3.1 INTRODUCTION

Food security, a central issue in human security discourse, is defined in diverse ways. Primarily, it is the ability of a country “to supply an assured access of food—in an adequate quantity and quality to meet nutritional demands” by all sections of people in socially acceptable ways. In other words, food security is said to have been ensured “when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” The fundamental right of everyone to be free from hunger must be the core intent. The World Bank’s definition of “access by all people at all times to enough food for an active and healthy life” is modified with “nutritionally adequate and safe foods” concept. Oxfam adds another dimension when it states that “all people, especially the most vulnerable and least resilient have dignified and unthreatening access to the quantity and quality of culturally appropriate food that will fully support the physical, mental, emotional and spiritual health.” The Vancouver Food Policy Organisation adds the idea of “locally produced” and “environmentally friendly food” and many others even bring in the notion of “human dignity.” Sen, while bringing in elements of entitlements and ownership, mentions that “starvation is the characteristic of some people not having enough food to eat. It is not the characteristic of there being not enough food to eat.”


3 World Bank (1986).

While the latter can be a cause of the former, it is but one of many possible causes.\textsuperscript{5}

In all these definitions the four critical elements of availability, accessibility, affordability and acceptability in a sustained manner are underlying factors. The operational aspects of food security are determined by the intimate interplay of these four inter-related components. These are related to each individual and his needs for an active and healthy life. The central question in the food insecure community or a group is that of livelihood security as its members lack tangible assets, geographical scales, and formal education and technical skills. They have little or no access to basic needs such as food, water, health-care and safe shelter.\textsuperscript{6} In other words, the notion of \textit{variability and vulnerability} become the nucleus in the conceptual dynamics of food security. This is where spatial and temporal sets and subsets of food security intersect to make the matrices more expansive and complex.

Vulnerability itself is determined by coordinates like exposure, capacity and potentiality. “Accordingly, the prescriptive and normative response to vulnerability is to reduce exposure, enhance coping capacity, strengthen recovery potentiality and bolster damage control (i.e., to minimise destructive consequences) via private and public means.”\textsuperscript{7} Therefore, one of the critical themes that dominate the discourse is about insulating vulnerable groups from the adverse impact of wide fluctuations in agricultural production and protecting them from price instability.

Sen while stating starvation is a function of entitlements and not of food availability, he notes that some of the worst famines have taken place with no significant decline in food availability per head. This was the case in Bengal in 1943, Ethiopia in 1972-74 and Bangladesh in 1974. The elimination of starvation in socialist economies like that of China “seems to have taken place without a dramatic rise in food availability per head and indeed typically the former has preceded the


latter. The end of starvation reflects a shift in the entitlement system, both in the form of social security and—more importantly—through systems of guaranteed employment at wages that provide exchange entitlement adequate to avoid starvation.  

When adequate, assured and reliable availability of food prevails backed by easy physical accessibility and affordable purchasing price food security is to a large extent ensured. The moot point in the accessibility-affordability combination is the ability to buy or "obtain food in socially acceptable ways." The acceptability, particularly in terms of cultural practices and environmental situations and the agencies and institutions that make such policies and deliver food, is crucial. It could be the case that a given community is not able to use even an accessible and affordable quantity of food because of certain preferences, beliefs, or ignorance about the very nature of the available food. There are thus strong elements of production system, import bases, attachment to socio-cultural consumption habits and appropriateness of food in a given social and environmental context. This makes the concept of food security universal but the indicators and practices highly localised. On a slightly larger plane, absorption of food in the body is also crucial as it involves access to other supplements like safe drinking water and non-food factors like environmental hygiene, primary health centre and primary education.

In conflict situations and natural disasters, the food security option provides an altogether different dimension as many of the elements that are supposedly present in normal times could remain totally intractable. The cultural appropriateness, nutritional contents and environmentally sound and socially just aspects may be conspicuously missing. The concept injected about food security during the time of an emergency humanitarian aid period therefore, becomes more complex both in terms of certainty and sustainability.

The food security concept cuts across the concerns for other aspects of human security and incorporates in it economics and health to environment and from governance to social relations. There are several

9 US Department of Agriculture has this specific element in its food security definition. http://www.mcknight.org/hotissues/framing_food.asp.
points of intersections with the larger elements of human security. Food security, though generally addressed in a holistic way, has both indigenous connotations and international interpretations. They sometimes vary widely and are subject to dichotomous interpretations. In the former phases of history, colonialism and international depredations remain key elements. Whereas in the latter the perspective is that of a relatively developed and strikingly poorer country with distinct bias towards a dependency syndrome. Food politics and food aid as instruments of diplomacy remain crucial in the international matrices of food security. What is inherent in this once dominant thinking is the pre-supposition that industrially developed countries do not and could not have vulnerably food insecure societies. Even the definitional refinement inserting concepts of “food deserts” have not really integrated the real concerns of developing countries.  

Amidst this concern, the right issues are gaining ground to make adequate access to food a fundamental human right through making Article 11 of the International Covenant on Economic, Social and Cultural Rights more specific to food security. The World Food Summit in 1996 not only proposed to the United Nation High Commissioner for Human Rights “to better define the rights related to food” but also “ways to implement and realise these rights ... taking into account the possibility of formulating voluntary guidelines for food security for all.”

Whereas in the indigenous debate access to resources, role of the states, subsistence farming and international transfer of technologies are vital, in the latter the food aid notion dominated the discourse for long. Under this paradigm food aid by transferring surplus food commodities from relatively developed countries had been treated for long as the solution to hunger. This directly and adversely affects the very concept of sustainability in food security as it eats into both the indigenous coping mechanism to fight hunger and malnutrition and production of food for the market. What is required is attention to the


13 This article mentions “the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing.”

production and supply of adequate quality and quantity of food, and people’s ability to acquire food.

In more recent years, emerging WTO regimes have brought in newer vistas of food security. The term “food (in)security” has become a contentious issue in the context of developing countries since the formation of WTO in 1994. The dimensions and implications of Agreement on Agriculture (AOA) are widely debated, particularly among developing countries.

3.1.1 The Supply Side

Though food security a crucial aspect in the debate on human security, it has been a relatively late phenomenon. On its own, this issue has been a major theme in the wider development discourse. The concept of food security for many years was guided by exclusive supply side parameters and considerations till Sen’s seminal work on Poverty and Famines and later Hunger and Public Action (with Dreze) changed the entire course of discourse to people-entitlement relations. The “assurance of supplies and a balanced supply-demand situation of stable foods in the international market” for many years remained the focused basis for food security. This was what the World Food Programme Report of 1979 emphasised. In other words, the thinking that increasing food production in developing countries could bring food security to food insecure regions prevailed in such a way that it ignored the iniquitous system in food management in the global market and also in micro-local situations. It was presumed that accessibility to granaries of surplus food that lay in the USA, Canada and European countries by the hungry masses and also famine-affected people was possible without any corrections in the highly skewed purchasing power that prevailed in consumption patterns, both at global and very local levels.

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15 This concept prominently figure in the World Food Conference in 1974 that took place against the grim backdrop of the world food crisis caused by both drought conditions across many major food growing areas, including India. The Human Development Report 1994, (United Nations development Programme, Oxford University Press, Oxford, 1994) considers it as a quintessence of human security.


The 1996 FAO report supports the supply-centric notion of food security when it outlines the following four attributes:

i) the capacity to produce, store and import sufficient food to meet the basic needs of all population;

ii) maximum autonomy and self-determination in order to minimise international market fluctuations and political pressures;

iii) reliability, so that seasonal, cyclical and other variations in access to food are minimal; and

iv) sustainability, so the ecological system is protected and improved over time. These are seen to be the main tenets of a secure food system.

The only factor that figured on the demand-side was the last attribute that stressed equity to ensure that all social groups have access to adequate food. A general decline in food supply may expose individuals to hunger as food prices could go up, thereby adversely impacting upon their exchange entitlement.

The differentiation between food availability and food security has been blurred. The former fulfils only the necessary condition whereas the latter incorporates in it the essence of societal functioning and associated aspects like governance and ecological compulsions. Further, in the latter its sufficient conditions ensure sustainability by incorporating fundamentals like ecological sustainability, economic viability and intra-and inter-generational equity in the availability, access, and control to sufficient, safe and nutritious food by all people at all times.

### 3.1.2 The Demand Side

It is now widely recognised that food security is not confined only to production. At the end of the day the key issue is that of the ability of people to access food and other related basic resources and utilise them effectively at all times. Distributive aspects and access enablers are vital, particularly when there already exists inequities within and across societies resulting in serious entitlement problems. They not only manifest the deeper maladies of class differences, gender biases, ethnic divisions, racial discrimination and age differentials but also acute regional and other spatial disparities. Such situations exist

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Food Security

among nation-states, within a nation and inside a community. What has been noted in the demand side debate is not the predominance of purchasing power but also security of other associated resource bases like water, land and overall environmental and economic parameters.

Marginalised segments of the communities, wherever they are, have a distinct level of food insecurity. Even in developed economies these inequities in access to food prevails. On the other hand, if access to food is not kept within cultural parameters, its mere availability implies that right to a dignified access for social and cultural diversity of humanity is ignored. Again, if accessibility is not based on democratic and sustainable practices, food security may not remain an entrenched phenomenon. This injects various forms of uncertainties and threats.

Agencies that act in the delivery of food, particularly to far-off places and to people at the margin, need to be democratic in both spirit and content in order to make the access meaningful and effective. On the sustainability aspects, the ability to control wastage and create adequate space for future generations to contain their basic human needs is very pertinent.

3.1.3 Food Insecurity

Why food insecurity? The plethora of literature that have been accumulated in the arena of food security have directly helped crystallisation of thinking on both the traditional and non-traditional aspects of food insecurity. The incidence of food insecurity has been mapped and its spatial distribution analysed. The conceptual underpinnings have been further enriched by a range of empirical studies that have brought new strands of analysis of various food insecurity situations, including on specific conditions of famine.20 The underlying principles and parameters of food security have thus been expanded to the larger arena of social injustice and environmental depredations.

Though the “deterministic causal relationship” still remains an intensely debated issue, threats to food security emanate from remnants and legacies of colonial practices, historically practiced socio-economic norms, and also the nature, method and extent of modern developmental interventions. On the other hand, the very concept of

food insecurity has both transitory and chronic matrices. The former is a temporary phase caused by seasonality, drought and inflationary trends and the latter has strong element of relative permanence triggered by poverty and continuous deprivation from adequate diet. Both these situations require a separate set of interventions. Price stabilisation, credit, crop insurance and temporary wage employment support are basic to the former whereas durable income and employment creation, asset building and sound delivery mechanisms to trickle down macro-level growths are primary to the latter.

The very pattern of economic growth based on highly capital-intensive inputs and environmentally unsustainable methods could create food insecurity at both global and local levels. Scientific and technical progress-driven food production focuses on the quantity of food produced and its economies of scale impact whereas the sustainability of the practices tended to be kept aside. On the other hand, exogenous shocks led food insecurity, including oil price hikes like in 1970s, at least in the short remain totally out of control to a vulnerable state system. In the aftermath of liberalisation, the fisherfolks of Tamil Nadu, Kerala and Orissa are facing unprecedented challenges from the highly mechanised trawley fishing of big companies and also because of a steady shift to ecologically unsustainable intensive prawn culture. This and declining fish stocks have directly affected their livelihood. There are noticeable protests and movements involving fisherfolks.21

Food security is directly related to employment and livelihood. Bonded labour and child labour cases to a certain extent hedge the poor from exposure to food insecurity. Though poverty and landlessness have remained at the core of food insecurity there are a host of traditional and non-traditional factors that cause and protract food insecurity. The degree of permanence in certain aspects of food insecure people is to a large extent determined by triggering factors and societal characteristics. The nature, role and capability of the State are critical in both fighting the causes and shortening the occurrence of food insecurity. For instance, the immediate extent of food insecurity in a situation of drought and other natural calamities including cyclone, flood, Tsunamis, earthquakes and landslides is found to be extensive. Though the mitigation initiatives can blunt the deeper scars of food insecurity, remnants are found to be long-lasting, particularly when the State is not cooperative. Some states simply do not have the resources and the

wherewithal to cope. Others have to simultaneously engage in a range of such situations. So the nature of the State itself prolongs natural disasters and exposes victims to food and other societal insecurity. At the same time, if the surrounding society is robust and carries a strong component of humanitarian principles, societal activation and actions to a large extent cover up the supposed role of the State.

Geographical inaccessibility in many cases poses a permanent problem, particularly in the case of rugged hills, mountainous regions and remote villages. Along with protracted food insecurity, it impinges on other crucial components of human security, including health and education. It has been invariably noticed that political voices and social pressures emanating from such isolated regions are feeble and hence the State generally does not try to reach out to them. In some cases, the State and political actors consciously restrain development agencies from helping them mainly owing to considerations such as national security. However, some of these protracted deprivations at times tend to acquire more violent expressions. In such cases States are forced to think of providing newer alternatives. Since many of them are located in so-called sensitive border areas in such circumstances of instability once dormant states suddenly become active. Here the same national security concerns which had earlier prevented development of these regions act as a factor that attract the State as a development agency.

Unlike the belief that fulfilment of required calories meant meeting the nutritional requirement of the people, the discourse in the 1980s substantially redefined this relationship. The elements of human physiological capacity and importance of micro-nutrients such as vitamin, iron and iodine were intrinsically viewed as the interface between calories intake and nutritive nourishments. Nutritionists have argued that energy intake is a poor measure of nutritional status, which depends on not only the nutrient intake but also non-nutrient food attributes privately and publicly, provided inputs and health status.22

This background highlights the conditions under which malnutrition-hunger-diseases exist in societies with food insecurity. This scenario also implies that under the circumstances of easy availability and accessibility to foods, if the conditions of environmental sanitation are not satisfactory, and if basic health amenities are not accessible to vulnerable people, then the entire question of food security becomes

meaningless. It is vital to understand the symbiotic relations that exist among poverty-health-food security parameters. As has been observed, "disease leads to deterioration in nutritional status at the same time that malnutrition increases susceptibility to disease."\textsuperscript{23}

Social practices like caste discrimination, bonded labour and religious superiority are major factors that seriously impinge upon food security. Such practices remain deep-rooted, and to a large extent informally institutionalised. The state and principles of governance have not been able make any major dent in most cases.

Food insecurity becomes rather conspicuous and blatant in conflict-ridden situations. People suffer from malnutrition and acute food shortage both during and in the aftermath of war, civil disorder or conflict-related sanctions.\textsuperscript{24} Observations and studies from Ethiopia, Sudan, Somalia and Mozambique, countries which suffered from famine and acute food insecurity, have shown that "conflict is a common cause which dwarfs all others in its impact."\textsuperscript{25} The institutions that usually ensure semblance of food security in normal times get dislocated and sometimes even destroyed. Depending upon the nature, magnitude and duration of conflicts, it has been noticed that the first two issues that are threatened under such situations are physical safety and food security. Livelihood practices collapse and productive assets including water, electricity and communication projects are all destroyed. The food stock and livestock both come under attack. In the long run, if the conflict prolongs, development programmes are withdrawn, and displacement of people takes place, leading to large-scale migration. These conflicts impose a negative supply-side shock on the economy that raises costs and inefficiencies. The expenditures on security divert labour and capital resources toward the productions of necessary but lower productive activities. Agriculture and other aspects of food security get de-prioritised. There are studies that show several adverse impacts upon livelihoods and food security in a number of short and long-term ways as a consequence of prolonged exposure to armed violence.\textsuperscript{26}


\textsuperscript{25} Colin Sage, 2002, p.141.

\textsuperscript{26} Dipankar Banerjee and Robert Muggah, Small Arms and Human Insecurity, Regional Centre for Strategic Studies, Colombo, 2002.
There are sharp variations in the geographical need and intake of food. Average calories specification for determining poverty and average food intake may not make any sense in many geographically contrasting situations. In hills and mountainous areas because of the very topography and climatic conditions the bare minimum calories intake requirements are much higher than in lowland areas. Determining poverty line and minimum intake for food security on a geography neutral basis would largely mean that people in geographically disadvantageous positions are losers.

Rights related to food are enshrined in various international conventions and treaties and incorporated in many constitutions including that of India. The Universal Declaration of Human Rights (1948) accepts the “right to adequate standard of living,” including food, in the same spirit as the International Covenant on Economic, Social, and Cultural Rights (1966) that ensures “an equitable distribution of world food supplies in relation to need.” On the other hand, the Universal Declaration on the Eradication of Hunger and Malnutrition (1974) has emphatically declared that “every man, woman, and child has an inalienable right to be free from hunger and malnutrition.” These tenets imply that the food grown by the global community needs to be shared by all, particularly with those who have higher propensities to consume, as they remain under the threats of hunger and negligence.

At the very micro-level, democratic norms in distribution have to penetrate household levels also as its heads may have strong biases in terms of gender and other socio-cultural and economic preferences. Wage earners, particularly men, are given better food and other accesses to assets at home by the family head. Though not acceptable otherwise, this has been a widely practiced phenomenon in a society where there traditionally exists inbuilt gender inequalities and biases. This aspect is generally kept out of the intimate discourse. It is at the household level therefore, where food security becomes very critical.

3.2 INDIA: STATE OF FOOD SECURITY

Though the share of the primary sector, mainly agriculture and allied activities, in the Gross Domestic Product have declined steadily from almost 60 per cent in 1950-51 to 22 per cent in 2005-06, agriculture continues to be the dominant sector of the Indian economy (Table 3.1). Unlike in the developed market economies where agriculture is invariably geared toward food producing, in India it is the backbone of the livelihood security system of over 60 per cent of the population. The
much diversified and robust agriculture sector has provided critical inputs and created demand for industrial sector.  

