

Food commodity prices and food insecurity—temporal or structural

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1 Introduction

Recent years have seen steady increase in the prices of food commodities on international markets. This price rise was preceded by nearly 20 years of low and stable food prices. The crisis precipitated by the price hike has called into question the international food security.

Even though the prices of many food staples started increasing three years ago, the sharpest hikes have been in the past one year: from March 2007 to March 2008, the price of Wheat, Soya, Rice, and Corn increased by 130%, 87%, 74% and 31%, respectively. The international wheat price has increased from roughly \$ 150 per metric ton to \$ 440 per metric ton in the past three years. The Food and Agriculture Organization (FAO) food price index ¹ increased by 57% from March 2007 to March 2008. Cereals, dairy products, and oils and fats recorded sharper increases as compared to meat and sugar prices (for details see FAO 2008a, 2008b).

Recent months have seen food riots in many parts of the world: Mexico, Philippines, Ivory Coast, Senegal, Egypt, and Haiti provide a partial list of such countries.

International organisations like the UN and the world bank take an extremely serious view of this situation. Recently the world bank president warned that 37 countries across the world face serious food shortages. Many other analysts believe a much larger number out of the 82 Low-Income Food-Deficit Countries ² are at the risk of severe food shortages.

According to FAO, the cereal import bill of the world's poorest countries increased by 37 percent in 2006-2007 and is forecast to rise by a further 56 percent in 2007-2008. For low-income food-deficit countries in Africa, the

¹Average of six commodity groups weighted by their export shares. The six commodity groups are: Meat, Dairy, Cereals, Oils and Fats, and Sugar

²UN defines the Low-Income Food-Deficit (LIFDC) group of countries as countries that depend on food import with per capita annual income below the level used by the World Bank to determine eligibility for IDA assistance (i.e. \$ 1,575 in 2004).

cereal bill is projected to increase by 74 percent. An FAO report summarizes the situation (FAO 2008b):

Among economic groups, the most economically vulnerable countries are set to bear the highest burden in the cost of importing food, with total expenditures by LDCs and LIFDCs anticipated to climb by 37-40 percent from 2007, after rising 30 and 37 percent, respectively, already last year. The sustained rise in imported food expenditures for both vulnerable country groups constitutes a worrying development, as on current expectations by the end of 2008, their annual food import basket could cost four times as much as it did in 2000. This is in stark contrast to the trend prevailing for developed countries, where year-to-year import costs have risen far less.

The total food import bill of developing countries in 2008 is projected to be nearly 356 billion dollars, up from 286 billion dollars in 2007 (FAO 2008b).

2 Reasons of food price rise

The recent price rise is being attributed to a host of short and long term reasons: (a) high-fuel prices, (b) crop failures, falling stocks of food staples and the diversion of food staples to make bio-fuels, (c) increasing population, (d) change in food habits of the well-off in the developing countries, (e) speculation in forward and futures trade.

Crude oil prices have increased from less than \$ 25 dollars to more than \$ 100 dollars a barrel in the past 5 years; the prices of other energy commodities like the natural gas and coal have also seen sharp increases. The increase in fuel prices is expected to be transmitted to commodities as fuel is an important agricultural input—production of fertilizers³ and pesticides

³The prices of fertilizers have increased far more rapidly than the oil prices in the past two years (for detailed data see FAO 2008b). Vidal (2008) notes:

Fertilizer prices have risen more than oil or any other commodities in the past 18 months. Of the three main types, diammonium phosphate (DAP) sold for \$ 250 a tonne in January 2007 but has risen to \$ 1,230. Potash-based fertilizers have risen from \$ 172 to more than \$ 500 a tonne, and nitrogen-based fertilizers have risen from \$ 277 to more than \$ 450 a tonne.

A world fertilizer forecast report...states that prices will remain high for at least three years and possibly longer.

and pumping water for irrigation—and is needed for transportation of the produce.⁴

Food production in the past year was adversely affected from droughts in some parts of the world; in particular, Australia, one of the largest exporter of wheat in the world, suffered from its worst drought in over five decades. FAO estimated the global production of cereals to be over 2,100 million tonnes in 2007, which represented a 4.7 percent increase from 2006. As the world population increased by little below 1.5 per cent in 2006⁵, it might be surprising that the international prices increased so rapidly in 2007. However, a break-up of the food produced might provide a partial answer to this apparent paradox. The world wheat and rice production, the two most important cereals and direct source of carbohydrate for nearly 80 percent of the world population, increased by 1.6 and 1 percent, respectively in the period. The main increase in production occurred in coarse grains whose production rose to nearly 1050 million tons, up 8.3 percent from the previous year. Nearly 60 percent of coarse grains (yellow corn, soya, etc) are used for animal feed for meat production. However, as noted above, coarse grains have seen a price rise almost as sharp as the other grains.

