress especially with the acute problem of hunger.

India Hunger Indicators

Although India grows enough food (food stock of 50 million tonnes projected in 2009) and its GDP has more than doubled since 1991, it is home to about 25 percent of the world’s hungry poor (FAO 2009, Hindustan Times 2009). Forty eight percent of children under the age of five years are malnourished in India, which is over a third of the world’s 150 million malnourished under-fives. Also over half of all women aged between 15 and 49 years are anemic, and 30% of children are born underweight. It is estimated that 3% of GDP is lost by physical impairments caused by malnutrition in Asian countries (Economist 2010a). India ranked a high of 65 in 2009 with a global hunger index of 23.9. The India State Hunger Index (ISHI) score was calculated for 17 major states and covering over 95 percent of the population. ISHI has been computed using calorie undernourishment cut off of 1,632 k cals per person per day.



Source: Menon et al 2009

Figure 2 India State Hunger Index (ISHI)

Madhya Pradesh has been categorised as extremely alarming based on ISHI (Fig. 2). Jharkhand, Bihar and Chhattisgarh performed badly with a hunger index score exceeding 25 (Table 3). Punjab, Kerala, Andhra Pradesh and Assam had the lowest scores. All other states had a hunger index score exceeding 20. The under-five mortality was below five deaths per hundred children only in Kerala and Tamil Nadu; Uttar Pradesh, Orissa, Chhattisgarh, Jharkhand and Madhya Pradesh had under-five mortality rate exceeding nine deaths per hundred children. Proportion of underweight children under age-five was below 30 percent only in three states – Punjab, Kerala and Tamil Nadu. Prevalence of calorie undernourishment was over 25 percent among the southern states of Maharashtra, Kerala, Tamil Nadu, Karnataka; this might perhaps be attributable to the diet and climate of these states.

ROLE OF AGRICULTURE IN REDUCING FOOD INSECURITY

Most people accept that agriculture is linked to hunger and food Insecurity, but that the link is not necessarily direct or linear. Most also accept that producing more food will not necessarily alleviate hunger. The world already has more than enough food to feed its population adequately. Understanding how agriculture can most effectively contribute to food security remains a critical question, particularly for policy makers reviewing their approach to agricultural development within the wider framework of economic growth and poverty reduction.

This paper synthesizes evidence concerning the role of agriculture in reducing food insecurity, particularly its roles in making food available at lower prices, and in generating incomes so people can buy food. Areas are identified where a lack of knowledge or a divergence of views about appropriate agricultural responses to food insecurity are constraining the potential for agriculture to contribute to reducing poverty and hunger.

Evidence shows that agricultural growth has increased farmers' (including smallholders') incomes from agricultural production and immediate downstream processing enterprises. Thus, Dev (1998) reports that in India average real income of small-scale farmers rose by 90% as a result of increases in productivity. Similarly, IFPRI argue that in Zimbabwe there was a 'smallholder green revolution' during the 1980s in maize and sorghum production in which yields more than doubled and 95% of crop area was planted with improved varieties (IFPRI, 2002). Lele and Agarwal (1989) cite evidence from Kenya, arguing that small- and large-scale farmers exist alongside one another, grow the same crops, and sell them in the same markets at similar prices. There is similar evidence from Bangladesh where, despite highly unequal access to land, it appears that small-scale farmers have not been excluded from this technology. For the landless – around one third of the rural population – improved rice farming initially required more labour, but subsequently mechanisation reduced demand for labour. Nevertheless, the landless poor have largely found new jobs in other areas and now depend much less on farm labouring. Real wages have risen (Hossain et al.,2003; Hossain, 2002), although many of the additional off-farm jobs are themselves linked

to the expansion of farming (Mandal, 2002a and 2002b). Accelerated agricultural development – particularly increasing agricultural productivity – typically creates more jobs and, depending on levels of unemployment and under-employment, pushes up wage rates both on- and off-farm. On-farm, increasing agricultural productivity increases demand for labour in preparation, planting, weeding and harvesting and can result in higher wage rates. While intensification may involve some labour-economising measures, the ability to double- and even triple-crop the land has been shown to consistently increase the demand for labour, even if unit labour use falls (Binswanger, 1986). Evidence from India shows agricultural labour wage rates rising at a rate of 3% per annum during the 1970s and 1980s (Saxena and Farrington, 2003). In Bangladesh, short- and long-term wage effects are different and policy, in promoting the growth of agriculture, should mitigate against short-run food insecurity amongst the landless poor and marginal farmer s who are generally the poorest section of society (Palmer-Jones and Parikh, 1998). In addition, reports suggest that as farmers become richer, they are increasingly inclined to substitute hired labour for household labour, thus creating greater employment opportunities. Leavy and White (2000) note that in rural Africa, employment opportunities exist not only on large commercial farms but also in the smallholder sector in which there is an active labour market. Dev (1998) provide s more evidence from India and suggests that increases in agricultural productivity led to 125% increases in average incomes of the landless. Agricultural development also generates new and better-paid jobs off-farm for the poor through linkages between agriculture and the wider rural economy. The combination of extra jobs within and outside farming can have strong effects on rural labour markets, pushing up wages and improving the ability of the poor to buy food.

Looking to the impact on the wider economy, cross-country comparisons find a strong relationship between progress in agriculture, broader economic growth (i.e. that in the non-agricultural sector) and progress in reducing poverty throughout the economy. Generally, the countries that increased agricultural productivity most rapidly have also witnessed the most significant reductions in poverty. Ashley and Maxwell (2001), citing Datt and Ravallion (1996), argue that increasing yields by one third can reduce the numbers

in poverty by a quarter or more. Similarly, Thirtle et al. (2003) use data observations between 1985 and 1993 in 48 developing countries to show that for every 1% increase in recorded agricultural productivity there was a corresponding fall of between 0.6 and 1.2% in the number of people living below US\$ 1 a day. The links between agricultural growth and broader development in secondary and tertiary economic sectors are well documented and do not need to be discussed further here. But focusing policy attention on agriculture remains important. Suffice to say, agricultural growth is critical to broader economic growth and tends to benefit the poor more than growth in any other sector. Thus, Lipton (see, for example, 2001) argues that no other sector offers the same possibilities to create employment and lift people out of poverty. Agriculture is the single largest employer in the world, providing livelihoods for 40 per cent of today's global population. It is the largest source of income and jobs for poor rural households.

FEW SUGGESTIONS TO INCREASE FOOD ACCESSIBILITY THROUGH REFORMS IN AGRICULTURAL SECTOR

1. Small farming should be given more importance since where agricultural development has taken place on small farms with labour-intensive techniques, generating incomes for farmers whose spending is predominantly on locally-produced goods and services, the creation of jobs and incomes for members of poor households has been greatest and the impact on poverty and hunger highest.
2. Mechanisation in agriculture should be taken up more seriously since it has been proved that increases in agricultural productivity, even where there is mechanisation, have pushed up agricultural wage labour rates thereby increasing incomes.
3. Increase in production of staple food acts a remedy for the poor landless farmers. In all cases, great success was achieved in increasing production of staple foods to levels close to, or above, domestic self-sufficiency and, often, reducing the cost of food to consumers.

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