Table 3.1 Gross Domestic Product at Factor Cost by Industry of Origin (at 1993-94 prices) (% share)

<table>
<thead>
<tr>
<th>Years</th>
<th>Agriculture</th>
<th>Manufac-turing</th>
<th>Trade &amp; Transport</th>
<th>Financing &amp; Insurance</th>
<th>Public Administration &amp; Defense</th>
<th>GDP at Factor Cost (Rs. billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>59.19</td>
<td>13.29</td>
<td>11.94</td>
<td>6.67</td>
<td>9.40</td>
<td>1404.66</td>
</tr>
<tr>
<td>1960-61</td>
<td>54.75</td>
<td>16.61</td>
<td>13.73</td>
<td>6.09</td>
<td>9.17</td>
<td>2061.03</td>
</tr>
<tr>
<td>1970-71</td>
<td>48.12</td>
<td>19.91</td>
<td>15.55</td>
<td>5.93</td>
<td>10.68</td>
<td>2962.78</td>
</tr>
<tr>
<td>1980-81</td>
<td>41.82</td>
<td>21.59</td>
<td>18.40</td>
<td>6.52</td>
<td>11.65</td>
<td>4011.28</td>
</tr>
<tr>
<td>1990-91</td>
<td>34.92</td>
<td>24.49</td>
<td>18.73</td>
<td>9.66</td>
<td>12.17</td>
<td>6928.71</td>
</tr>
<tr>
<td>2000-01*</td>
<td>26.54</td>
<td>23.61</td>
<td>22.09</td>
<td>12.95</td>
<td>14.78</td>
<td>18703.87</td>
</tr>
<tr>
<td>2004-05*</td>
<td>24.41</td>
<td>23.5</td>
<td>24.77</td>
<td>13.18</td>
<td>14.11</td>
<td>23,896.41</td>
</tr>
</tbody>
</table>

Notes: *New series at 1999-2000 prices; (1) Includes forestry and logging, fishing, mining and quarrying; (2) Construction, electricity, gas and water supply; (3) storage and communications; (4) real estate and business services; and (5) and other services.


India's journey from a nation that had chronic food shortage and that was dependent on heavy food imports to a self-sufficient nation in food grain production and a net exporter has in it strong elements of political determination which ensured food security through protracted scientific, technological and institutional interventions. The Fourth Five Year Plan (1969-74) explicitly set out the objectives of food policies as follows:

i) ensuring consumer price stability and safeguarding the interest of low income consumers;

ii) ensuring reasonable processes and adequate incentives to producers for increasing production; and

iii) building up an adequate buffer stock of foodgrains so as to achieve the first two objectives.

These objectives were to be achieved through

i) PDS;

(ii) procurement and buffer-stocking;

Food Security

iii) restricting foodgrains movements;
iv) regulating of private trade;
v) regulating bank advances against foodgrains; and
vi) banning forward trading.28

Most latter plans also continued with a similar emphasis. Agriculture and many of its allied activities have been major success stories. Such successes have been achieved despite extreme variations in climate, physiographic and farming conditions. Droughts and famines, a harrowing feature of colonial India, continued its perpetration even in the initial years of the post-independence period. Agricultural growth remained stunted till the advent of the Green Revolution in the 1960s and its wide-scale penetration into various geographical directions of rural India. The major food security challenge was that of quantitative adequacy, physical access and economic affordability. The Green Revolution with newer farming technology raised productivity levels, diversified cropping patterns and largely transformed agriculture into a modern commercial venture.

As compared to the pre-Green Revolution period of 1967-68, there has been a massive increase in all three constituents of agricultural production, namely area, production and productivity in the post-Green revolution period. Tables 3.2 and 3.3 clearly show that the area under food grains increased from 81.3 million hectares (mha) to 121.9 mha, production from 63.5 million tonnes (mnt) to 208.3 mnt and productivity from 710 to kg per ha 1708 kg per ha during the pre- and post-Green Revolution period. However, the areas under coarse varieties of grains including Jowar and Bajra have gone down. India which imported as high as 10.3 mn tonnes of cereals in 1966, started exporting the same quantity by 1978 (Table 3.3). This has remained more or less a permanent feature of the export scene since 1986.29

Provision of inputs like fertilisers, power, and irrigation water at subsidised prices and significant public investments in agricultural research, extension, and infrastructure development have been the real attributes of this major transformation in the agriculture sector. It has been further consolidated by an extensive network of government agricultural institutes that conduct research and disseminate innovated technologies.

Table 3.2 Increase in Area (million hectare), Production (million tonnes) and Productivity (kgs ha) due to Green Revolution

<table>
<thead>
<tr>
<th>Agricultural Crops</th>
<th>Pre-Green Revolution</th>
<th>Post-Green Revolution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area</td>
<td>Production</td>
</tr>
<tr>
<td>Rice</td>
<td>34.1</td>
<td>35.1</td>
</tr>
<tr>
<td>Wheat</td>
<td>12.9</td>
<td>11.1</td>
</tr>
<tr>
<td>Maize</td>
<td>4.4</td>
<td>4.6</td>
</tr>
<tr>
<td>Jowar</td>
<td>18.4</td>
<td>8.8</td>
</tr>
<tr>
<td>Bajra</td>
<td>11.5</td>
<td>3.9</td>
</tr>
<tr>
<td>Total Foodgrains</td>
<td>81.3</td>
<td>63.5</td>
</tr>
</tbody>
</table>


Table 3.3 Production and Imports of Cereals 1951-2003

<table>
<thead>
<tr>
<th>Year</th>
<th>Population (Million) (million tonnes)</th>
<th>Net Production (million tonnes)</th>
<th>Net Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>363.2</td>
<td>40.1</td>
<td>4.1</td>
</tr>
<tr>
<td>1961</td>
<td>442.4</td>
<td>60.9</td>
<td>3.5</td>
</tr>
<tr>
<td>1971</td>
<td>551.3</td>
<td>84.5</td>
<td>2.0</td>
</tr>
<tr>
<td>1981</td>
<td>688.5</td>
<td>104.1</td>
<td>0.5</td>
</tr>
<tr>
<td>1991</td>
<td>851.7</td>
<td>141.9</td>
<td>-0.6</td>
</tr>
<tr>
<td>2001</td>
<td>1033.2</td>
<td>162.5</td>
<td>-4.5</td>
</tr>
<tr>
<td>2003</td>
<td>1068.2</td>
<td>142.7</td>
<td>-6.1</td>
</tr>
<tr>
<td>2005</td>
<td>1102.8</td>
<td>162.1</td>
<td>-7.2</td>
</tr>
</tbody>
</table>

Note: Minus signs in the import column indicates net exports of cereals.

In the market front the price supports and credit facilities have protected farmers from the real working of market forces. The Government procures food grains at support prices and maintains public stocks for disbursement among low-income consumers at subsidised prices through the national network of Public Distribution System (PDS). India has emerged as a leading nation in the production of a range of items including paddy, wheat, groundnut and sugarcane.

29 By 2003 India emerged as the second and seventh highest rice and wheat exporter respectively. Economic Survey 2003-04, Government of India, p.97.
3.2.1 The Growth Dimensions

Foodgrains output recorded a four-fold rise from 50.8 million tonnes in 1950-51 to 208.3 million tonnes in 2005-06. Rice and wheat production recorded a hefty four and eleven-fold jumps. The only item that has shown relatively very insignificant progress is pulses, which increased from 8.41 to 13.1mn tonnes during these five decades. Non-foodgrain items, including milk, sugarcane, oilseed, fish and cotton have also made significant strides. This has led to the almost two-fold increase in the per capita availability of milk from 124 gms/day to 245 gms/day\(^{32}\) (Table 3.4).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>20.58</td>
<td>42.22</td>
<td>53.63</td>
<td>74.29</td>
<td>91.0</td>
</tr>
<tr>
<td>Wheat</td>
<td>6.46</td>
<td>23.83</td>
<td>36.31</td>
<td>55.14</td>
<td>69.5</td>
</tr>
<tr>
<td>Coarse Cereals</td>
<td>15.38</td>
<td>30.55</td>
<td>29.02</td>
<td>32.7</td>
<td>30.8</td>
</tr>
<tr>
<td>Pulses</td>
<td>8.41</td>
<td>11.82</td>
<td>10.63</td>
<td>14.26</td>
<td>13.1</td>
</tr>
<tr>
<td>Foodgrains</td>
<td>50.82</td>
<td>129.59</td>
<td>129.59</td>
<td>176.39</td>
<td>208.3</td>
</tr>
<tr>
<td>Oilseeds</td>
<td>5.16</td>
<td>9.37</td>
<td>9.37</td>
<td>18.61</td>
<td>27.7</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>57.05</td>
<td>154.25</td>
<td>154.25</td>
<td>241.05</td>
<td>278.4</td>
</tr>
<tr>
<td>Cotton*</td>
<td>3.04</td>
<td>7.01</td>
<td>7.01</td>
<td>9.84</td>
<td>19.6</td>
</tr>
<tr>
<td>Milk</td>
<td>17.0</td>
<td>31.6</td>
<td>31.6</td>
<td>53.9</td>
<td>97.1</td>
</tr>
<tr>
<td>Eggs**</td>
<td>1.83</td>
<td>10.06</td>
<td>10.06</td>
<td>21.1</td>
<td>46.23</td>
</tr>
<tr>
<td>Fish</td>
<td>0.75</td>
<td>1.8</td>
<td>2.4</td>
<td>3.8</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Notes: *Million bales of 170 kg each; **Billion Number.

However, despite successive normal monsoons, the momentum of growth in agricultural production has been relatively sluggish during the 1990s as compared to the 1980s. Besides intermittent and extensive incidence of floods, cyclones and near-drought conditions in several parts of the country, this has been largely attributed to a sharp decline in the growth of foodgrains, particularly rice production.\(^{33}\) Interestingly,

\(^{33}\) Weights of foodgrains and non-foodgrains in the total agriculture production in the country are 62.92 and 37.08 percents respectively wherein rice alone has 29.74 percent. Economic Survey 2003-04, Ministry of Finance, Government of India, New Delhi, p.S-13.
the production growth trend in almost all agricultural products in fact remained more impressive in the 1950s compared to the later decades (Table 3.5).

### Table 3.5: Average Annual Compound Growth Rate in Production of Agricultural Food Products

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Foodgrains</td>
<td>3.95</td>
<td>1.85</td>
<td>2.07</td>
<td>2.73</td>
<td>1.81</td>
</tr>
<tr>
<td>Rice</td>
<td>3.80</td>
<td>1.19</td>
<td>1.90</td>
<td>3.62</td>
<td>1.62</td>
</tr>
<tr>
<td>Wheat</td>
<td>5.07</td>
<td>6.82</td>
<td>4.31</td>
<td>3.58</td>
<td>3.25</td>
</tr>
<tr>
<td>Coarse Cereal</td>
<td>3.58</td>
<td>1.51</td>
<td>1.11</td>
<td>0.35</td>
<td>0.35</td>
</tr>
<tr>
<td>Bajra</td>
<td>3.16</td>
<td>3.86</td>
<td>-4.34</td>
<td>0.02</td>
<td>2.70</td>
</tr>
<tr>
<td>Jowar</td>
<td>4.41</td>
<td>0.75</td>
<td>5.67</td>
<td>0.28</td>
<td>-2.77</td>
</tr>
<tr>
<td>Maize</td>
<td>6.99</td>
<td>4.14</td>
<td>-0.63</td>
<td>1.91</td>
<td>3.11</td>
</tr>
<tr>
<td>Total Pulses</td>
<td>4.18</td>
<td>-1.29</td>
<td>-0.39</td>
<td>1.49</td>
<td>1.35</td>
</tr>
<tr>
<td>Gram</td>
<td>6.25</td>
<td>-2.14</td>
<td>-0.59</td>
<td>-0.79</td>
<td>3.71</td>
</tr>
<tr>
<td>Tur/Arhar</td>
<td>2.01</td>
<td>0.44</td>
<td>0.60</td>
<td>2.86</td>
<td>-0.74</td>
</tr>
<tr>
<td>Oilseeds (9)</td>
<td>3.59</td>
<td>0.29</td>
<td>0.74</td>
<td>5.74</td>
<td>3.40</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>4.74</td>
<td>-0.13</td>
<td>0.87</td>
<td>3.76</td>
<td>1.15</td>
</tr>
<tr>
<td>Mustard*</td>
<td>2.71</td>
<td>1.83</td>
<td>-1.19</td>
<td>7.29</td>
<td>0.78</td>
</tr>
<tr>
<td>Soyabean</td>
<td>–</td>
<td>–</td>
<td>49.76</td>
<td>18.06</td>
<td>14.45</td>
</tr>
</tbody>
</table>

**Note:** *Mustard includes rapeseeds.

**Source:** Estimated from Database, Ministry of Agriculture, Government of India.

During the 1980s the growth rate in productivity (yield per hectare) was more pronounced and broad-based across both crops and regions. However, the scenario changed during the 1990s when productivity growth slackened for all major crops, particularly rice, wheat, coarse cereals and pulses (foodgrain). At the same time, the yield level has been comparatively lower in India. As against an estimated yield of 2830 kg per hectare for paddy in India in 1997, Myanmar with 3212 kg; Indonesia (4397 kg); Japan (6191 kg) and China (6283 kg) stood far above. Similarly, in case of wheat the Indian yield threshold of 2705 kg per hectare is much lower than that of Mexico (4302 kg); Egypt (5545 kg) and China (5930 kg).\(^\text{34}\) The wide variations in the yield level of the

\(^{34}\) Crop rotations may not allow these comparisons to be effective. *Quarterly Bulletin of Statistics, Food and Agricultural Organisation, Vol.10, No.3/4, 1997.*
crops across different regions within the country are another notable dimension. Punjab is supposed to have reached the level of maximum yield where as there are potential areas like Bihar, Assam and West Bengal where the yields in rice could be substantially enhanced. This "bridging the yield gap" based on district level strategies is likely to be seriously pursued by the Government in coming years.

The lower growth rate in foodgrains production in the 1990s has been mainly attributed to decline in the growth rates of yields and areas under foodgrains. In the 1980s, the increase in agricultural production was largely brought about by bringing additional area under cultivation and more extensive irrigation facilities. These trends in both foodgrains as well as non-foodgrains crops during the 1990s raise emphatic questions about the sustainability of a high overall growth level and also the alternatives. The area under foodgrains has tended to decline during the 1990s. It actually declined from 127.8 million hectares in 1990-91 to 121.9 million hectares in 2005-06. With land resources being fixed, the growth of agricultural output in future will solely depend upon improvements in yield per hectare. There is a concern all over once again. "The rates of growth of agriculture in the last decade have been poor and are a major cause of rural distress. Farming is increasingly becoming an unviable activity." In the same vein Swaminathan states "the situation is deteriorating rapidly and the entire farming sector is heading for a collapse if no rapid remedial measures are taken."

### 3.2.2 Instruments of Food Security

The Government has mostly used four broad instruments in addressing poverty and more specifically the issues of food security. The most widely used instrument has been the public distribution system (PDS) which has largely helped in addressing transient food insecurity. The PDS acts as the guardian of food security in India today. Along with its procurement policy, it translates macro-level availability self-sufficiency in foodgrains to the micro-level by ensuring access to food and other essential items to poor families.

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35 Deputy Chairman of Planning Commission Montek Singh Ahluwalia is a strong advocate of this policy. *India Today*, 11 June 2007.


37 Prime Minister Manmohan Singh’s address to the National Development Council on 29 May 2007. He also announced among other things, a mega Rs. 25000 crore assistance to states to give a push to agriculture productivity. *India Today*, 11 June 2007.
The other three are related to wage employment schemes, often linked to food for work programmes, credit based self-employment programmes like the Integrated Rural Development Programmes (IRDP) and National Rural Employment Guarantee Scheme (NREGS), and more specific nutrition-oriented programmes like Integrated Child Development Services (ICDS). All these have been in many cases supplemented by schemes and programmes of individual state governments.

The Central and State governments are responsible for ensuring the smooth functioning of the PDS, for which the Food Corporation of India (FCI) procures, stores and transports, and for which state governments lift and distribute through a network of about 4.89 lakh ration/fair price shops (FPS). "Since its inception after the food shortages of mid-1960s, this system has managed to help the country avoid famine, contain food price variability to much less than in world markets and offered enough price support for farmers to nearly triple cereals production." The importance of building up a buffer stock of foodgrains to stabilise the food economy of the country has been recognised ever since the great Bengal famine in 1943. In addition to the requirements of wheat and rice under the Targeted Public Distribution System (TPDS), the Central Pool maintains sufficient stocks in order to meet emergencies like droughts and failure of crops. It also undertakes open market sales in case of sharp price rises.

The scheme known as Procurement/Minimum Support Prices (MSP) is directed at providing insurance to agricultural producers against any sharp fall in farm prices of the 24 major crops. It is also meant to induce farmers to sustain production levels. The Commission for Agricultural Costs and Prices recommends procurement prices for different food crops well before the commencement of the season. The Government also stabilises prices through its Market Intervention Scheme (MIS). MSP and MIP are in the nature of a guarantee to producers that prices


39 The Food Corporation of India was established on January 1, 1965 as the sole agency of the Central Government to purchase, store, and transport and distributes foodgrains. Since 1980 the FCI has confined its activities to rice and wheat, and coarse grains are handled by National Agricultural Co-operative Marketing Federation.

will not be allowed to fall below stipulated levels. In the event of prices falling below economic levels, the government through designated nodal agencies intervenes in the market and undertakes procurement operations at the MSP fixed by the government. This policy of the government has paid rich dividend. The acquired and maintained food stocks have withstood severe supply dislocations caused by drought conditions. The supply situations have remained fairly comfortable and prices have showed remarkable stability for many years now.

However, very recently an amendment in the APMC Act has given the right to farmer to sell his produce anywhere and removed the past compulsion to bring their produce to the regulated mandi. As a result, procurement by the Food Corporation of India has suffered and government had to resort to import of items like wheat.

The focus on access to food through the employment-wage axis has been aimed both at involving the poor in their earnings and also providing them with more sustainable livelihood. There have been scores of public works programmes that in many cases have helped poor rural people have better access to food. This has also given them space for skill building and asset creation. For instance, it has been found that Jawahar Rojgar Yojana (JRY) could provide on an average 40 per cent of the poverty line threshold to workers, thereby contributing substantially to the family's income. Besides stabilising income and acting as employment insurance for the poor, such programmes have impacted positively on agricultural growth and wages, and women's empowerment to help support collective political action.

A score of food for work programmes have been floated that have both direct and indirect contents of food subsidies. Besides a range of schemes announced and implemented by the Union Government, the State governments on their own have floated several schemes that are mainly based on competitive populism rather than rational goals of sustenance (Table 3.6).