World population increased from 2.5 billion in 1950 to nearly 6 billion at the present. It is understandable that food production might have failed to keep pace with this 2.5-fold increase in the world population. The world per capita food production increased from 250 kg/year to nearly 340 kg/person/year from 1950 to 1985. But between 1986 and 2006, the per capita production dropped to 300 kg/year. This strongly indicates that the

There have been fertilizer riots or demonstrations in Vietnam, India, Kenya, Nepal, Nigeria, Egypt, Pakistan and Taiwan in the past few months. Last week a man was killed in a stampede at a government handout of fertilizer in Hyderabad, India.

⁴While the exact reasons of the fuel price increase are hard to fathom, it is at least partly owing to the devaluation of dollar with respect to other major currencies, because most of the fuel trade in the world is denominated in dollars. For instance, all commodity prices in dollar terms increased by 45 per cent in 2007; however, they increased by 37 per cent in IMF Special Drawing Right (SDR) term. In India's case, rupees appreciated from nearly 45 rupees to a 1 dollar to nearly 40 rupees to a dollar. Reserve Bank of India (RBI) is trying to prevent the further devaluation of dollar to keep the export industry competitive in international market. This is an example of how policies in the US, which are largely responsible for the devaluation of dollar, are transmitted as price increases in other countries.

⁵In the past decade, average annual growth rate of the world population was approximately 1.25 percent. It is projected to decline to below 1.15 percent in the next decade.

food crisis facing the world at present is an outcome of a long term trend. In 12 out of the past 20 years more food has been consumed than produced. Also the present food stocks are the lowest in terms of per capita availability since 1980s: present stocks could feed the world's population for nearly 60 days as opposed to the high of 120 days in 1980s.

As noted above, the production of animal feed has grown at a faster rate than the directly consumable staples like rice and wheat in recent years. The data on food consumption also shows that while the consumption of animal feed increased 2.8 percent in 2007, the consumption of other food grains showed a slight decline. This appears to be in direct response to the shifting food pattern of the world's population. The world's total meat supply was 71 million tons in 1961. In 2007, it was estimated to be 284 million tons or the per capita consumption has more than doubled over that period. In the developing world, it has risen twice as fast, doubling in the last twenty years alone (see e.g. Magdoff 2008). With rising incomes, the better-off population of the developing world is increasing its meat consumption, e.g. China's beef consumption per capita per year increased from 20 kgs to 50 kgs in the past 20 years. This shifting food pattern is further exacerbating the food security of the world. Unlike the olden days when meat production was solely supported by natural pastures, the industrial production of meat in the recent past means nearly 60% of coarse grains are diverted for meat production. For the production of one kg of beef, nearly 8 kgs of food grain is needed (the corresponding conversion factor for pork and chicken is 5 kgs and 3.5 kgs, respectively). In addition, one kg of beef production requires almost 10 times more water as compared to the production one kg of food grain. Evidently, the industrial meat production makes disproportionate claims on the scarce and often fragile land and water resources. It is also clear that the poor in the developing world are not benefiting from this change in food habits, as they have to face the inflationary pressure caused by the decreasing production of directly consumed food grains. It is of interest to note that the meat prices have not seen such sharp increases as the food grains. It is probably indicative of the fact that a disproportionate amount of land resources—arable land converted to pastures, food grains, and water—have already been diverted for meat production.

In recent years, the policy of using agricultural resources to produce fuel (ethanol and bio-diesel) has also contributed to the rising prices of food staples. The bio-fuel technology was originally developed in Brazil to make fuel (ethanol) from sugar-cane. In the past two years, ethanol production has

spread across the world and it is being produced from almost every possible source of cellulose: corn, wheat, etc. Bio-diesel can be produced from oil-plants (Soybeans, oil palm, and rape (canola)) and special trees (e.g Jatropha plant), etc (see .e.g Magdoff 2008). In particular, nearly 100 million ton of food grains (95 percent Maize) was used for the bio-fuel production in the US in 2007. The US plans to expand bio-fuel production using one-third of its corn production in less than a decade by offering subsidies to corn producers and ethanol industry. Many other governments in Europe are also offering bio-fuel subsidies. Even though the total amount of food grains used to make bio-fuels constitutes a small fraction of the total production at the present, it might have catalysed a tight situation beyond the tipping point. A recent leaked report of the world bank claims that up to 75 % increase in the food prices could be owing to the diversion of food staples to bio-fuels (Engdahl 2008).