Procurement prices are announced just before the harvest and are the prices at which the government proposes to buy certain specified quantities of foodgrains. Minimum support prices, announced at the eve of the sowing season, were to cover all costs of production, including the imputed value of family labour, asset depreciation and normal profit. They essentially set the floor level for prices since the government is committed to buy at this price whatever farmers offer. The distinction between the two disappeared by 1967/68 for wheat and by mid-80s for rice. Currently the procurement price itself serves as the minimum support price.

Sharad Pawar, India's Agriculture Minister in an interview to India Today, 11 June 2007.

Mahendra S Dev, and Ajit Ranade, ibid.
It has also been found that the skill upgradation, critical to sustenance of employment engagement and upward wages earning in future, is found to be more effective in self-employment programme than the schemes that attach wage employment with food. This was more so on credit based self-employment programmes run by communities and non-governmental organisations like Self Employed Women’s Association (SEWA).

Table 3.6 Food to the Poor: Important Schemes and Programmes of the Union Government

<table>
<thead>
<tr>
<th>Schemes</th>
<th>Provisions/Targets/Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drought Prone Areas Programme (DPAP)-1973-74</td>
<td>People in areas constantly affected by droughts</td>
</tr>
<tr>
<td>Common Minimum Programme-1997</td>
<td>Can buy 10 kg of cereals every month at half the regular ration shop prices. Family living below the poverty line</td>
</tr>
<tr>
<td>Antyodaya Anna Yojana-2000</td>
<td>35 kgs of food grains to each eligible family at Rs.2 per kg of wheat and Rs.3 per kg of rice. 1.50 crore of the poorest among the BPL families</td>
</tr>
<tr>
<td>Mid Day Meal Scheme</td>
<td>2 crores of the poorest of poor families</td>
</tr>
<tr>
<td>Sampoorna Grameen Rojgar Yojana (SGRY)-2001</td>
<td>Merging of Jawahar Gram Samridhi Yojana and Employment Assurance Scheme. For all rural poor who are in need of wage employment and desire to do manual and unskilled work. It is targeted to generate 100 crore man days of employment per year.</td>
</tr>
<tr>
<td>Swarnajayanti Shahari Rozgar Yojana-1997</td>
<td>Urban poverty alleviation</td>
</tr>
<tr>
<td>National Food for Work Programme (NFFWP)-2004</td>
<td>Rural Labour force. Launched in 150 most backward districts to generate additional wage employment with food security.</td>
</tr>
<tr>
<td>National Rural Employment Guarantee Scheme (NREGS)-2006</td>
<td>SGRY and NFFWP have been subsumed within this scheme. To enhance livelihood security by generating wage employment through work that develops the infrastructure base of rural areas. It is aimed to provide at least 100 days of guaranteed wage employment in every financial year to every household whose adult members volunteer to do unskilled manual work.</td>
</tr>
</tbody>
</table>

Specific nutrition-oriented programmes have also made substantive contributions in making beneficiaries aware of the importance of nutrition. This has been particularly so in very specific situations such as the ones initiated under the Tamil Nadu Integrated Nutrition Project (TINP) in 1981. The target groups, mainly pre-school children and pregnant and nursing mothers, are served by locally recruited village-based community nutrition workers and helpers. The health worker looks after this specific component. Some evaluative studies reveal that malnutrition was reduced by 25-55 per cent in various blocks. The implementation of its second phase in 1991 also showed that a limited package of health-linked nutrition interventions is operationally feasible in rural India. This could be cost effective and sustained by local village based para-professionals. A large number of community centres have been established and health workers trained with the help of over 276 training teams and 300 project officers who have worked as trainers at the block level. This scheme is backed by a large number of community nutrition workers, helpers, supervisors and medical officers. By August 1994, severe malnutrition (Grades III and IV) had been reduced to 2 per cent from 4 per cent in the 1980s.

On the other hand, the Eleventh Plan frankly states that “sixty years after independence, nearly half of India’s children under three are malnourished. India has the largest number of children in the world who are malnourished. Even more significantly, India’s rate of malnutrition is worse than that in Africa on average .... Even more worrying is the fact that the rate of malnutrition, defined as underweight children relative to an internationally accepted reference population, has not declined significantly over the last decade and a half.

As recently as 2007, a National Food Security Mission has been launched. It aims to produce additional 10 million tons of rice, 8 million tons of wheat and 2 million tons of pulses by 2011-12. About 25 million farmers in 305 districts of 16 states will benefit as they get better quality seeds, farm machinery, on field water management, integrated pest and nutrient management. The 11th Plan (2007-2012) has also identified the farm sector as a high priority sector with 4 per cent projected growth rate. It highlights the fact that the growth of

44 Mahendra S. Dev and Ajit Ranade, ibid.
foodgrains production has fallen short of population during the last decade.\textsuperscript{46}

These measures have helped tremendously in ensuring food security to an overwhelming majority of the people. It is reflected in the incidence of hunger in rural India which has declined steadily from 18.5 per cent in 1983 to 1.6 per cent in 2002 (Table 3.7).

Table 3.7 Percentage of Households with “Hunger” in Different Years—All India

<table>
<thead>
<tr>
<th>NSS Rounds</th>
<th>Rural</th>
<th></th>
<th>Urban</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seasonal</td>
<td>Chronic</td>
<td>Total</td>
<td>Seasonal</td>
<td>Chronic</td>
</tr>
<tr>
<td>Jan 83 – Dec 83</td>
<td>16.2</td>
<td>2.3</td>
<td>18.5</td>
<td>5.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Jan 90 – June 91</td>
<td>10.8</td>
<td>0.7</td>
<td>11.5</td>
<td>3.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Jul 93 – June 94</td>
<td>4.2</td>
<td>0.9</td>
<td>5.1</td>
<td>1.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Jul 99 – Jun 2000</td>
<td>2.6</td>
<td>0.7</td>
<td>3.3</td>
<td>0.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Jul 2002 – Dec 2002</td>
<td>1.1</td>
<td>0.5</td>
<td>1.6</td>
<td>0.2</td>
<td>0.2</td>
</tr>
</tbody>
</table>


3.2.3 Food Consumption: Trends and Patterns

The foodgrains consumption data are provided in national food balance sheets by the National Statistical Survey (NSS).\textsuperscript{47} The per capita food availability which roughly represents per capita consumption at a very highly aggregated level has shown rather interesting trends. The gains accruing from the green revolution has hardly been reflected in per capita availability. In fact, it tended to decline in some years in the post-Green Revolution period. More seriously, the decline in per capita availability is markedly clear after reforms were initiated in the early 1990s. It declined from 510 grams per day in 1991 to as low as 423 grams in 2005 (Table 3.8).

\textsuperscript{46} The Hindustan Times, New Delhi, 9 November 2007.

\textsuperscript{47} Food balance sheets: “availability” implies a deduction of 12.5 percent and is based on gross production for seed, feed and wastage and the balance added to net imports and changes in government stocks. Stocks held privately by traders and producers are not accounted for. On the other hand, NSS data reports actual consumption of sample households. Per capita net availability is not strictly representative of the actual level of consumption in the country as it does not take into account any change in stocks in possession of traders, producers and consumers.
Table 3.8 Per Capita Net Availability Per Day 1951-2005 (grams)

<table>
<thead>
<tr>
<th>Year</th>
<th>Cereals</th>
<th>Pulses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>334.2</td>
<td>60.7</td>
<td>394.9</td>
</tr>
<tr>
<td>1961</td>
<td>399.7</td>
<td>69.0</td>
<td>468.7</td>
</tr>
<tr>
<td>1971</td>
<td>417.6</td>
<td>51.2</td>
<td>468.8</td>
</tr>
<tr>
<td>1981</td>
<td>417.3</td>
<td>37.5</td>
<td>454.8</td>
</tr>
<tr>
<td>1991</td>
<td>468.5</td>
<td>41.6</td>
<td>510.1</td>
</tr>
<tr>
<td>2001</td>
<td>386.2</td>
<td>30.0</td>
<td>416.2</td>
</tr>
<tr>
<td>2005*</td>
<td>390.9</td>
<td>31.5</td>
<td>422.4</td>
</tr>
</tbody>
</table>

Note: *Provisional.

The per capita availability of pulses per day which is the key protein in the diet of the common man's food basket has in fact more than halved between 1951-2005 from 60.7 grams to 31.5 grams. A major reason attributed to the declining per capita consumption has been the rise in food prices. There had been a 63 per cent rise in food prices between 1989-90 to 1993-94 alone. However, this broad concept of per capita food consumption has no meaning when it really comes to dealing with people that have lived in constant threats of food insecurity. It is exactly like per capita income which is heavily biased towards the higher income group and does not reflect the skewed income distribution that is widely prevalent in the country.

Food consumption pattern has undergone visible changes both in urban and rural areas in recent decades. In 1972-03, cereals accounted for 40.6 per cent of the major food groups in total expenditure in rural areas which dropped to 18 per cent by 2004-05. Protein consumption including meat, poultry, dairy and fish has sharply increased. The seasonality in production including that of eggs and milk has largely been contained. In rural India, Rotis are now mostly made of wheat flour rather than coarse flour.

3.3 ASPECTS OF FOOD INSECURITY IN INDIA

Although Article 47 of the Indian constitution clearly mentions that "the State shall regard the raising of the level of nutrition and the
standards of living of its people and the improvement of public health as among its primary duties, food security of people has been under threat because of various circumstances. There is wide prevalence of chronic food insecurity as manifested in hunger and malnutrition, starvation deaths, suicides by farmers, chronically malnourished children and anaemic women. Ironically, these problems occur against the backdrop of a steady decline in the percentage of people below the poverty line and unprecedented level of buffer stock of food grains. The Tenth Plan (2002-07) emphatically concentrated on the state of food security in the country and envisaged working for a paradigm shift from household food security and freedom from hunger to nutrition security for the family and the individual. It also aimed at screening of all persons from vulnerable groups, and their identification with various grades of under nutrition and appropriate management.

As against this the Mid Term Appraisal of 10th Five Year Plan stated that “a consequence of the marked deceleration of agricultural growth has been that food consumption has stagnated since the beginning of the Ninth Plan.” The latest round of survey conducted by the National Sample Survey Organisation (NSSO) entitled Household Consumer Expenditure and Employment: Unemployment Situation mentions that three rural households per thousand and one urban household per thousand still do not get enough to eat (by their own assessment) in many months of the year. This survey conducted in 2003 also found that the share of food in total expenditure in the rural and urban areas declined from 64 per cent and 56 per cent in 1987-88 to 54 per cent and 42 per cent in 2003 respectively.

A report found out that the states of Bihar and Jharkhand are acutely food insecure; Gujarat, Rajasthan, Uttarakhand, Uttar Pradesh, The Constitution of India, Universal Law Publishing Co Pvt Ltd, New Delhi, 2006, p.15.


54 The survey covered over 41,000 households across 6,553 villages and 3,757 urban blocks. The Hindustan Times, New Delhi, April 5, 2005.

Madhya Pradesh, Chattishgarh, and Orissa are severely food insecure; Haryana, Maharashtra, Andhra Pradesh, Karnataka, West Bengal, Assam, Kerala and Tamil Nadu are moderately food secure. Punjab and Himachal Pradesh were found to be the only completely food secure states in the country.

In the case of urban areas, it found that wide variations in the nature and extent of the problem of food security across different states of the country, and across different classes of towns in the States, and within different types of towns. The lowest deciles of expenditure classes in the urban areas of all the States were found to be eating less, thereby making notion of average food intake meaningless even in a typical urban setting. These lower expenditure classes suffer from increasing daily status unemployment rate and hardly benefit from the public distribution system. The problems of food security are more acute in the case of small towns. Their inhabitants remain most deprived from both secure employment and access to amenities within urban settings.\(^{56}\) Indicators of food insecurity that are prevalent in India for long can be broadly identified into five different categories.

### 3.3.1 Poverty and Landlessness

There are consistent criticisms on aspects of poverty alleviations programmes. The very quantum of fund government allocated in the name of poverty alleviation has been questioned. The Government hardly spends 10 per cent of the central budget to 1.45 per cent of the GDP on a gigantic mission like poverty alleviation. This is too modest, very ineffective and costly in their execution.\(^{57}\)

Although the country has been able to eliminate acute nutritional deficiency syndromes like pellagra, beriberi, scurvy, etc, yet chronic energy deficiency among adults, under nutrition among children, and micronutrient and vitamin deficiencies-led diseases like goitre, blindness and anaemia are widely prevalent. For instance, as per the District Level Health Survey (DLHS) (2002-04), the prevalence of anaemia in adolescent girls is very high (72.6\%) in India with prevalence of severe anaemia among them much higher (21.1\%) than in pre-school children (2.1\%).\(^{58}\) India remains one of the most undernourished countries in the world. Even standard anthropometric measures such as “weight

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\(^{56}\) Ibid.


for age” indicate that about half of Indian children remain undernourished. In Madhya Pradesh the data collected by the state government’s Bal Sanjeevani Abhiyan Scheme found that 37 per cent deaths registered between 0-4 years are due to chronic hunger. The under-five mortality rate is 87 per 1000 live births as compared to 19 in Kerala. Malnutrition is a multi-dimensional problem related to the process of socio-cultural transformation like social behaviour, household livelihood, state’s responsibilities and services and equality and even human rights.59

Across states and within a particular state the degree of variation in both the incidence of poverty and related diseases has been large and in most cases remain unstudied. In Maharashtra, a relatively more developed state, 76 per cent of children suffer from stunted growth and are anaemic, while 51 per cent are malnourished and about 1,60,000 infants die every year due to malnutrition.60 The figures of malnourished children (0–3 years) in Bihar (58.4%), Orissa (44%), Jharkhand (59.4%) and Madhya Pradesh (60.3%) are quite alarming. This is against Sikkim (22.6%) and Mizoram’s 21.6 per cent.61 The states having both higher and lower per capita income have rather conspicuous presence of malnourished children. Manipur and Orissa having per capita income of Rs.12230 and Rs.10103 have 28 per cent and 50 per cent malnourished children respectively. On the other hand, Gujarat and Maharashtra with a per capita of Rs.21276 and Rs.24736 also have 45 and 51 per cent of their children population malnourished. In terms of nutritional status of children, middle-income states like Kerala, Tamil Nadu and Andhra Pradesh are performing better than higher income states.

It has also been observed that the average calorie intake in both rural and urban areas has declined. In rural India the per capita intake of calories declined from 2221C in 1983 to 2047 K cal/day during 2004-2005 K cal/day. This is more so in Punjab, which has recorded the highest decline (300 cal). Similarly per capita protein intake in rural India declined from 62 gm/day to 57 gm/day.62

59 Sachin Kumar Jain, “This winter, even Ram can’t stop this tragedy,” Tehelka, 19 November 2005.
60 Findings of the Abay Bang committee “Child Mortality Evaluation Committee,” report appointed by the government to study the problem of infant mortality in Maharashtra quoted by The Times of India, New Delhi, December 19, 2004.
Table 3.9 shows that in spite of a sharp fall in the Head Count ratio of income poverty (see Table 1.3 in Chapter 1 of this volume) the percentage of rural population consuming below 2700 calories has increased in all the big states except Kerala. This is also reflected in the calorie gap (Table 3.10). Though this is attributed to a significant fall in the dietary energy requirement, this trend is definitely not a positive one.

<table>
<thead>
<tr>
<th>States</th>
<th>Average Calorie intake</th>
<th>Head Count ratio (below 27000 pcu)</th>
<th>Child Malnutrition (&lt;2 sd)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>2204</td>
<td>2021</td>
<td>54</td>
</tr>
<tr>
<td>Bihar</td>
<td>2189</td>
<td>2121</td>
<td>53</td>
</tr>
<tr>
<td>Gujarat</td>
<td>2113</td>
<td>1986</td>
<td>62</td>
</tr>
<tr>
<td>Haryana</td>
<td>2554</td>
<td>2455</td>
<td>40</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>2454</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>J&amp;K</td>
<td>2631</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Karnataka</td>
<td>2260</td>
<td>2028</td>
<td>53</td>
</tr>
<tr>
<td>Kerala</td>
<td>1884</td>
<td>1982</td>
<td>72</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>2323</td>
<td>2062</td>
<td>48</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>2144</td>
<td>2012</td>
<td>59</td>
</tr>
<tr>
<td>Orissa</td>
<td>2103</td>
<td>2119</td>
<td>59</td>
</tr>
<tr>
<td>Punjab</td>
<td>2677</td>
<td>2381</td>
<td>36</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>2433</td>
<td>2425</td>
<td>40</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>1861</td>
<td>1826</td>
<td>73</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>2399</td>
<td>2327</td>
<td>43</td>
</tr>
<tr>
<td>West Bengal</td>
<td>2027</td>
<td>2095</td>
<td>67</td>
</tr>
</tbody>
</table>

Note: *Less than 2 standard deviation from the Median weight for age.


States like Kerala and Tamil Nadu are high on the list of nutritional status. On the other hand, variations between states are attributed to differences in education, health, availability of safe drinking water and environmental sanitation, which have bearings on food and nutritional status. It is baffling to note that in a thriving democracy nutrition-
related issues are not mentioned in both popular public debates and electoral politics.63

Table 3.10 Calorie Deprivation in Indian States (rural)

<table>
<thead>
<tr>
<th>States</th>
<th>Calorie Gap (FGT-1)</th>
<th>Calorie Severity (FGT-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1983</td>
<td>1999-00</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>12.9</td>
<td>15.0</td>
</tr>
<tr>
<td>Bihar</td>
<td>13.4</td>
<td>12.8</td>
</tr>
<tr>
<td>Gujarat</td>
<td>15.1</td>
<td>15.9</td>
</tr>
<tr>
<td>Haryana</td>
<td>9.1</td>
<td>7.8</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>7.4</td>
<td>5.8</td>
</tr>
<tr>
<td>J&amp;K</td>
<td>6.3</td>
<td>3.8</td>
</tr>
<tr>
<td>Karnataka</td>
<td>14.7</td>
<td>16.9</td>
</tr>
<tr>
<td>Kerala</td>
<td>22.6</td>
<td>16.8</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>10.9</td>
<td>15.2</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>13.6</td>
<td>15.3</td>
</tr>
<tr>
<td>Orissa</td>
<td>15.3</td>
<td>11.9</td>
</tr>
<tr>
<td>Punjab</td>
<td>8.8</td>
<td>8.5</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>13.1</td>
<td>6.8</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>25.9</td>
<td>21.9</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>10.1</td>
<td>9.6</td>
</tr>
<tr>
<td>West Bengal</td>
<td>19.4</td>
<td>13.2</td>
</tr>
</tbody>
</table>

Note: “Less than 2 standard deviation from the Median weight for age.

There are definitional ambiguities also. As Sagar states that “if food security connotes income poverty, 26 per cent of the Indian population is still food insecure. Food insecure economic and social classes still remain the same as food insecure from the hunger perspective. But the regional distribution of food insecure now shifts to the most populous states of Orissa, Bihar and UP. However, if food security connotes adequacy of calorie intake, Bihar and UP consume significantly higher than a number of state with low-income poverty. This also opens a

63 The Time of India, New Delhi, December 19, 2004.
number of issues. With the reference intake of 2700C, more than 60 per cent rural population was food insecure in 1999-2000. The numbers have increased by almost 10 per cent points since 1983. However, during this period, income poverty has declined sharply to 26 per cent in 1999 and the real price of foodgrain and other food items has declined. This puts a question mark on the reference energy intake point.\textsuperscript{64}

Land is again a crucial question today. There have been two way pressures on land viz., from the increasing population pressure leading to fragmentation of holding and from encroachment on agricultural land for urbanisation, industrial and other development activities. The population increased from 35 crore in 1947 to 108 crore in 2007. The rural population has only marginally declined in relative terms. The average size of landholding has declined from 2.63 hectare in 1960-61 to 1.06 hectare in 2002-03. "(Farmers) incomes rose by a measly 0.28 per cent as compared to 4 per cent in other sectors. Not surprisingly, a recent national sample survey showed that 40 per cent of the farmers want to opt out of their current profession."\textsuperscript{65} The landlessness has already marginalised millions of rural people. Their protracted plights were highlighted in \textit{Janadesh 2007} where thousands of landless people marched from Gwalior in Madhya Pradesh to New Delhi under Ekta Parishad. In response to this the Government set up the National Land Commission.\textsuperscript{66}

On the other hand, phenomenon like "industrial revival" has seriously affected even a left parties ruled states like West Bengal and Kerala. The left parties have been at least on the surface vociferously against the forces and onslaughts of globalisation. There have been violent protests against such land acquisitions. The popular uprising at Nandigram in West Bengal against location of a SEZ for a chemical hub on essentially agricultural land is a poignant indicator. The people of Nandigram in East Midnapore under the banner of Bhumi Uchched Pratirodh Committee declared their villages out of bounds for the Bengal administration for months together. In March 2007, the Left Front Government not only sent a large number of policemen to establish state's control over Nandigram but also sent the Communist

\textsuperscript{64} Vidya Sagar, ibid. p.37.


Party of India (Marxist) cadres to reoccupy the villages. A violent clash occurred that killed over 15 people of Nandigram. The Communist Government had to face a wrath of large scale national condemnation and admitted that it was a "wrong assessment" and was forced to put on hold all proposals for setting up SEZs. Since then "Nandigram has turned into a battlefield". Amidst the announcement of a Central Bureau of Investigation enquiry into the incident, Nandigram was violently "recaptured" by the CPM cadres in November 2007. This brought much deeper ignominy to CPM some comparing it even with the Gujarat communal riot of 2002. The Bengal wide popular support to the cause of farmers was reflected in the serious electoral setback the Left Front Government faced in the 15th Lok Sabha election in 2009.

3.1.1 Suicides and Hunger Deaths

It is the labour households that constitute the class suffering most from hunger, both chronic and seasonal. During 1999-2000, 4.9 and 1.1 of agricultural labour households suffered respectively from seasonal and chronic hunger in rural India. In case of other labour households the percentage of suffering was 3.9 and 1.3 respectively. "The regional spread of hunger was more uneven in 1983. The incidence of rural hunger exceeded 35 per cent in the eastern Indian states of Bihar, Orissa and West Bengal. These states have made considerable improvements in reducing the incidence of hunger. Interestingly, the incidence of hunger exceeded 10 per cent in West Bengal in 1999-2000." South Indian states like Kerala, Karnataka, Tamil Nadu and Andhra Pradesh have brought down the incidence of hunger from 15 per cent in 1983 to below 3 per cent in 1999-2000. Across households of various social groups the incidence of hunger varies sharply. In rural areas, with 6 per cent (5.2 per cent seasonal and 0.8 per cent chronic) incidence of hunger the scheduled tribe communities have the highest rate followed by 5 per cent (3.9 per cent seasonal and 1.1 per cent

68 Home Secretary of West Bengal Government as quoted by Times of India, New Delhi, 9 November 2007.
70 Vidya Sagar, ibid., p.33.
chronic) of the scheduled castes communities in 1999-2000. It is so even in urban areas. The other backward classes reflect a similar situation.\textsuperscript{71}

Many farmers have switched over to cash crops that require more capital. Since such cropping was not practiced traditionally the vulnerability of farmers has increased sharply. Crops have failed on account of pests and drought conditions, exposing farmers to huge indebtedness. For instance, farmers in Vidharva switched over to Monsanto's BT cotton, a genetically modified seeds after the famous Marathi film actor Nana Patekar took up the responsibility of advertising and promoting these seeds for MNC Monsanto. The seeds did not show any sustainability. The fungal infection \textit{Lal Rog} struck fields. Farmers only reaped losses and frustrations. Within a few years farmers became so indebted that "in every family, the adults take turns to fast, one day each week, to stretch their limited supplies. They live in fear of their land being seized by money lenders."\textsuperscript{72} On top of this, dominant actors in world cotton market like USA, China and the EU continue to provide heavy domestic and export subsidies (pegged at US$ 4 billion, $1.5 billion and $900 million respectively) to their cotton-growing farmers. The US provides exclusive protection to its producers under the Step-3 Farm Policy of 2002. The production cost in the US is estimated to be US$1.70 per kg whereas its cotton is sold in the international market at $1.18 per kg. Though the ending of Multi-Fibre Agreement in 2004 opened opportunities for India's textile imports, cotton growing farmers are becoming increasingly distressed on account of three-way pressures, including high cost of production, crop failure and un-remunerative international prices.\textsuperscript{73}

Farmer-suicides are mounting from prosperous Punjab to semi-arid Warangal in Andhra Pradesh.\textsuperscript{74} The National Crime Records Bureau (NCRB) recorded that the annual average of farmers suicides sharply increased from 15474 during 1997-2001 to 17627 during 2002-2005. The total number of farmers committing suicide was 78,737 and 70507

\begin{thebibliography}{9}
\bibitem{72} Sonia Faleiro, "Death along the Famished Road," \textit{Tehelka}, New Delhi, 17 December 2005.
\bibitem{73} Sourav Mishra, "Long Yarn," \textit{Down to Earth}, New Delhi, March 31, 2006.
\end{thebibliography}
during the same time period.\textsuperscript{75} Between April 2003 and October 2004 alone the number of suicides in the district of Hassan in Maharashtra reached 92. This is said to be the highest in the state.\textsuperscript{76} Between June 2 and November 25, 2005, 136 suicides had taken place in Maharashtra’s Eastern Vidharva region. The number of suicide cases have increased from 64 in 2001 to 400 in 2005. “Pesticide is available in the remotest corner of Vidharva … but if you want folic acid, you have to walk 50 km. The government has not reached the people, but the poison has.” These suicides were mostly triggered by utter debt conditions because of crop failure, depressed prices and high costs of cultivation. “Only five per cent of farmers are eligible for loans from cooperatives and banks, usually because of previous default. The remainder are forced into the grip of private, often hostile \textit{sahukars} (money lenders) who extract approximately Rs.500 interest every four months on every Rs.1000 borrowed. Once this loan is defaulted on, the farmer’s desperation for the sale of his cotton and soybean increases.”\textsuperscript{77} Maharashtra, which is one of the richest states in the country, has a suicide mortality rate of nearly 50 per cent higher than the all India average.\textsuperscript{78}

The Situational Assessment Survey showed that the incidence of indebtedness among the farmers in Maharashtra has risen from 29 per cent of households in 2001 to 88.97 per cent in 2003. The extent of indebtedness per household (debt in Rupees per household at 1986-87 prices) thus rose by 232 per cent in this period. Many states including Maharashtra, Andhra Pradesh, West Bengal and Uttar Pradesh were found to show negative net income for farmer households. The average annual profit from cultivation in Maharashtra was barely Rs.4363 against an average of Rs.22770 in Jammu and Kashmir. The farmers are in severe distress.\textsuperscript{79}


\textsuperscript{76} The cases of suicides were recorded mostly in Hassan, Arsikere, Arakalgud, Sakleshpur, Alur, Belur, and Channarayaptna. \textit{The Hindu}, New Delhi, November 1, 2004.


\textsuperscript{78} As calculated by Srijit Mishra of Indira Gandhi Institute of Development and Research, Mumbai quoted in Roger Alexander, “225 .... And still counting” \textit{Saharatime}, New Delhi, January 25, 2006.

\textsuperscript{79} Study conducted by Gokhale Institute of Politics and Economics, Pune and the Centre for Rural Development, Karaikudi (Tamil Nadu) as quoted by Abhay Vaidya “The Seeds of Farmer Suicides,” \textit{Times of India}, New Delhi, April 14, 2006.
Suicides have been common among farmers in the drought-hit villages of the Rayalseema region of Andhra Pradesh. Women are the worst affected lot. They continue to struggle and suffer to pay the debts. The Government’s compensation of Rs.1 lakh to the family of farmers who have committed suicide has also been characterised by nagging regulations and the situation remains as dark and threatening as ever.  

In fact, “the TDP (Telegu Desam Party) Government believed that providing relief to the families of farmers who had killed themselves would be an incentive for others to commit suicide. District collectors knew very well they were not supposed to recognise a farmers’ suicide.”

There are reports that distressed women were forced to join the brothels in Pune and Mumbai. This was widely expressed by farmers to the panel sent by the National Planning Commission. “The local primary school teacher-cum-shaukar (moneylender) was asking Jamuna for sexual favours in return for the Rs.5000 loan she took six years ago to grow cotton. He was demanding Rs.50,000 as the total money owed. Jamuna was humiliated time and again by the moneylender and his goons in public. This ultimately led to her suicide” said Chanbda Masola, a friend of Jamuna.

Land disputes between the Adivasis and the Forest Department in Raup in Eastern UP have made a large number of tribals of Sonebhadra district highly food insecure. Villagers live on roots and leaves collected from the forest. The National Human Rights Commission (NHRC) issued notices to the state government on the starvation deaths in Raup. The hunger and starvation deaths, particularly in the closed tea gardens of West Bengal, have also come into light. As many as 22 plantations, 21,000 permanent workers and about 95,000 people have been affected in Dooars region of Jalpaiguri district alone. Many tea growing areas, including the ones in Assam and South Indian states, were affected by the closure of tea gardens. The deaths resulted from a combination of starvation, malnutrition,

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82 Statement of Plan panel member Sayeeda Hameed as quoted by The Times of India, New Delhi, November 29, 2004.


general debility and diseases among workers in abandoned tea gardens in North Bengal.\textsuperscript{85} A standing committee on commerce and industry of the Bengal Assembly reported that 18,000 tea garden workers of 13 closed tea gardens have been rendered jobless. They are mostly Adivasis (tribals) and minority Gorkhas. It also mentions a study conducted by the Jalpaiguri health administration, which said over 550 workers have died in the last 15 months in the closed gardens.\textsuperscript{86} This is happening despite the fact that these gardens remained deeply entrenched by tea specific units of national level trade unions including CITU, INTUC and AITUC. The situation in the world famous tea industry of Darjeeling could be as alarming as this which has not been subject to any serious study.\textsuperscript{87}

Plantation hospital records, though not meticulously maintained, show a substantial increase in deaths after the closure of these gardens. A door-to-door survey of 204 households in 2 plantations done by a study team revealed an even more frightening picture with the average number of deaths per year increasing by 241 per cent after closure of the plantations. It was found that families that were consuming 1,200 to 2,900 calories per person per day before closure were now surviving on as little as 200 calories per person per day. This is far below the minimum level of consumption for survival of 850 calories per day. Nutritional data on 144 children in two tea estates showed high incidence of undernourished children. More seriously workers were living in situations of near starvation, though the State Government had not listed them as below poverty line (BPL) families, thus depriving them of even the subsidised rations. Despite the order by the Court for universal coverage of all children below 6 years, pregnant and lactating mothers and adolescent girls under feeding programmes, the Integrated Child Development Services (ICDS) was not effectively implemented even in such a serious situation. The supply was irregular. In one ICDS centre, the team found that food had not been distributed for 254 days out of 365 days, or for 70 per cent of the year. Three of the beneficiaries in this centre had died, probably of hunger.


\textsuperscript{86} Telegraph, Kolkata, July 25, 2007.

In reaction to a report submitted by the West Bengal Advisor, the Supreme Court commented that, “the report reveals an alarming state of affairs.” It asked the State of West Bengal to respond to the report within 10 days and to, “take such action as it may consider appropriate having regard to the various aspects and incidents of malnutrition and other problems highlighted in the report.” Immediately after this order, there was a flurry of activity on behalf of the State Government. The Union Government has now floated a special package to reopen the closed gardens.

The western belt of Orissa witnesses large-scale seasonal migration of workers, during October and November mainly to escape from hunger and death. Migration is often seen as a chance to pay back a debt. In doing so workers trade off their health and safety. There have been several instances of deaths during migration and journeys. Malnutrition is another major problem for these migrants as well as those left behind. In the Kalahandi-Bolangir-Koraput (KBK) region of Orissa, poor people survive on a spartan diet (e.g., rice and salt), drinks unsafe water, and have virtually no access to health care. Diarrhoea has been a common cause of death. Real wages are incredibly low. Even in public works programmes, labourers earned as little as Rs.25 a day in the late 1990s. As forests remain decimated, there has been degradation of traditional livelihood patterns. Rampant exploitation and corruption have meant that the enormous sums that had been poured into development programmes in the region have had little impact.

The starvation deaths in Palamau district in Jharkhand state were mainly caused by droughts and poor irrigation facilities. Out of 12,732.45 acres to be normally cultivated in the region covering 50 villages of Lesliganj block, only 1402 acres are under irrigation. This means that near about 89 per cent of the cultivable land is lying uncultivated. The affected are mostly landless dalit families whose prime source of income is their agricultural labour. These families do not have any fallback mechanisms. Districts like Nawada in

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89 Inter Press Service, Bolangir, India, November 17, 1999.


Bihar\(^{92}\) and areas like Jhargram in Midnapore district of West Bengal, have faced similar problems.\(^{93}\)

Tribals continue to draw their livelihoods mostly from surrounding forest areas. A study of traditional food patterns and dietary profiles in the 187 Bhil tribal households in Western Gujarat revealed that out of the 97 commonly consumed foods, 29 were procured from the jungle, 26 were cultivated and 14 were hunted.\(^{94}\) The increasingly restricted access to natural resources has made the lives of forest-dependent villages and mostly tribal people vulnerable to ecological poverty. Both restrictive laws and ecological degradation have adversely affected per capita natural resources availability of these people, thereby threatening their livelihood. This has been recorded in Rajasthan’s Baran district, Maharashtra’s Nandurbar and Orissa’s Nabrangpur and Malkangiri districts. Though the 250-odd “malnourished” districts in India have been on the government’s nutrition enhancement programme since the 1970s, not much has resulted. None of these programmes has ever incorporated ecological security as a means of ensuring food security.\(^{95}\)

### 3.3.2 Natural Calamities

The great Bengal famine of 1943 which recorded a death toll of 1.5 million has been explained from two different perspectives; the first of food availability decline (FAD) and the second of exchange entitlements. The Famine Enquiry Commission attributed the famine to “a serious shortage in the total supply of rice available for consumption in Bengal.”\(^{96}\) Blyn mentions that “in 1942-43 cyclones and floods reduced the Bengal rice crop by about a third; this, coupled with the absence of exports from Japanese controlled Burma, and inadequate relief, led to famines, epidemics (malaria, cholera and smallpox), aggravated by widespread starvation.”\(^{97}\)

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\(^{94}\) Lalita Bhattacharjee et al., “Case study of FAO Project on Documenting Traditional Food Systems of Indigenous Peoples in Asia,” FAO Regional Office for Asia and the Pacific, Bangkok, Thailand.


\(^{96}\) Famine Inquiry Commission, India, Report on Bengal, Government of India, New Delhi, 1945.

On the other hand, Sen questions this perspective by making five significant corrections in official production estimates, changes in wheat imports, per capita supply, late availability of imported food in 1943 and "carry over" of old rice. He states that "it seems safe to conclude that the disastrous Bengal famine was not the reflection of a remarkable over-all shortage of foodgrains in Bengal." He attributes the famine deaths with "relatively large effects on fishermen, non-agricultural labour, craftsmen" mainly to exchange entitlement caused by powerful inflationary pressures initiated by public expenditure expansion reinforced by "indifferent" winter crops and vigorous speculation and panic hoardings. Such a situation not only signalled the great dangers of human insecurity but also highlighted the linkage with the larger issues of national security. The newspapers were full of news items like "hunger marches organised by communists" (28 December 1942) "acute distress prevails" (26 March 1942) "bands of people moving about in search of rice" (12 June 1942), "deaths in streets" (12 June 1942). There was massive movement of masses of rural destitute from many parts of Bengal to Calcutta in search of food. This was a major concern for those in charge of maintaining law and order and national security in the British India government.

Management inefficiencies have been witnessed during many natural calamities. India's food stock reached a peak of nearly 70 million tonnes in mid-2002. This was done amidst a period of intense droughts in large parts of the country and the widespread hunger in drought-affected areas. The government resorted to unprecedented hoarding of food to keep prices up. But its policies made it much harder for drought-affected people to buy food on the market. A survey conducted in Rajasthan in early 2001 found many signs of a survival crisis among those who were not lucky enough to obtain employment on relief works: reduced food intake, rising indebtedness, and distress migration, among others. There were cases of starving people eating poisonous mango kernels in Orissa while rotting grain stocks were thrown into the sea. The Supreme Court also started intervening from mid-2001 onwards.