Speculation in futures and forward trade in commodity markets could also be responsible for the recent price increase. It has been noted that downturn in derivative and housing markets has resulted in large capital flow towards commodity markets (e.g. OECD-FAO 2008, p37). This increase in investment in commodity markets might have spurred speculative activity which in turn could have caused an unwarranted increase in prices. However, other analysts do not agree with this inference. Krugman notes:

My problem with the speculative stories is that they all depend on something that holds production—or at least potential production—off the market. The key point is that the spot price equalizes the demand and supply of a commodity; speculation can drive up the futures price, but the spot price will only follow if the higher futures prices somehow reduce the quantity available for final consumers. The usual channel for this is an increase in inventories, as investors hoard the stuff in expectation of a higher price down the road. If this doesn't happen—if the spot price doesn't follow the futures price—then futures will presumably come down, as it turns out that buying futures produces losses.

It follows from this analysis that if speculation alone is responsible for the increase in food prices, the stock of food should show a tendency to grow with time or the hoarding of food should increase. ⁶ However, it was noted above

⁶A recent example of speculation/hoarding alone causing sharp food price hikes was

that the food stocks are decreasing. This means speculation is feeding on a tight food supply situation, but it is not creating a self-fulfilling prophecy. In other words, speculation might be turning a difficult situation into a disaster, but it could not be the only cause of the recent increase in food prices.

The role of speculation in worsening an already difficult situation was emphasized by a recent committee, appointed by the government, to examine the impact of forward trading on whole-sale and retail prices of agricultural commodities in India.

As noted above, the food supply situation based on production data doesn't look alarming even though the food stocks are low. Does this situation warrant such a sharp increase in the prices of food staples? Could it be that the speculation is responsible not for the cause but for the extent of the price rise? In the past five years, speculators have increased their allocation in commodity markets (including oil) from 13 billion dollars to 260 billion dollars. During the past 15 years, the food trade market has got increasingly concentrated in the hands of a few companies. At the present, 85 percent of the world food grain and seed trade is accounted for by just six companies (ADM, Cargill, Monsanto, Dupont, Nestle, Bunge). Such complete domination can indeed be used to distort normal market mechanism through speculative trade by invalidating one of the assumptions made by Krugman: normal supplies in future can offset the speculation on high future prices. If the markets are dominated by small traders then the market uncertainties caused by other traders and storage overheads might overwhelm the desire to earn more in the future. However, in a market dominated by a few big players, the stocks can be held more easily long enough to be cleared at higher future prices.⁷

Is the recent increase in food prices another periodic business cycle expected in the capitalist economic system? Looking at the time-series of the food prices, there are reasons to believe it might be just that. The 'real'

tortilla crisis in Mexico in the past one year. While the corn tortilla prices increased by more than a factor or two in little more than a year, the corn stocks in Mexico were at an all time high in two decades (NAFTA 2008). The hoarding of corn appeared to be in direct response to the announcement of bio-fuel policies in the US.

⁷Many analysts believe speculation to be the main reason behind the recent sharp rise in oil prices as well. Engdahl (2008) suggests that up to 60 percent of this increase is purely owing to speculation. Ghosh (2008) has analysed the oil supply situation and conclude that supply-demand imbalance could not possibly be responsible for a four-fold increase in oil prices in the past five years.

prices of food staples reached values more than a factor of two higher in 1975 than at the present. These prices remained reasonably high till the mid-1985. Some food commodity prices again saw a sharp jump in mid-1990 with 'real' prices reaching values not much smaller than at the present (see e.g. OECD-FAO 2008, p32).

However, there are fundamental differences between 1970s and the present. First, the 'real' international prices, computed by deflating dollar, in 1970s were not representative of domestic prices in most countries. The price of food commodities was more determined by the policies of local governments than the volatile international markets at that time. The opening of commodity markets in the past twenty years has tended to equalize prices throughout the world.

Second, not only were the commodity markets far smaller in 1970s, most developing countries did not depend on imported food in 1970s. And therefore a rapid increase in food prices in 1970s did not necessarily call into question the international food security, unlike at the present.

3 International Food trade

Recent FAO report summarized the world trade in food staples (FAO 2008a):

World trade in cereals is forecast to reach 256 million tonnes in 2007/08, slightly more than in 2006/07. A sharp increase in imports of coarse grains is expected to more than offset declines in wheat and rice trade. At the current forecast level, the volume of cereal imports by the LIFDCs could reach 82 million tonnes, slightly down from the previous season.

The major wheat and coarse grains exporters are Argentina, Australia, Canada, the EU and the United States. The major rice exporters are India, Pakistan, Thailand, the United States and Vietnam.