99 Ibid., pp.75-77.
100 Ibid., pp.55-57.
after the People’s Union for Civil Liberties (Rajasthan) launched public interest litigation on this issue.\textsuperscript{102}

3.3.3 Geographical Inaccessibility

The evolution of the national economy has favoured some regions and discriminated against many state economies. There are sharp variations in the development indicators within a particular state. The most striking example of geography and food security linkage is to be found in the hills and mountains in India which are mostly located in the international border areas. One would have believed that the more robust and resilient the people in the hills and mountains are in terms of economic, environmental and social securities, the more sturdy will be the overall national security and development process of the country. But it is precisely on grounds of national security, that many of these areas have not been developed in terms of roads, communications etc. Their accessibility is still utterly inadequate. The opportunities of making them so are ever shrinking. Since these states remain highly vulnerable to natural calamities and do not produce much of food, their accessibility to food has become a serious issue.

Most mountain states have low initial level of capital accumulation, human capital and infrastructure. Economic base and hence resource mobilisation has been rather poor in the hill states. These states are mostly inhabited by tribals. In order to retain their tribal identities intact, the development process itself had to be very strictly regulated. Only the public sector was allowed to flourish. On the other hand, outside public sector initiatives, the production system has been based on very underdeveloped or “primitive” technology. As a result of the large scale presence of the public sector, the level and composition of consumption of a segment of the population changed drastically whereas others continued to suffer from inaccessibility and deprivation. The majority continued to depend on traditional technology and mode of production.

\textsuperscript{102} In 2001, the People’s Union of Civil Liberties (Rajasthan) filed a case in the Supreme Court of India (Writ Petition 196/2001) seeking its intervention in a dichotomous situation of overflowing stocks of foodgrains and people suffering from chronic hunger and reports of starvation deaths in the country. The interim orders given by the Court not only asked the government to take steps to prevent such situations but also highlighted the Right to Food and in a more limited way, the Right to Work as statutory rights of the people.
3.3.4 Conflicts and Instability

In India conflicts, violence and political instability have caused large scale problems of food insecurity both within and outside the conflict zones. Besides, the sporadic violence and instabilities there are pockets of conflicts that have been prolonged for many years. The causes vary as much as the geographical locations and impact of such conflicts. They range from strident assertion of group identities as manifested in the demand for political independence like that of Mizos, Nagas, Khalistanis (Punjab) and Jammu and Kashmir Liberation Front to changes in demographic equations triggered by both intra-country and external migration like that in Assam. It also ranges from economic alienation as reflected in poverty, forced land colonisation and landlessness in Andhra Pradesh, Madhya Pradesh, Orissa and Bihar to historical dislocations and poor post-independence adjustment like that in Nagaland. The increasing coordination of terrorists, insurgents and radical groups with their counterparts in neighbouring countries, including that of the MCC of India with the Maoists of Nepal and insurgents in the North East with LTTE and the other militants from neighbouring countries, have added a critical dimension to these conflicts.\(^\text{103}\)

Besides destructions and psychological devastations caused by these conflicts, the food security question firstly among conflict victims and secondly, among the larger populace through very dislocation of livelihood practices have always remained a critical issue. For instance, large scale displacement and migration have taken place from the Kashmir valley of J&K over the last 15-20 years. Over 4,00,000 Kashmiri Pundits (95 per cent of their original population in the Valley) have left the Kashmir valley since 1990.

The total number of Kashmiri migrant families staying in Jammu region, New Delhi and other states are estimated to be 56246.\(^\text{104}\) Over 2,00,000 Kashmiris still live in abysmal conditions in Jammu, the other half remain as “internal refugees” in cities like New Delhi and Mumbai.


\(^\text{104}\) Ministry of Home, Annual Report 2003-03, New Delhi, p.27. As per the earlier estimate given by the Home Minister in Parliament, the number Registered Kashmiri Migrants Families were 29,074 in Jammu region and 19,338 New Delhi, Home Minister LK Advani in the Lok Sabha on December 22, 1998, quoted by The Hindustan Times, New Delhi, December 23, 1998.
in squalid camps with spiraling health and economic problems. This has taken a severe toll on their physical and mental health. "Confronted with the spectre of cultural extinction, incidence of problems such as insomnia, depression and hypertension have increased and birth rates have declined significantly. A 1997 study based on inquiries at various migrant camps in Jammu and Delhi revealed that there had been only 16 births compared to 49 deaths in about 300 families between 1990 and 1995, a period over which militancy was at its peak. The deaths were mostly of people in the age group of 20 to 45. Causes for the low birth rates were primarily due to premature menopause in women, hypo-function of the reproductive system and lack of adequate accommodation and privacy."105

The relief expenses that cover a small segment of food security of these people alone have been staggering. The expenses incurred by both the state governments of J&K, Delhi and some other states in giving relief to the displaced people comes to the tune of Rs.973 million per annum (Table 3.11).106 A range of similar emerging situations prevail, particularly in the Northeast region of India for Rheangs in Mizoram and Manipur and Santhals in Assam and other Indian ethnic groups like Nepalese and Bengalis in Meghalaya and other inter-state border districts in Orissa, West Bengal, Andhra Pradesh, Bihar, Jharkhand, Chattisgarh and Madhya Pradesh which have remained highly vulnerable to Naxalite concentration and violence.107 A major portion of these displacements have taken place in tribal-dominated areas which have provided widening recruitment base for left extremists.108 During the height of Assam agitation in the beginning of 1980s most of the fleeing "illegal immigrants" were given shelter in

106 Mahendra P Lama, “Political Economy of Terrorism: Sustenance Factors and Consequences” in SD Muni (ed), Responding to Terrorism in South Asia, Manohar, New Delhi, 2006.
108 Ibid.
North Bengal where the most critical issue was food again. In Assam, the violence perpetrated and "cleansing" carried out by the majority Bodo population on Santhals and other non-Bodo communities like Nepalese and Bengalis through plunder, arson, massacre and persecution forced a large number of non-Bodos in Kokrajhar district to flee the area on a large scale. They were uprooted from their livelihood and remain in relief and rehabilitation camps in various parts of Assam.109

Table 3.11 Jammu and Kashmir: Estimate of Relief Extended to the Displaced People from Kashmir(†)

<table>
<thead>
<tr>
<th>Relief Measures</th>
<th>Jammu</th>
<th>New Delhi</th>
<th>Other States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Families (nos)</td>
<td>34305*</td>
<td>19338*</td>
<td>2603*</td>
</tr>
<tr>
<td>Families entitled for relief</td>
<td>13378</td>
<td>12685</td>
<td>2483</td>
</tr>
<tr>
<td>Relief Package (cash)</td>
<td>@ Rs.3000 per family per month</td>
<td>@ Rs.2400</td>
<td>@ Rs.2400</td>
</tr>
<tr>
<td>Relief Expenses p a</td>
<td>Rs.481.6 million</td>
<td>Rs.365.3 million</td>
<td>Rs.71.5 million</td>
</tr>
<tr>
<td>Rations**</td>
<td>Rice - 9 kgs per month, (@ 14 per kg) Wheat Flour - 2 kgs per month (@ 9/kg)</td>
<td>Rice - 9 kgs, (@ 14/kg) Wheat Flour - 2 kgs (@ 9/kg)</td>
<td>Rice-9kgs, (@ 14/kg) Wheat Flour - 2 kgs (@ 9/kg)</td>
</tr>
<tr>
<td>Ration Expenditure p a</td>
<td>Rs.25.68 million per annum</td>
<td>Rs.24.24 million</td>
<td>Rs.4.68 million</td>
</tr>
<tr>
<td>Shelter***</td>
<td>Not included</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Relief extended p a in all the locations</td>
<td></td>
<td>Rs.973 million</td>
<td></td>
</tr>
</tbody>
</table>

Notes: (†) This does not include the displaced people of border areas, including 3574 families in Kargil, 540 families in Leh and 20000 families in Jammu during the India-Pakistan hostilities in Kargil and cross-border shelling/firing, including in Kathua during May-June 1999.

*Government employees and pensioners numbering 21824 are not entitled for relief. For the sake of calculations these numbers have been divided among the three locations as per the weighted average of number of families living in each of them.

**The prices tagged per unit of each item is roughly the market price.

***238 migrant families live in 14 camps in New Delhi and 4778 families in 12 camps in Jammu. This relief package does not take into consideration the construction and maintenance of camps and the expenditures on related physical and social infrastructure including toilets, roads, shops, water, electricity, hospital, education and communications.

Source: Computed by the author on the basis of data provided by the Ministry of Home Affairs, Annual Report 2002-03, pp.27-29.

3.3.5 Refugees and IDPs

India has always hosted refugees coming from many corners of the world including the Afghanis, Bangladeshis, Tibetans, Sri Lankan Tamils, Myanmarese, Vietnamese, Ethiopian and the Somalian with traditional generosity. It has been in the centre stage of South Asian refugee management. These refugees are “often separated from members of their families, exposed to the danger of armed attacks, subject to many forms of exploitation, and haunted by the constant fear of expulsion and the forced return to their countries of origin.”

For these already haunted refugees a new set of problems arise as soon as they go over to the receiving country. The most critical of them is food and livelihood security. Children and women are the worst hit. Malnutrition has been a very common problem.

The repatriations of these refugees and attempts to further thwart exodus have been marred by controversies. In many cases it was found that the host national governments used coercive diplomatic pressure in various forms. India resorted to certain pressure tactics vis-a-vis the Chakmas from Bangladesh staying in the camps in Tripura, by drastically reducing their food rations which resulted in near starvation and malnutrition among refugees.

Similar has been the plight of internally displaced persons in India who are scattered in many corners of the country. Although these

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112 No international agreement has been reached on an acceptable definition of IDPs and many question the utility of defining them as a separate category. The working definition that the Brookings Institution and the Global IDP Survey use is that IDPs are “persons or groups of persons who have been forced to flee or to leave their homes or places of habitual residence as a result of, or in order to avoid, in particular the effects of armed conflict, situations of generalised violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognised state border,” Louis Ludlam Taylor “Recent Literature on IDPs” in Janie Hampton, (ed), Internally Displaced People: A Global Survey, Earthscan Publications, London, 1998, p.35. See CR Abrar and Mahendra P Lama (eds), Displaced within Homelands: The IDP of Bangladesh and the Region, RMMRU, Dhaka University, 2003; Patricia Daley, “From the Kipande to the Kibali: The Incorporation of Refugees and Labour Migrants in Western Tanzania, 1900-87” in Richard Black and Vaughan Robinson (ed) Geography and Refugees: Patterns and Processes of Change, Belhaven Press, London, 1993; World Refugee Survey, Washington, 1998; Walter Fernandes, Director of the programme of tribal studies at the Indian Social Institute now estimates that the development-
IDPs share many characteristics with refugees who cross international borders, they are not eligible for protection under international refugee law as they remain inside their own countries. They are neither entitled to legal guarantees nor to the material assistance offered by UNHCR. In fact, the internally displaced are vulnerable to violence, harassment and livelihood security because they are closer to the scene of conflict.\(^\text{113}\)

### 3.3.6 Regional Distribution and Disparities

In India, regional disparities in all socio-economic indicators are obvious. The literacy rate varies from a low of 47.53 per cent in Bihar to a very high of 90.92 per cent in Kerala. Similarly, Kerala has the lowest infant mortality rate of 10 per 1000 accompanied by the highest of 87 that prevails in Orissa. In Punjab, over 92 per cent of the population have access to safe drinking water as against hardly 17 per cent in Mizoram.\(^\text{114}\) Distribution of natural resources is also highly uneven. In fact, natural resource sharing has been the most significant issue in many conflict situations. A number of states have demanded a share in the allocation of development resources commensurate to their contributions in terms of production, their natural resources exploitation and overall contribution to the national income. Regional imbalance tended to increase gradually during the 1980s, followed by a relatively steep increase in the early years of the reforms period and got consolidated in the 1990s.

The very uneven distribution of food production is a threat to food security in the long run. The Green revolution has had no apparent impact on many of the states. Uttar Pradesh, Punjab and Haryana, constituting about 21 per cent total population and 10.13 per cent of total geographical area, account for 72.17 per cent of the total wheat production in the country (Table 3.12).

Within Punjab also, the skewed distribution of the benefits of Green Revolution became conspicuous, when just 20 per cent of rich Jat farmers grabbed more than 60 per cent of total land. The skewed

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Table 3.12 Largest Producing States of Important Crops

<table>
<thead>
<tr>
<th>Item/State</th>
<th>% share in Total Population (1.03 billion)</th>
<th>% share in Total Geographical Area (3287326 sq km)</th>
<th>% share in Production</th>
<th>Total National Production (million tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rice</strong> - West Bengal, Punjab &amp; UP</td>
<td>26.34</td>
<td>11.48</td>
<td>43.19</td>
<td>72.7</td>
</tr>
<tr>
<td><strong>Wheat</strong> - UP, Punjab &amp; Haryana</td>
<td>20.58</td>
<td>10.13</td>
<td>72.17</td>
<td>65.1</td>
</tr>
<tr>
<td><strong>Maize</strong> - Madhya Pradesh, Andhra Pradesh &amp; Karnataka</td>
<td>18.38</td>
<td>23.57</td>
<td>42.43</td>
<td>10.3</td>
</tr>
<tr>
<td><strong>Coarse cereals</strong> - Maharashtra, Karnataka &amp; UP</td>
<td>30.72</td>
<td>22.45</td>
<td>47.79</td>
<td>163.0</td>
</tr>
<tr>
<td><strong>Pulses</strong> - Madhya Pradesh, Maharashtra &amp; UP</td>
<td>31.46</td>
<td>25.99</td>
<td>56.73</td>
<td>11.1</td>
</tr>
<tr>
<td><strong>Total Foodgrains</strong> - Uttar Pradesh, Punjab &amp; West Bengal</td>
<td>11.48</td>
<td>11.48</td>
<td>43.24</td>
<td>174.2</td>
</tr>
</tbody>
</table>

Note: Population is from the 1991 Census and the areas are after the new states including Jharkhand, Uttaranchal and Chattishgarh are created.


distribution also acutely remained in various districts. A study conducted to assess income distribution over six different categories of Punjabi farmers concluded that the level of mechanisation largely paralleled the size of holdings. It showed that hiring out of assets, including equipment, draft animals and land to the smaller farmers, constituted almost 22 per cent of non-farming income of Class 6. This only reflected grossly unequal distribution of technological benefits. This uneven distribution of benefits was amply reflected in the caste structure also. The Jat capitalist farmers who are usually pitched against the scheduled castes (Mazhabis) have been an overwhelming beneficiary. The Mazhabis along with other low caste artisans like Lohar Sikhs (blacksmiths), carpenter Sikhs (Ramgarhias), Rai Sikhs, Labana Sikhs, Cheema Sikhs have developed their own “culture of deprivation.”


116 Size of operational holdings were defined as: class 1-10 to 2.49 acres; class 2-2.50 to 4.99 acres; class 3-5 to 7.49 acres; class 4-7.50 to 12.49 acres; class 5-12.50 to 24.99 acres; and class 6-25 or more acres. GS Bhalla and GK Chadha, “Green Revolution and the Small Peasant: A Study of Income Distribution in Punjab Agriculture,” Economic and Political Weekly, May 15, 1982, pp.826-33.

A recent district level deprivation study measures like poverty, hunger, literacy, immunisation, infant mortality and elementary enrolment identified 69 most backward and poorest districts in the country. These 69 districts account for 17.5 per cent of India’s illiterate, 21.12 per cent of the poor and 23.38 per cent of households who don’t get two square meals. Out of 37 districts of Bihar, 26 were identified in the list of these 69 districts. Six of 10 people in these districts live below the poverty line, 55 of 100 people are illiterate, only 3.6 per cent of the district is urban and 92 out of 100 children are born without medical supervision. Similarly, 10 out of the 30 districts in Orissa are among the poorest in the country with 80 per cent of the population in these districts living below the poverty line (Table 3.13).

Table 3.13 Distribution of Most Backward Districts

<table>
<thead>
<tr>
<th>State</th>
<th>Livelihood situation across districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bihar</td>
<td>26 out of 37 districts are on the worst list. 36 of them lack immunisation facilities, 31 lag in elementary school enrolment and 30 of them are among the worst performers on the literacy front.</td>
</tr>
<tr>
<td>Orissa</td>
<td>10 out of its 30 districts are among the worst, 23 districts are ravaged by poverty and hunger and 30 lag in immunisation facility.</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>10 of its 22 districts are listed in the worst districts in the country, even worse, hunger haunts 14 districts, poverty stalks 12 and illiteracy and lack of immunisation overwhelm 13 districts of the state</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>13 of the 70 districts are in the list of the poorest and worst districts of the country, 54 lag school enrolment, 27 in literacy, 36 lack immunisation, and 18 districts are wracked by poverty.</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>6 of the 45 districts are listed among the worst districts of the country, 22 districts are stricken by poverty and 39 by high infant mortality rate.</td>
</tr>
<tr>
<td>Arunachal Pradesh</td>
<td>3 of its 14 districts are categorised as among the worst districts in the country. Nine of them are bedevilled by hunger and eight by immunisation.</td>
</tr>
<tr>
<td>Karnataka</td>
<td>One district, namely Gulbarga, is one of the worst districts in the country where every second person lives below the poverty line.</td>
</tr>
</tbody>
</table>


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3.4 FOOD SECURITY: CHALLENGES AND SUSTAINABILITY FACTORS

The issue of food security in India has acquired an imperative dimension, requiring full scale national attention as “food security is not only grains in the field nor stacked up godowns. It is nutrition on the plate of every citizen ... but millions do not get food on their plate because they do not have the purchasing power or what Amartya Sen calls as ‘entitlement.’”119 A major portion of the total population are still “food insecure.”

The increasing population pressure on land, natural calamities, conflicts and violence and protracted regional disparities in both production and distribution, acute marginalisation of small and marginal farmers, leading to a sharp increase in the number of landless labourers, are exposing more and more people to food insecurity. The frequent occurrence of natural calamities, deteriorating level of soil fertility, likely cut down in subsidies both because of ongoing economic reforms and new conditionalities governing the agricultural trade in the global market, have all made the question of food security a major area of concern. What is more worrying is the fledgling commitment, decreasing zeal and crumbling delivery systems that the State utilises to reach the food insecure mass.

The new regime of intellectual property rights under WTO has the potentiality of undercutting the very basis of food security among relatively poor farmers. The issues related to seeds have been widely debated, particularly in the context of the best Indian tradition of conserving seeds for the next season by the farmers. What if MNCs like Monsanto and Cargills control the seed market in the country and if farmers are forced to buy seeds from them every time they decide to produce food of their choice? Besides the economic angle, this brings with it the very critical issue of environmental sustainability and social acceptance. This has triggered NGOs and other civil society and farmer’s groups to organise themselves against such invasions. For instance, Navdanya, a seed satyagraha was started as a “movement for the recovery of the biological and intellectual commons by saving native seeds from extinction. Seed is the first link in the food chain. It is also the first step toward freedom in food. Globalisation is leading to total

control over what we eat and what we grow. The tiny seed is becoming an instrument of freedom in this emerging era of total control."\textsuperscript{120}

In a suicide-infested State like Andhra Pradesh, the biggest worry for agriculture (that contributes one-third to the State\textquoteright s GDP and supports 70 per cent of the population) is the rising cost of production. Rural indebtedness have increased as the cost of farm inputs—water, land, seeds, pesticides and fertilisers, in that order—increased dramatically in the 1980s, while prices of agricultural produce stagnated or have fallen in the past decade. To finance inputs the farmer came to rely primarily on private money lenders who charge interest at rates ranging from 24 to 75 per cent. The formal credit system hardly meets 20-30 per cent of their requirement. Naturally, farmers have to work under tremendous pressure and distress.\textsuperscript{121}

There are also serious natural constraints, including land and water. Per capita availability of water has declined by over 60 per cent since 1950. The question of the structural change in the economy is another critical issue. The share of agriculture and allied activities in the GDP has gone down steadily from almost 60 per cent in 1950-51 to 21.24 per cent in 2005-06, whereas people dependent on agriculture has remained more or less intact over 60 per cent. This means that unlike in developed countries where such structural shifts are also accompanied by more or less matching dependent population shifts; there have been very little mobilisation of people both in rural and urban areas to other activities in tertiary and secondary sectors. The 1990s witnessed not only a sharp increase in the incidence of overall unemployment from 5.99 per cent in 1993-94 and 7.32 per cent in 1999-2000, to 8.3 per cent in 2004-05, but also near stagnation of agriculture employment.\textsuperscript{122}

Will the emerging Indian agriculture system be able to maintain and sustain this dependent population? If not, will there be adequate opportunities in the secondary and tertiary sector to attract and absorb rural people now mainly dependent on agriculture? Or will the situation hang precariously between "zero marginal productivity" and the poverty-insecurity triggered conflict-instability syndrome?


\textsuperscript{121} Sopan Joshi, "Inevitable Tragedy," \textit{Down to Earth}, New Delhi, July 15, 2004.

\textsuperscript{122} Incidence of unemployment is expressed in terms of unemployed as a percentage of the labour force, 55\textsuperscript{th} NSSO Round (1999-2000) as quoted in \textit{Economic Survey 2003-2004}, Government of India, New Delhi, pp.205-207.
Therefore, non-agricultural sectors have to absorb an increasingly larger number of people. To maintain the present ratio between per capita rural and urban income of around 2.0, approximately, 5 to 10 per cent of the population dependent on agriculture would have to be absorbed in the non-agricultural sector over the next ten years.\footnote{123} Under the emerging WTO regime, the subsidy route to income parity through increasing agricultural prices as practiced in industrialised countries will not be available. So the alternatives could narrow down to labour intensive economic growth or annual agricultural growth has to exceed 4 per cent substantially.

\subsection*{3.4.1 Needs Projection and Capabilities}

Given the economic growth performance of the last decade and the enthusiasm to grow at double digits in the coming decades the challenge to meet the increasing demand for food is both formidable and complex. A growing population projected to reach 1.3 billion by 2020, higher earnings and change in lifestyle could all bring much higher consumption.

A scenario for domestic demand for foodgrains at 7 per cent increase in income shows that by 2020 the demand for food would increase to 343 million tonnes. The demand for milk and vegetables is expected to shoot up to 271 and 168 million metric tonnes respectively by 2020 (Table 3.14). Another study indicates that by 2010 the total demand for foodgrains would be 261 million tonnes.\footnote{124}

Yet the same TIFAC study indicates that India may have to import over 14 million tonnes of foodgrains by 2010. This is likely to grow at the rate of 2 per cent every year.\footnote{125} However, contrary to the projected import figure of 6.9 million tonnes in 2002, India actually exported 1.4 million tonnes of foodgrains that year. “The Tenth Five Year Plan had targeted GDP growth in agriculture and allied sectors at 4 per cent per annum, aiming to reverse a sharp deceleration in the second half of the 1990s from 3.2 per cent per annum in 1980-81 to 1995-96 to 1.9 per cent per annum during 1996-97 to 2001-02. This has not been achieved.”\footnote{126}

Given existing limitations in irrigation facilities, cultivable land and

\begin{itemize}
  \item \footnote{124}{Praduman Kumar, Mark W Rosengrant and Howarth E Bouis, Indian Agricultural Research Institute, New Delhi, and International Food Policy Research Institute, Washington.}
  \item \footnote{125}{TIFAC, Food and Agriculture: Technology Vision 2020.}
  \item \footnote{126}{Mid-term Appraisal of 10th Five Year Plan (2002-07), Planning Commission, Government of India, June 2005, pp.185.}
\end{itemize}
changing social practices and more recently plateauing of yields in irrigated areas of frontier states like Punjab and Haryana, only a breakthrough in productivity in agriculture sector will help achieve the projected targets. The optimum allocation of land and other resources for various crops will itself pose a challenge. Can we consume less milk or oil or eat less vegetable?127

The Planning Commission in its latest document accepts this scenario. It states that the “yield growth decelerated throughout the 1990s to only about 1 per cent per annum from 3 per cent during the 1980s, indicating a potentially serious exhaustion of technological progress. The huge stocks that emerged at end of the 1990s have so far masked this. But since large exports at below domestic prices and subsequent poor monsoons have now reduced stocks to almost normal, a significant production effort is necessary to meet requirement. For this, it will be essential to tap potential of the Eastern region.”128

3.4.2 Food Distribution Cost

The question of food distribution has been a serious issue. Though there are very significant levels of public sector food stocks (32.8 million tonnes in April 1, 2003) providing invaluable insurance against the

128 Mid-term Appraisal of 10th Five Year Plan (2002-07), Planning Commission, Government of India, June 2005, p.188.
uncertainty of weather and possible external shocks, the need to review the cost-effectiveness of the present arrangements for procurement and distribution has been of urgent nature. The PDS has of late come under severe flak on the grounds that

i) a large number of poor people still find the PDS inaccessible,

ii) the benefits it has been able to generate have not been commensurate to the costs of buffer stock management,

iii) despite malnutrition and poverty-led demand the off-take of food grains through PDS have declined, and

iv) price differentials between the PDS and the open market have narrowed down significantly.

PDS has been subject to strong criticism. For example, it has been said that it “seems to suffer from an urban bias in some of the states in which its network has spread” and that PDS “is not functioning at all in the states with high concentration of the poor, due to a lack of the desired initiative on the part of the State government.”129 “PDS seems to have failed in serving the second objective of making foodgrains available to the poor. If it had, the consumption levels of cereals should not have fallen on average as it consistently over the last two decades.”130

Firstly, the notion of buffer stocks that are maintained at a level much higher than the decided norms, have been widely questioned. This has led to wastage, higher storage costs and much higher expenditure on interest on credit availed for food procurement and storage. “In order to reduce stocks, the BPL prices were cut further and quotas increased sharply in 2001-02. But such cheap supplies depressed farm prices of cereals wherever MSP was ineffective ... the failure during 1997-2003 of the till then quite effective food security system is a matter of grave concern. Not only were the huge costs incurred (exceeding plan outlays on agriculture, irrigation and rural development put together) without delivering food security, but its perverse operation also distorted producer incentives and added to the already increasing uncertainties.”131

The gap between the economic cost incurred by the FCI towards procurement, storage, distribution and wastage of foodgrains and its


131 Ibid., pp.193-195.
average realisation based on the issue prices under PDS has been widening over the years. Moreover, the states charge high statutory levies like *mandi* charges, cesses and fees to commission agents which all go to FCI's costs of procurement. This gap is filled by the Central Government through consumer subsidies. The carrying cost of the buffer stock alone constitutes about 25 per cent of the food subsidies. Acquisition costs for both rice and wheat have been as high as 85 per cent of the total economic cost. This indicates that actually the distribution cost has been hardly 15 per cent. In the past, the Government used to make adjustments in the PDS issue price of rice and wheat consequent to an increase in the Minimum Support Price (MSP) with a much shorter time lag. However, issue prices had not been adjusted by the government in line with the increasing MSP. On the contrary, issue prices for BPL families were actually reduced from June 1997.132 There are questions about the very basis of fixations of the MSP, which has been increasingly diverted away from the cost of production (Table 3.15).

### Table 3.15 FCI's Economic Cost of Rice and Wheat

<table>
<thead>
<tr>
<th>FCI's Economic Cost (Rs per quintal)</th>
<th>1999-00</th>
<th>2001-02</th>
<th>2003-04</th>
<th>2004-05</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rice</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Acquisition Cost</td>
<td>887.30</td>
<td>1052.66</td>
<td>1045.58</td>
<td>1069.60</td>
</tr>
<tr>
<td>(i) Pooled Cost of Grain</td>
<td>831.24</td>
<td>961.16</td>
<td>970.68</td>
<td>993.23</td>
</tr>
<tr>
<td>(ii) Processed Incidentals</td>
<td>56.06</td>
<td>91.50</td>
<td>74.90</td>
<td>76.37</td>
</tr>
<tr>
<td>B. Distribution Cost</td>
<td>187.50</td>
<td>151.61</td>
<td>207.46</td>
<td>192.91</td>
</tr>
<tr>
<td>Economic Cost (A+B)</td>
<td>1074.80</td>
<td>1204.27</td>
<td>1253.04</td>
<td>1262.51</td>
</tr>
<tr>
<td><strong>Wheat</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Acquisition Cost</td>
<td>685.51</td>
<td>739.13</td>
<td>778.04</td>
<td>784.54</td>
</tr>
<tr>
<td>(i) Pooled Cost of Grain</td>
<td>518.08</td>
<td>571.93</td>
<td>621.74</td>
<td>627.78</td>
</tr>
<tr>
<td>(ii) Procurement Incidentals</td>
<td>117.06</td>
<td>167.20</td>
<td>156.30</td>
<td>156.76</td>
</tr>
<tr>
<td>(iii) Carry Over Charges to State Govts.</td>
<td>50.37</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Distribution Cost</td>
<td>202.00</td>
<td>132.17</td>
<td>174.47</td>
<td>140.28</td>
</tr>
<tr>
<td>Economic Cost (A+B)</td>
<td>887.51</td>
<td>871.30</td>
<td>952.51</td>
<td>924.82</td>
</tr>
</tbody>
</table>


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In order to reduce the high cost of procurement and distribution, there have been some efforts made to decentralise the same at the state level since 1997. Under the decentralisation scheme, instead of the FCI procuring grains, states carry out procurement operations locally. They are paid the difference between the economic cost and the central issue price as a subsidy. In the last ten years only 11 states/union territories have undertaken this with a total decentralised procurement of 10.9 million tonnes of rice in 2005-06. However, the factors that have prevented decentralisation clearly show that the distribution network is yet to have any wide scale impact. States have mainly resisted it on grounds of

i) inadequate infrastructure and poor financial resources;

ii) no additional storage capacity; and

iii) no proper network of roads and market places.

Mandated with the task of suggesting ways to make the food subsidy more transparent and targeted, the Expenditure Reform Commission recommended a lowering by between 4 and 8 per cent of the economic cost of cereals sold through the PDS. Accordingly, the PDS issue prices have been reduced since the policy now is to link issue to the economic cost. However, cuts in PDS prices are insignificant compared to the hike in issue prices.

Several studies indicate that PDS serve both the poor and non-poor. There are leakage to the tune of at least 33 per cent in case of foodgrains and 50 per cent in case of sugar. It has been found that though in the Kalahandi-Bolangir-Koraput (KBK) region of Orissa most people had ration cards, the delivery system was inadequate and unpredictable. Another study found that the average BPL family received only 40 kg of rice over the preceding 12 month in two villages, instead of the allotted 120 kg. Food for work programme has also suffered from both managerial inefficiencies and poor accountability. There are issues of corruption. In case of SGRY there are findings that indicate that funds have remained under-utilised, works are often

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133 The subsidy equals the difference between the PDS price and procurement cost.
mechanised, and the muster rolls are routinely fudged. As a result, actual employment generation is negligible.137

However, the NREGA which has been recently extended from 330 districts to the entire country is emerging to be a fairly effective programme both because of transparency safeguards and mandatory social auditing.138 The job card which is valid for five years is the basic legal document that enables the registered household to demand guaranteed employment. Rajasthan generated 77 person days of employment per rural households during 2006-07 as against the lowest of 3 person days of Kerala. The mandatory provision of at least one-third share for women in employment has also been fulfilled in most of the states (like 81 per cent in Tamil Nadu and 66 per cent in Kerala) with exceptions like 4 per cent in J&K, 12 per cent in Himachal Pradesh and 18 per cent in West Bengal. However, the wages per person per day varied from Rs.104 in Maharashtra to Rs.51 in Rajasthan. This implies that some states have wilfully violated the statutory minimum wage.139 Till January 2007, 3.47 crore job cards were issued and 1.47 crore households were provided employment.140

The survey in Surguja and Koriya districts of Chattishgarh showed that most families have job cards, contractors have disappeared, minimum wages are being paid, corruption levels have gone down and employment is being generated on a massive scale.141 At the same time there are reports that go to show that the usual irregularities have already started creeping into the programmes. For instance, a recent survey in the villages of Katni district in Madhya Pradesh showed there were several incidence of under payments, job cards without photos, denial of jobs, manipulation of job done and starting of work without any applicants.142 Even in a state like Maharashtra, which in fact initiated a similar programme Maharashtra Employment Guarantee Scheme (MEGS) way back in 1976 the NREGA has not really picked up. A recent study in Nandurbar and Chandrapur districts mentioned that “political as well as bureaucratic will is absent in the

138 Safeguards include guaranteed employment within 15 days of submitting the application.
141 The Hindu, New Delhi, 25 August 2007.
new scheme.... The poor had become weary of the scheme because of lack of regularity and assurance of wages and where erring officials were not punished and nor was unemployment allowance to any labourer who was not provided with work. Seasonal migration has been on the rise as a result of this situation. Unless civil society including the large NGOs do not participate in these programmes more effectively these malfunctioning in various aspects of this otherwise a well conceived project could further consolidate.

3.4.3 The Off-take Issue

It is not that allocations have fallen short of the demand by the states. There has been a huge gap in the allocation and off-take in the PDS. This indicates that states either would not have been able to utilise their allocated PDS food supplies due to less demand or because of other infrastructural, financial and operational constraints. In both cases, the actual reach among food insecure people could not be ensured both because they are voiceless and geographically far off (Table 3.16). The lower off-take could also be attributed to the narrowing of the gap between market prices and issue prices under PDS and the availability of wider choices and varieties in the open market. Even when off-take has hardly showed any increase, actual stocks continued to rise.

### Table 3.16 Allocation and Off-take of Foodgrains under Public Distribution System (million tonnes)

<table>
<thead>
<tr>
<th>Year</th>
<th>Rice Allocation</th>
<th>Rice Offtake</th>
<th>Wheat Allocation</th>
<th>Wheat Offtake</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995-96</td>
<td>14.62</td>
<td>9.75</td>
<td>11.31</td>
<td>5.81</td>
</tr>
<tr>
<td>1998-99</td>
<td>12.93</td>
<td>10.74</td>
<td>10.11</td>
<td>7.95</td>
</tr>
<tr>
<td>2001-02*</td>
<td>17.23</td>
<td>8.16</td>
<td>13.14</td>
<td>5.68</td>
</tr>
<tr>
<td>2003-04*</td>
<td>34.46</td>
<td>12.08</td>
<td>37.11</td>
<td>10.71</td>
</tr>
</tbody>
</table>

Note: *Including Antyodaya scheme.


---


In the last few years the welfare-oriented off-take has steadily increased from 6.9 per cent in 1998-99 to 37 per cent in 2002-2003 (Table 3.17). This could be mainly attributed to the pressure on the government to use the massive buffer stock for the benefit of poor people. This was effected with the distribution of PDS to the BPL category either free of cost or at a much subsidised rate. This is further reflected in total offtake of 42.20 million tonnes in 2005-06 in which TPDS including BPL (37.06 per cent), APL (19.67 per cent), AAY (17.63) and welfare schemes (23.09 per cent) constituted over 97 per cent.\footnote{Economic Survey, 2006-2007, Ministry of Finance, Government of India, New Delhi, p.103.}

<table>
<thead>
<tr>
<th>Year</th>
<th>PDS (a)</th>
<th>Welfare Schemes (b)</th>
<th>Total Offtake (c)</th>
<th>(c) as % of (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997-98</td>
<td>17.0</td>
<td>1.9</td>
<td>18.9</td>
<td>10.05</td>
</tr>
<tr>
<td>1998-99</td>
<td>18.7</td>
<td>1.4</td>
<td>20.1</td>
<td>6.9</td>
</tr>
<tr>
<td>1999-00</td>
<td>17.1</td>
<td>1.4</td>
<td>18.5</td>
<td>7.56</td>
</tr>
<tr>
<td>2000-01</td>
<td>12.0</td>
<td>3.2</td>
<td>15.2</td>
<td>21.05</td>
</tr>
<tr>
<td>2001-02</td>
<td>13.8</td>
<td>7.2</td>
<td>21.0</td>
<td>34.28</td>
</tr>
<tr>
<td>2002-03</td>
<td>19.1</td>
<td>11.3</td>
<td>30.4</td>
<td>37.17</td>
</tr>
</tbody>
</table>


What happens if the buffer stock dwindles? Will the government be able to supply the same quantity of foodgrains to the poor at the same issue price? If issue prices are increased against a background of dwindling buffer stock how many of these people will suddenly be denied access to food and how would that threaten their food security? The moot question is that of physical and fiscal sustainability of such efforts as food security is not a one-time problem. There are communities and regions which have remained food insecure for generations.