Most food importing countries are also low-income countries : almost all the countries in Africa are food importers. As noted above, 82 countries are identified as low-income food-deficit by the UN. On the other hand, the food exporters, except for rice, are high-income industrialized countries. ⁸

⁸Rice cannot be grown in the climatic conditions of much of Europe. While rice is known to be the main staple of much of the south and south-east Asia throughout recorded

At the time of independence in 1960s, the sub-Saharan Africa (SSA) was food sufficient and imported less than 5 percent of its food (e.g Kidane et al. 2006). At the present, SSA imports nearly 25 percent of its cereal needs. The Philippines was one of the main beneficiary of Green revolution technology and remained food sufficient until the mid-1980s. Since early 1990s, Philippines has become a net importer of rice and at present is the largest importer of rice in the world. Egypt, one of the bread-baskets of North Africa in 1960s, is one of the largest importer of Wheat at the present. Even though Pakistan is one of the largest exporters of rice, it has been importing upto 20% of its main staple wheat requirement in the past 15 years (e.g. Gera 2004).

Food imports are not confined to low-income developing countries only. Mexico developed some of the best known High Yield Variety (HYV) seeds in 1950s and was a net exporter of cereals, beans, and oils in 1960s. Since 1990s, Mexico is a net importer of food, and imports even corn, a traditional Mexican cereal, from the US and Canada. Since 1994, these imports have resulted in the displacement of more than 1.5 million farmers in Mexico (see e.g. NAFTA 2008).

Is such large-scale food trade in the world a normal phenomenon. Are the developing countries expected to be food importers? On the face of it, food trade seems like any other trade and trade is generally thought be beneficial as it allows countries to use their comparative advantage. However, food is different.

First, food is not another commodity that might satisfy demand and supply dynamics. The demand of food is inelastic. This means that when food prices rise its consumption cannot fall. And as more money has to be allocated to buy food, it cuts into the expenditure on other goods. This generally has disastrous consequences not only for poorer sections of the society but for the economy as a whole, as the demand for a variety of other goods consumed by a wide section of the society fall.

Second, the ripple effect of unstable food prices is particularly severe for developing countries in which a larger fraction of income is spent on food. The average fraction of income spent on food in the developing countries is between 25 and 35 percent (this fraction could be high as 60 percent in SSA) as opposed to developed countries where this fraction lies between 10 and 15

history, US started growing rice barely a century ago. US is the third largest exporter of rice at the present.

percent.⁹

The multiplier effects of agricultural growth are generally stronger in developing countries. Empirical studies from SSA suggest that for every 1 dollar added in agricultural sector 0.5 dollars are added in the non-farm sector. Also, as expected, there is a strong correlation between agriculture growth and poverty reduction (for details and relevant references Kidane et al. 2006, p29,30). Recent World Development Report (2008) emphasized that the GDP growth originating in agriculture is about four times more effective in raising incomes of extremely poor people than GDP growth originating in other sectors of the economy.

Given the importance of agricultural sector in developing countries, the stability of food prices is expected to be absolutely crucial to the economies of the developing countries. Many studies have pointed to this essential relation between the food price stability and the overall economic development and growth (see e.g. detailed discussion in Kidane et al. 2006). The only way this can be ensured is if the local governments can intervene to curb fluctuation in food prices. So depending on volatile international markets to obtain food is a risk, which the developing countries are expected to avoid.

It is sometimes argued that producers in developing countries also stand to gain from this trade as many of them are food exporters. As noted above, most of the rice exporters are developing countries. However, none of these countries could take advantage of the recent sharp increase in rice prices, which nearly doubled in the past one year. Their most rational response was to hold back rice stocks to stabilize prices at home rather than sell rice on international markets at highly lucrative prices.

The inability of developing countries to remain food secure is, therefore, one of their largest failure. Even if some of these countries can sustain food imports, e.g. major oil exporters like Nigeria, over long periods, it undermines their political independence. In 1970s, the US secretary of state Henry Kissinger proclaimed: you control oil, you control countries; you control food, you control people. The people of food insecure countries often feel the tug of this control.

One of the most popular argument to explain food scarcity in developing countries is population growth. For instance, the population of SSA Africa

⁹This fraction is reflected in the weight given to food commodities in the computation of Consumer Price Index (CPI). See e.g. OECD-FAO 2008 (p35) for a discussion on this anti-correlation between income and the fraction expenditure on food and relevant data

grew at an annual rate of 2.8 percent between 1960 and 2000 while the food production grew at 2.4 percent. However, this is more a statement of the problem of food scarcity than its explanation. One needs to look at the structural changes in the agriculture to discern the underlying reasons of this failure.