3.4.4 The Subsidy Question
The structural adjustment programme undertaken by India and the liberalisation of agricultural trade under the new WTO arrangement have put two way pressures on the subsidies that have gone into the agricultural sector. Though the agriculture sector has not been
subjected to any significant reforms and liberalisation so far, the likely areas of intervention that have emerged are subsidies and pricing. In both these cases the question of food security is intensely relevant.

Contrary to popular belief, after the reforms process was initiated there has been a sharp increase in food subsidies extended by the government. They increased steadily from Rs.2450 crore billion in 1990-91 to Rs.23800 crore in 2005-06. This means that as a percentage of GDP it increased from 0.43 per cent to over 0.66 per cent (Table 3.18). Agriculture subsidies also went up steadily from Rs.14069 crore in 1993-94 to Rs.34784 crore in 2000-01 (Table 3.19).

Table 3.18 Food Subsidies

<table>
<thead>
<tr>
<th>Year</th>
<th>Food subsidies (Rs Crore)</th>
<th>As % of GDP at factor cost (at 1993-94 Prices)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990-91</td>
<td>2450</td>
<td>0.43</td>
</tr>
<tr>
<td>1994-95</td>
<td>5100</td>
<td>0.50</td>
</tr>
<tr>
<td>1998-99</td>
<td>9100</td>
<td>0.52</td>
</tr>
<tr>
<td>2000-01</td>
<td>12060</td>
<td>0.58</td>
</tr>
<tr>
<td>2003-04</td>
<td>25800</td>
<td>0.83</td>
</tr>
<tr>
<td>2005-06</td>
<td>23200</td>
<td>0.66</td>
</tr>
</tbody>
</table>


Table 3.19 Agriculture Subsidies in India during 1993-94 to 2000-01 (Rs. crore)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fertilizer</th>
<th>Electricity</th>
<th>Irrigation*</th>
<th>Others</th>
<th>Total</th>
<th>As % of GDP at factor cost (at 1993-94 prices)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993-94</td>
<td>4562</td>
<td>2400</td>
<td>5872</td>
<td>1235</td>
<td>14069</td>
<td>1.80</td>
</tr>
<tr>
<td>1995-96</td>
<td>6735</td>
<td>1977</td>
<td>7931</td>
<td>1034</td>
<td>17677</td>
<td>1.96</td>
</tr>
<tr>
<td>1997-98</td>
<td>9918</td>
<td>4937</td>
<td>10318</td>
<td>983</td>
<td>26156</td>
<td>2.57</td>
</tr>
<tr>
<td>1999-00</td>
<td>13244</td>
<td>4276</td>
<td>11487</td>
<td>1937</td>
<td>30944</td>
<td>2.69</td>
</tr>
<tr>
<td>2000-01</td>
<td>13800</td>
<td>6449</td>
<td>13681</td>
<td>854</td>
<td>34784</td>
<td>2.90</td>
</tr>
</tbody>
</table>

Note: *Includes imputed subsidies of irrigation.

Though there are substantive reasons for increasing the same, the Government has been seemingly trying to ensure that the reform
measures are not blunted by possible disenchantments among the masses. In other words, although the conditionalities for reforms demand a sharp cut in food subsidies, because of political compulsions the government has not really acted on them. How sustainable is this? The Government is fully aware of this problem as it clearly states that “the fiscal unsustainability of providing food security through buffer stock operation is becoming increasingly evident.” A major reason for this increase has been the steady increase in the minimum support price from Rs.330 per quintal in 1992-93 to Rs.750 per quintal for wheat in 2006-07 and from Rs.270 to Rs.550 for paddy. This, along with the open-ended procurement policy of the Government, has really enhanced the government’s drive for procuring stock for public distribution. This increase took place even during the recent deceleration in the growth of food grain output.

Since 2000 carrying cost of unsold stocks have increased tremendously as there has been an excessive build up of public stock much above the buffer stock norm at least till 2004 (Table 3.20). This trend has been diametrically opposite to that of the period 1981-90 when actual stocks were lower than the desirable level by about 23 per cent on an average. The carrying cost of the buffer stock alone constitutes about 25 per cent of food subsidies. On top of this procurement incidentals, distribution and administrative cost constitute another significant portion of food subsidies. The amount of subsidies reaching the poor in terms of affordable prices is only a small segment of total food subsidies. Therefore, the entire food security framework based on high administrative and operational cost may not be tenable in the long run. This requires a total rethinking and redesigning in the very concept and instruments of ensuring food security.

There are three significant aspects of the situation which are directly related to the food security dynamics. Firstly, when stocks have remained far short of the required buffer stocks norms, particularly during 1981-89, how much did the country save in operational cost and what was the food security situation? In other words, what is the extent of fixed cost involved in such operations? Secondly, can the country afford to sustain these subsidies and for how long can it do so? And thirdly, even if the financial sustenance of these subsidies are addressed and ensured these may come under severe flak from the international community under ongoing WTO negotiations.

Table 3.20 Central Foodgrains Stocks and Minimum Buffer Stocks Norms (million tonnes)

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheat</th>
<th></th>
<th>Rice</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min. Norm</td>
<td>Actual Stock</td>
<td>Min. Norm</td>
<td>Actual Stock</td>
<td>Min. Norm</td>
</tr>
<tr>
<td>January 2001</td>
<td>8.4</td>
<td>25.0</td>
<td>8.4</td>
<td>20.7</td>
<td>16.8</td>
</tr>
<tr>
<td>January 2002</td>
<td>8.4</td>
<td>32.4</td>
<td>8.4</td>
<td>25.6</td>
<td>16.8</td>
</tr>
<tr>
<td>January 2003</td>
<td>8.4</td>
<td>28.8</td>
<td>8.4</td>
<td>19.4</td>
<td>16.8</td>
</tr>
<tr>
<td>January 2004</td>
<td>8.4</td>
<td>12.7</td>
<td>8.4</td>
<td>11.7</td>
<td>16.8</td>
</tr>
<tr>
<td>January 2005</td>
<td>8.4</td>
<td>8.9</td>
<td>8.9</td>
<td>12.8</td>
<td>16.8</td>
</tr>
<tr>
<td>January 2006</td>
<td>8.2</td>
<td>6.2</td>
<td>11.8</td>
<td>12.6</td>
<td>20.0</td>
</tr>
</tbody>
</table>


In fact, Indian exports may increasingly prove to be uncompetitive. "The policy of providing price support by raising the MSP continuously has distorted domestic prices and eroded export competitiveness. India is now an exporter of grains and an exporting country cannot have its domestic grain prices greatly in sync with free-on-board export prices." 148 There are strong suggestions about involving private traders through decanalising imports. The futures market idea is increasingly being discussed and pushed through. The Government has taken steps in this regard which include removal of prohibition on futures trading in all commodities by issues of notifications and setting up of the National Level Commodity Exchanges. 149 The ultimate idea is to use trade as an option for giving food security cover. Unlike the FCI, private traders could buy foodgrains from farmers when international price are low and sell when the price tend to go up.

The proponents of subsidies continue to argue that any drastic cut in agriculture subsidies will directly and adversely affect prices of all inputs, thereby leading to deepening of the pauperisation of small and marginal farmers. They also argue that agricultural liberalisation both at the domestic and international market level would surely adversely affect the urban and rural poor and lead to skewed distribution of gains in favour of large and medium farmers.

149 The major agricultural commodities traded at these exchanges were oil, guar seed, chana, jute, rubber, pepper, turmeric, wheat and cotton. Economic Survey, 2004-05, Ministry of Finance, Government of India, pp.187-188.
On the other hand, advocates of pricing the agricultural products more realistically are of the view that the price support system can give farmers a fair deal through its effects on their incomes and stability of prices in the market place. This will benefit small producers as much as large farmers. They argue that instead of relying on expansion of subsidised supplies of the inputs, it would be much better to progressively reduce the protectionist bias against agriculture by lowering barriers that favour industry and altering relative prices in favour of agriculture. Such interventions will further improve the terms of trade in favour of agriculture. The idea is to let prices provide the appropriate signals to the farmers and to let farmers have the flexibility to respond through a liberalised agricultural system.

These pragmatists, believe that this will remove discrimination against the small farmers and also minimise waste of scarce resources emanating from subsidies. In fact, the falling trend of public investment in agriculture is more often attributed to disproportionately high subsidies. The cut in subsidies can release a huge part of the fund for public investment in agriculture, irrigation and power.

Under the new economic policies the government will reduce restrictions on domestic agricultural marketing including through amended Agriculture Produce Marketing Committee (Regulation) Act (APMC) and on agricultural exports, thereby enabling farmers to have unfettered access to foreign markets for purchasing their inputs and for selling their output. On the other hand, the withdrawal of agricultural subsidies by developed countries is expected to further increase the export potential of temperate crops like cereals, sugar and livestock output. It gives a lot of scope for India to enhance its agricultural exports. At the same time, the apprehension that a completely free trade in food grains may be highly disastrous to the question of food security has also gathered momentum.

3.4.5 Food Subsidies: Grass Root Dimensions

If not properly targeted, food subsidies at the grass root level could have rather deleterious impact. For a couple of decades until the targeted PDS (TPDS) was initiated in 1997, subsidies were extended by the Centre and the States to all regardless of income, land holding and other asset holding position and geographical location. It led to massive misuse of procured foodgrains under the PDS, deterioration in quality,
human security and also worked as disincentive to produce food. Per unit entitlement of foodgrains was also fixed irrespective of income, social status and locations. These are more often driven by electoral compulsions and competitive populism. Any hike in the prices of PDS food by the Centre was also absorbed by the States, thereby further increasing the subsidies. However, most of them have been discontinued because of their financial unsustainability.

Distribution of food at Rs.2 per kg has figured in many election manifestoes. Leaders like NT Ram Rao of Telegu Desam Party in Andhra Pradesh became widely known for such populism. Even in a small State like Sikkim the extent of subsidy given was Rs.3.60 per kg in the late 1990s. The actual cost of procured foodgrains was Rs.9.60 per kg, including carrying charges, whereas a consumer was charged only Rs.6 per kg. This policy had three serious impacts. Firstly, the state was subjected to very heavy financial losses. Secondly, a huge quantity of foodgrains was diverted to other places including neighbouring countries. And thirdly, farmers evinced waning interest in the farming of foodgrains. Suddenly, able-bodied farmers found earning daily wages of Rs.60-80 from various other activities including road constructions much more profitable and viable than farming. They could purchase as many quantity of rice at the rate of Rs.6 out of their daily wages whereas if they grew rice the cost per kg itself would vary from Rs.15-20. The production of rice also squarely depended upon the vagaries of weather. So why go a long way filled with risk and uncertainty?

The social, political and long-run economic implications of making the farming community dependent on subsidised food items has been "debilitating." This dependency on imported/procured foodgrains if prolonged can eat into the very basic food security of the State. Unfortunately, the fundamental question of whether these subsidised foodgrains actually reached the target group always has to be asked. The apprehension of losing vote bank prevented the politicians from withdrawing these rampant subsidies despite the realisation that it was harming everyone. Both Sikkim Human Development Report 2001 and Sikkim: The People’s Vision 2001 pointed out this untenable situation. As a result, the state government at one go lifted such subsidies and made them more targeted. Interestingly contrary to the expectation the same political party continues to remain in power.150

150 Ashok Lahiri et al., Sikkim: The People’s Vision, Indus, New Delhi, 2001; Also see Mahendra P Lama, 2001.
3.4.6 Reduction in Waste

A major issue is that of increasing quantity of post-harvest losses due to lack of adequate processing facilities, infrastructure for storage and poor transportation network. Loss and wastage is estimated to be as high as 30 per cent of total agricultural production. The non-availability of appropriate technologies is a major constraint in cutting down these losses. Saving in these losses itself could increase available food supplies and improve the income of small farmers, thereby enhancing food security. Considering the colossal loss incurred, the Government of India launched a “Save Grain Campaign” as a pilot project.

3.4.7 Production Anomalies and Consumption Complexity: An Example

There are apprehensions that the food production as reflected in both State and national level data has been overestimated. The complexity of consumption habits, a key to effectively address food security questions, itself has not been really addressed in popular discourse in the diverse and socio-culturally complex landscape of India. For instance in the north eastern state of Sikkim, despite its own food production, the State has been importing a massive quantity of foodgrains under the PDS. In fact, there are instances that whenever there is a very temporary halt in the import of PDS foodgrains usually because of landslides in its National Highway, there are a loud public outcry as the price of foodgrains go up substantially. Though this can be partially explained by the mismanagement of the supply-demand structure of foodgrains the high dependence of Sikkim on PDS is obvious. The domestic production is overestimated is explained by the fact that food grains import under the PDS is unusually high, given the level of existing food production in the State. Moreover, there is also a significant level of import/sale of food grains by private merchants in the open market. If one puts together all three sources, the per capita availability/consumption in the State will look as follows:

- 1,00,000 tons domestic production per annum
- 55000 tons import under PDS per annum
- 14000 tons per annum privately brought by the merchant

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151 It includes losses caused by insects, rats, birds, moisture, faulty transportation Planning Commission, Eighth Five Year Plan, New Delhi.

152 Lok Sabha Secretariat, Ninth Report-Standing Committee on Food, Civil Supplies and Public Distribution, New Delhi, April 1999.

153 Mahendra P Lama, 2001, op.cit.
sold in the State = 169000 tons per annum x 1016.04kg (1 ton) = 171710760 kg total availability per annum / 450000 population = 381.5 kg per annum per person / 365 days = 1.045 kg or 1045 gms per day per person.

This is considered to be very high by the national standard where the net availability has hovered between 460-500 gms per day per person. This also means there is over-estimation in production. Such overestimation can be attributed to a number of factors. For instance, the yield is derived from crop-cutting experiments and on the basis of per hectare production regardless of topographical variations. This amounts to a full hectare in case of the plain lands whereas in the hills, even if it is a hectare, the effective area of cultivation in a particular locality could be much less because of terraces, terrains, trees, boulders and other environmental considerations. In the hills agriculture is carried out in small terraced fields. The cadastral survey used to measure production does not measure each terrace but the whole hillside thereby inflating the actual cultivable area. A more realistic assessment of food production may lead to downward revision of the current level of food production and also State's GDP. This could seriously affect State's growth rate performance and per capita income which could be politically sensitive.

3.4.8 Public Investment and Protection

The fall in public investment in agriculture has been a major concern from the perspective of the sustainability of agricultural production in the country. Public investments for capital formation in agriculture at constant price (1980-81) decreased from 15.3 per cent in 1980-81 to only 4.9 per cent of gross domestic capital formation in 1996-97. At the revised 1999-2000 base price, this decline in the share of agriculture sector's capital formation in GDP has been very steady from 2.2 per cent in 1990-91 to 1.9 per cent in 2005-06.\textsuperscript{154} However, the share of public investment in the agricultural gross investment (at 1999-2000 price) has increased from 17.7 per cent in 1999-2000 to 24.2 per cent in 2005-06. The deceleration in agriculture growth started in 1995-96. The main reason is that the budgetary provision for agriculture has come down significantly, it's only about 2 per cent as against 23 per cent of communication.\textsuperscript{155} The relative share of expenditure under irrigation


\textsuperscript{155} Sharad Pawar, India's Agriculture Minister in an interview to \textit{India Today}, 11 June 2007.
and flood control in the total plan outlay of the government (Centre, States and Union Territories) dropped sharply to 6.3 per cent in the 1990s from 8.8 per cent in the 1980s.\textsuperscript{156} The slowdown in the coverage of irrigation is mainly attributed to this cause.

The undue protection extended to the industrial sector has over the years become a major constraint in the path of agricultural growth. The most notable architect of reforms in India stated that "the policy of excessive protection for industry hurt Indian agriculture in several ways. It raised the price of industrial products relative to agricultural products, which hurt the rural sector of our economy as consumers of industrial production. It also greatly increased the profitability of industrial production compared to agricultural production, which led to a progressive shift in investible resources away from agriculture. We have to recognise that high protection for industry constituted a heavy implicit taxation of agriculture, leading both to reduced resource generation in agriculture and the increasing diversion of the available surplus for industrial development."\textsuperscript{157}

Relative discrimination of agriculture through trade policies has also been, commonly observed.\textsuperscript{158} A study\textsuperscript{159} revealed that during 1970-90, Indian industries were protected on an average by about 40 per cent as against disprotection of agriculture by about 20 per cent, giving a relative advantage of about 75 per cent to industry. This demonstrates a strong anti-agriculture bias in Indian trade policies. Indian agriculture otherwise would have experienced much higher rates of growth than the figure of 2.6 per cent recorded during the pre- (1950-64) and post-Green Revolution period (1967-90).

More and more industrial ventures are emerging with a new brand of stakeholders who have tremendous influence on government policies. If such relative discrimination is not consciously and permanently removed, the very fabric of the rural setting could be disturbed and dislocated. This will have domino effect on the poverty situation and then directly affect the canons of food security. The challenge is to make


\textsuperscript{158} In a study covering 18 developing countries (excludes India) it was observed that countries with total 'taxation' of 46.2 per cent had an annual growth rate of agriculture at 2.7 per cent, while countries with 'taxation' of 8.3 per cent had agricultural growth rate of 5.2 per cent per annum over the period 1960-84, Schiff Valdes.

agriculture at least equally attractive by injecting both public and private investment in critical areas of its growth.

3.4.9 Reforms, Trade Liberalisation and Agriculture

The economic reforms undertaken in the last 18 years have two crucial dimensions that are of direct relevance to the issue of food security. Firstly, how much of liberalisation in the functioning of the agriculture sector will be entertained? What are its likely impact on land management, question of commercial production and mechanisation and rural employment? And secondly, what would be the impact of agricultural trade liberalisation on the issues of farming practices, cropping pattern, rural employment and livelihood? The likely impact of such a liberalised trade regime on food security is central to the sequencing of transmission of higher growth to poverty alleviation as advocated in reforms and structural adjustment programmes. Another aspect of reforms like contract farming is being increasingly emphasised upon. These are new opportunities of engaging farmers more effectively and gainfully. If not regulated, there are however, concerns on increasing dependency of farmers on companies and oligopolies.

Lifting of restriction on the import of food produce and allied products under WTO and fixing of import tariff at the minimum level possible will adversely affect farmers in India. Many argue that liberalisation of agricultural exports would shift crop patterns towards high value crops and result in diversion of foodgrains to livestock feed thereby adversely impacting upon food security of vulnerable sections. When the Kentucky Fried Chicken (KFC) outlet in Bangalore was attacked and set on fire in the late 1990s by a farmers group led by dedicated farmer activist Nanjundaswamy of the Karnataka Rajya Ryota Sangha (KRRS), the issue at stake was primarily that of livelihood and food security. KRRS, a farmers’ group, has been vociferously opposing the corporatisation of agriculture and the entry of multinational corporations into India. At its height, in the mid-1990s, the KRRS had up to 10 million members—one in four of the southern Indian state’s farmers. KRRS members stormed and ransacked the offices of the giant seed company Cargill’s, wrecked a KFC outlet, burnt Monsanto’s genetically modified crops and took on Pepsi, McDonald’s and Coca-

160 Utsa Patnaik, “Export-Oriented Agriculture and Food Security in Developing Countries and India,” Economic and Political Weekly, Vol. 31 (35-37), Special Number, September, 1996.
Cola.\textsuperscript{161} Besides the cultural degeneration and alienation associated with food chains like that of KFC, a major argument against them was related to food and feed only. The chickens in the KFC would compete for their feed with the poor farmers' food of Jowar and Bajra. The KFCs could easily outsmart poor farmers in this feed-food run up as they have better wherewithal of the market.

Opponents of further liberalisation of agricultural exports also argue such liberalisation both at domestic and international market level could adversely affect the urban and rural poor and would lead to skewed distribution of gains in favour of large and medium farmers. This will be doubly difficult for agricultural labourers whose cost of living indices increased from 47.1 per cent to 71.6 per cent as compared to 53.5 per cent to 62.2 per cent for industrial workers during the period 1985/86-1990/91 and 1990/91-1995/96.\textsuperscript{162} Such orientation could divert critical factors of production, including land and water, from production for local consumption. In recent years, farmers have increasingly resorted to high-value crops requiring more capital and other inputs. The distress it has brought in case of crop failures has been enormous and has led to a string of suicides by farmers. Further, export earnings from these new ranges of exports could be used for other “demonstration-effect” led consumptive behaviour. This may in the long run expose farmer to more food insecurity.

Agriculture exports continue to remain highly vulnerable to both historically recorded secular decline and instability in the prices of primary commodities. Jute in the 1980s and 1990s and tea in the 1990s and in recent years have been directly affected by such market trends and behaviour that have dislocated a large number of farmers and plantations workers. Further, if such import openings are not responded to or preceded by a correspondingly drastic phase out/reduction in subsidies in the agricultural, dairy and poultry sections in developed countries, farmers in India will be knocked out from whatever comparative edge they have today. Food security experts are more concerned about the imports of both raw and processed imports. A noted Indian scientist remarked:

Imports of raw foodgrains, pulses, fish and milk will badly hit farmers, fishermen. The cost of producing food in India, despite low labour costs, is


rising steadily. In the West, automation is pushing costs down. We produce 75,000 million tonnes of milk—it forms the livelihood for 80 million women owning just one buffalo and two cows. For the same output, the West deploys 100,000 people. Our fishermen don’t own cold storage chains, they have to sell their catch the same day. Processed food imports will ruin micro enterprises.... India should learn to deploy the West’s vocabulary more creatively. Under the WTO, any nation can now impose non-tariff barriers on two grounds—environmental security and livelihood security. We must link food security to livelihood security. 163

On the other hand, advocates of liberalisation of agriculture trade who have wide influence on governmental policies, argue that import liberalisation of foodgrains could make recourse to imports by diverse agencies much easier and competitive more so during food shortages in the country. The practice of canalising of food imports through public sector agencies have only resulted in poor time management in demand—import matching, thereby subjecting consumers to price rise and scarcities. The withdrawal of agricultural subsidies by the developed countries is expected to further increase the export potential of temperate crops like cereals, sugar and livestock output. This will enhance both agricultural production and exports. The farmers will have unfettered access to foreign markets for purchasing their inputs and for selling their output. However, despite several rounds of negotiations, developed countries have shown no inclinations to reduce subsidies. In fact, they have become more protectionists with a host of non-tariff measures including anti-dumping restrictions been added by them. The much-hyped “Green Box” including support measures has had the least impact on both production and flow of trade.

3.5 MICRO-LEVEL EXPERIENCES164

Reservations have been expressed about the real impact and reach of the Green Revolution in various geographical locations in the country. For many regions, areas, societies and communities, their tryst with Green Revolution has been mainly through the limited public distribution system. Over the years several grass root actions have been undertaken to ensure alternate routes and sustainable means of food security. This is because:

163 MS Swaminathan, in Outlook, New Delhi, February 21, 2000.
i) non-traditional agriculture practices injected by Green Revolution did not fit into the many socio-cultural and geographical settings of India. This has been made more difficult by new varieties of HYV seeds that "were water thirsty, chemical intensive and energy guzzling." These critical inputs and "unsustainable technology" were simply not accessible to farmers in many parts of rural India or could not be afforded by them; and

ii) the long term impact of such high doses of chemical fertilisers, pesticides and intensive use of ground water can impact on farming efficiency and land productivity very adversely.

Therefore, these new practitioners of "safe farming" have mostly made use of traditional knowledge, local resources, village labour force and community leadership. They have used awareness, advocacy and action to master a variety of strategies, tools and techniques to influence policy changes. There are several examples as to how these communities have converted the most harrowing experience into an opportunity that have sustained them through many years. There are also examples of committed civil servants doing commendable work in very specific areas and situations. The Baran district in Rajasthan is one of them. In the Bundi district of Rajasthan, it is primarily under the supervision of the officials of the Common Area Development Department (CADD) along with strong community participation that has led to success in distribution of water through major and minor irrigation facilities.165

3.5.1 Ralegaon Sidhi, Maharashtra
How a drought affected village of Ralegaon in Ahmednagar in Maharashtra was gradually converted into a food secure zone is an interesting story. The village experienced its worst droughts in 1972. Two agencies, the Tata Relief Committee (TRC) and Catholic Relief Services, joined relief work and constructed a community well, check­dams and a percolation tank with the support of Food for Work Programme and the State government. Anna Hazare, a local, mobilised volunteers under Tarun Mandal for *shramdan* to undertake "social

fencing” for protection of trees. They banned open grazing of cattle and moved to stall feeding. Rainwater harvesting was initiated through integrated watershed development. To ensure proper distribution of water for irrigation Pani Puravatha Mandals (water user cooperatives) were formed that targeted the poor.

Later, 700 acres of land were irrigated mainly through beneficiaries who provided the labour. These beneficiary families contributed 25 per cent of their increased incomes to community-based development programmes and also rehabilitated farmers who lost their land for construction of the dam and the canal. By 1988, 40 new wells were dug to reap the benefits of water harvesting. By 1991, the area irrigated by well water reached 700 acres. Agricultural production went up from 294.3 tonnes in 1975-76 to 1386.2 tonnes in 1985-86. A large number of trees were planted that today meet the fodder and fuel requirements of villagers.

3.5.2 Pani Panchayats of Village Mahur

Mahur, an undeveloped, rocky, barren village with 500 mm annual rainfall in Pune district of Maharashtra, was known for poor resource-production base and out-migration. Vilasrao Salunke, a local, injected the concept of Pani Panchayat by leasing 40 acres of land for systematic watershed management to cultivate crops. This successful intervention, later known as Pani Panchayats (water cooperatives), was soon replicated in many other areas. It attached water rights to households or individuals and not to land. It provided equal entitlement to water based on household size, including to landless labourers who could sell water or share crops. It promoted water conserving crops, though many farmers later shifted to high value crops. Households made capital contribution too. Later, a Pani Panchayat scheme was included in the Union Government’s 20-Point development programme also.

An evaluation of the impact of the Karnataka Watershed Development Project (KWDP), which is in operation in 106 villages since January 1991 was carried out. Case studies of Shisuvinthal watershed in Hulgur village, Hirehulyal watershed in Hanagal taluk,


167 It is a DANIDA funded project. N Nagaraja, “People’s participation in Karnataka Watershed Development Project,” in Jensen et al. (ed) Watershed Development, WDCU Publication, 1, 1996.
Inamhangal in Soundathi taluk and Madana Halli watershed in Haliyal taluk, have shown contrasting results. They indicate how the outcome of watershed development can vary under the same project in different locations, due to various socio-economic, technological and institutional factors. It was found that unless labourers have a sense of involvement in the project it could not make any headway. It also showed subsidy-based motivation may not be enough to sustain them. Even Panchayat Raj institutions may not necessarily ensure people’s participation unless there are conscious representations of varying strands of opinion in watershed development committees. Such projects can really benefit farmers only if they ensure proper sharing. In some cases farmers found adequate flexibility to switch over to cash crops including sugarcane from paddy. They also bought diesel pumps under joint ownership to irrigate crops.

Another study examined the impact of National Watershed Development Project for Rainfed Areas (NWDPRA) in Maharashtra in three different agro-climatic situations in Visakhapatnam and Kurnool districts. It clearly showed that selection of location-specific appropriate technology is a key determinant of success of any watershed project. It revealed that inadequate training of Mitra Kisans which are channels for transmission of knowledge and Gopalas, or voluntary agents and lack of commitment of concerned departments made the projects less effective.

An evaluation of the impact of NWDPRA in Naravagedda watershed in Visakhapatnam district and Emboy watershed in Kurnool district of Andhra Pradesh reveal that availability and selection of appropriate technology, strengthening the knowledge of Mitra Kishans, and economic coordination between various line departments such as agriculture, rural development and animal husbandry are essential for the success of watershed projects.

The impact of the Sahibi watershed project in Sikar, Alwar and Jaipur districts of Rajasthan was found to be much wider than the Ralegaon Sidhi in Maharashtra mainly because of the technological difference.
On the other hand, similar studies in the Silyarina watershed in Raipur and the Chanderinala watershed in Khargaon (Madhya Pradesh) found that lack of adequate emphasis on animal husbandry, agro-forestry and horticulture and absence of proper maintenance and repairs of structures as factors that made the project ineffective.\textsuperscript{171} The study done at Koraput and Malkangiri districts of Orissa suffered from lack of adequate awareness among beneficiaries, mainly poor landless families and small and marginal farmers. The ineffective participation of people, along with lack of attitudinal changes of the implementing authorities, played havoc on the project.\textsuperscript{172}

The replications are carried out widely now through organisations like the Social Centre, Ahmed Nagar in Maharashtra and Mysore Resettlement and Development Agency (MYRADA) in Karnataka. Mendhwan Project, based in a barren and degraded area of Maharashtra, is modelled on the Adgaon project, a successful watershed project in Aurangabad district. It also followed a typical watershed development approach in that it extended from the ridge to the valley. It overcame the water scarcity situation. Agricultural production almost doubled in the two years period. The off farm activities also took off as there was significant rise in milch animals.

The Gulbarga district project promoted voluntary savings by its members in a common fund of the association, out of which loans were granted to needy members.\textsuperscript{173} The Sukhomajri project\textsuperscript{174} (Haryana) launched in 1976 focussed on harvesting and recycling rain water. It was then a dirty-poor village. A number of dams were constructed for this purpose. A total area of 4085 ha was treated at a total cost of Rs.7.83 million. Hill Resource Management Society (HRMS) was formed in 1983, a village institution with the autonomy and power to make decisions.

This ensured equal distribution of irrigation water and forest produce among villagers, including the landless. Since participation was based on a stake on the benefits from the project, the impact on crop and milk yields was remarkable. Its profit went up from Rs.43,800

\textsuperscript{171} M.C. Athavale, Agro-Economic Research Centre, Jabalpur.

\textsuperscript{172} Trilochan Nayak, "In-situ soil and Moisture Conservation works in watersheds: Some reflections on Experience in CWDP in Koraput and Malkangiri District of Orissa in Watershed," in Jensen et al. (ed), Watershed Development, WDCU Publication, 1, 1996.

\textsuperscript{173} Launched by MYRADA along with Karnataka Government and Swiss Development Corporation in Gulbarga district of Karnataka.

in 1986 to Rs.1.7 lakh. “The yield of wheat and maize, the two staple crops rose by over 50 per cent between 1977 and 1986. Production of grass, crucial as fodder, rose from 40 kg per hectare (ha) in 1976 to 3 tonnes in 1992. In the forest, the number of trees rose from 13 per ha to 1292 per ha. With more fodder available ..., the number of buffaloes rose from 79 to 291 .... Sukhomajri is still wealthy—at Rs.15,000, villagers earned 2.5 times Haryana’s rural per capita income in 2005. Almost every family owns a car .... Close to 560 buffaloes and cows provide 3000-4000 litres of milk a day, sold at Rs.12 per litre.”

However, among other things, it is mainly because of the intervention by the Forest Department, this major people’s initiative has seen sharp erosion in its functioning in the last 7-8 years. “Villagers are no longer the custodians of the forests. They are just guards-without pay. It is no longer our forest. It is a sarkari (government) jungle.”

The exactly opposite trajectory adopted by the villagers of Bunga in Haryana (about 30 kms away from Sukhomajri) has become another major success story of food and environmental security. Ninety per cent of the population used to be nomadic graziers in this village which replicated the Sukhomajri model in 1983. It fought against all the bids to take over by the government including the Haryana Act to place revenue from commons under Panchayats. The HRMS-built dams in Bunga today serve 170 ha out of 250 ha cultivable land and it earns Rs. one lakh revenue per annum.

In all these success stories the common elements were effective participation of the local people through formation of self-help groups and pani Panchayats. The equitable sharing of cost and benefits has been crucial. The quality and commitment of local leadership played a key role. Expected private benefits from participation substantially exceeded expected costs. A formal system of sharing the project benefits among locals was ensured and was enforced by the people themselves.

3.5.3 Bio-Village in Pondicherry

The Bio-villages in Pondicherry aimed at generating eco-jobs and providing microcredit to boost village income. This project has been implemented in 19 villages in Pondicherry covering a population of

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177 Supriya Singh, “Rolling on,” Down to Earth, 15 November 2007, pp.41-44.
24,000 people. The “Bio-village” movement was launched by Swaminathan Research Foundation in 1994 and revolves around human-centred development. There have been plans to extend the scheme to around 3,75,000 people throughout the region by 2007. Eco-farming replaced chemicals and capital—the building blocks of modern farming—with knowledge and biological inputs like vermiculture (exploitation of earthworms), bio-fertilisers and bio-pesticides and has also created more avenues for rural non-farm employment based on marketing opportunities. Landless labour families have taken to household mushroom cultivation; ornamental fish-rearing, coir rope-making, rearing small ruminant animals under stall-fed conditions. Farmers with small plot of land can take to hybrid seed production, floriculture, dairying, poultry and other high value enterprises. All these initiatives have helped in raising per month per capita of villagers. In this all-inclusive project local women and men become trainers and work as Biovillage Corps of rural professionals. “The bio-village model helps bridge all four divides—demographic, digital, economic and technological. It promotes harmony with nature and with each other. It shows the path to an evergreen revolution in agriculture, where productivity advances can take place without leading to ecological or social harm. The choice of technologies is flexible.”

3.5.4 Samridha Krishak Yojana of Assam

Despite its potential, Assam most of the time had food deficits of almost 10 lakh tones. Because of the high transport costs, the imports of food from other states have caused a huge cost to its exchequer. It was in 1999 that the Samridha Krishak Yojana (plan for making the farmers prosperous) was launched by some imaginative officials of the Department of Agriculture. This plan aimed at installing one lakh shallow tube wells (STWs) in 18 districts by 2001 mainly to boost agriculture production, especially during the rabi season. The most interesting aspect of the project was the cost sharing between the state and beneficiaries on a 2:1 ratio. The project showed success soon enough. Farmers who used to cultivate barely one crop a year could


now benefit from multiple cropping patterns as irrigation water was available throughout the year. Field Management Committee (FMC) is now the lowest unit of implementation.

By January 2001, 82.67 per cent of the targeted STWs were installed and rice production increased by 4.23 lakh tones. All crops production increased by 8.03 lakh tones with a cropping intensity of 144.09 per cent. District wise direct employment generation was estimated to be 10,000 and at the state level it was 1,80,000. Further 50 landless cultivators and agricultural labourers were employed in one FMC. Overall SKY generated additional employment for 1,89,000 people in the agriculture sector of Assam. At the district level, the income generated by a farmer in Sonitpur district was Rs.27,510, the highest being in north Lakhimpur district at Rs.1,39,000.

3.5.5 TANWA Woman Agriculture Project of Tamil Nadu

Tamil Nadu Women in Agriculture (TANWA) has been in operation in Tamil Nadu since 1986. It aims to improve the living standards of small and marginal farm households by imparting training to farm women on the latest agricultural techniques and by inducing them to take active part in agriculture, thereby raising agricultural productivity and family income. The target group of the project is small and marginal farm women who own a minimum size of landholding viz., 2-5 acres of irrigated land or 5 acres of unirrigated land or less. Engaged in cultivating their land, these women form the first stage target group of the project.

During the first phase ending 1993, 14000 farm women were trained at a cost of Rs.4.13 crore. The second phase, which ended in 2003, was expected to train 6 lakhs farm women. The trainer is a woman Agriculture Officer at the Department of Agriculture. A total of 225 farm women are trained in a taluk. Of them, 60 are selected and given special training in agriculture at allied activities, including animal husbandry, agro-forestry and sericulture. Follow up action is taken in the fields of the farm woman. The farm women formed a TANWA Farm Women’s Group (FWG) (or Self-Help Group) and shared the knowledge of technology with other farmers. TANWA FWG now acts as a Village Focal Resource Centre (VFRC) for creating technical, economic and social empowerment.

181 It is a DANIDA assisted project in six districts of Chengalpattu, South Arcot, Thanjavur, Pudukkottai, Tirunelveli and Sivagangai in Tamil Nadu, Successful Governance Initiatives and Best Practices: Experience from Indian States, Planning Commission, Government of India and UNDP, Academic Foundation, New Delhi, 2003, pp.55-62.