Is such a strong correlation between food insecurity and low GDP per capita of countries expected? Most low-income countries are also overwhelmingly agrarian; more than half the population in these countries depend on agriculture for livelihood. Is it conceivable that these countries have failed to solve the most basic problem of their economies? To answer these questions it is needed to look at these questions in their proper historical perspective.

4 Food trade and Food security

In medieval era it was difficult to trade food over long distances and therefore food security had to be achieved locally. Sail boats were the fastest mode of transport before the invention of rapid surface transport like railways and steam boats in the 19th century. Also the opening of Suez canal in 1860s played an important role in enabling long distance trade. Large-scale food trade started in the 19th century when most of the developing countries at the present were colonies.

4.1 Colonial food trade

The main role of a colony in the imperial world order was: (a) to export agricultural and other raw materials needed to enable rapid industrialization of imperial powers, and (b) to absorb a fraction of the industrial product of imperial countries.

Imperial powers diverted the best agricultural land in the colonies from subsistence farming to grow commercial crops: cotton, sugarcane, rubber, indigo, ground-nut, coffee, opium, tea, cocoa, etc provide an in-exhaustive list of these commodities. This forced change in the use of arable land seriously undermined the food security of colonies. However, imperial power were not only short of industrial raw products, they were also short of important food grains. Colonies were also used to fill the food deficit in the imperial countries. India, Indonesia, Korea, Morocco, Vietnam, Ireland were important exporter of wheat and rice to imperial powers of Western Europe and Japan.

These colonies were gradually replaced by settler colonies like US, Canada, Australia, and Argentina as the primary food exporter to Western Europe. As a consequence, the colonies suffered from many large-scale famines during the imperial era. However, barring the genocidal forced export of food, the colonies remained food sufficient during much of the colonial era, e.g. at the time of decolonization in 1960s, Africa had a net surplus of food.

For further details of colonial food trade, land use, and famines see e.g. Palme-Dutt 1940, Patnaik 2007, Bagchi 1971, Davis 2001 and references therein.

4.2 Building food sufficiency

It is important to understand the nature of colonial economic structure before embarking on a discussion on how developing countries went about building their food security in the post-colonial era.

As noted above, the developing countries were mostly food exporters during the colonial era. However, it should not be taken to mean that they were food secure even in the absence of these exports. Food security of these countries had been severely compromised owing to the diversion of land resources for cash crops earmarked for export and break-down of the traditional inter-dependence between industry and agriculture.

After independence, one of the main foreign exchange earners for the developing countries was the export of these cash crops. As this foreign exchange was needed for the import of important machinery for industrialization, this sector continued to have the prominence it had gained during the colonial era.

Given that a radical departure from the colonial economic system was not easy even after independence, the developing countries undertook to uplift the sagging agrarian sector by greater reliance on strong state support and productivity-enhancing technologies.

The post World War Two era saw rapid development in agriculture technologies; high yield variety seeds, large-scale application of chemical fertilizers and pesticides, and increasing use of tractors and threshers were notable achievements of this era. These technologies were more suitable for large commercial farms of North America and Europe as compared to the small farm used for subsistence farming in the developing world. However, the developing countries were also urged to adopt such technologies by the imperial powers.

The back-bone of building long-term food security in the developing countries was the direct intervention of the state in food production, procurement, and distribution. Following policies (or a subset of these policies) were adopted:

1. Increasing food production through state-sponsored (long and short term) bank credits for irrigation (e.g. tube wells), tools, seeds, and fertilizers. State also ensures price stability of important agricultural inputs.
2. Procurement policy: state offers a minimum procurement or support price for important produce and is always the buyer of last resort.
3. State acts to stop speculation of food prices during bad harvest. It can be done through laws or more effectively through the policy of preventing private companies to acquire a large fraction of grain. The state finally ensures it by being the largest hoarder of food grains, e.g government-run Food Corporation of India (FCI) bought up to 70 percent of food grains in the market until 15 years ago.
4. State stabilizes prices in home market from external disturbances by large imports duties or outright ban on imports and large export duties or outright ban on exports of important food commodities.

The partial success of such policies cannot be denied; one of the most notable successes of these policies was India, which was deemed to have achieved food security by early 1970s ¹⁰. However, over a period of time, such centerist (or politically neutral) policies drew criticism from both sides of the political spectrum.

Free-market adherents were critical of such strong intervention of the state and held that this level of public investment and subsidy 'crowds out' private investment and distorts 'market mechanisms'. For instance, the government pricing policy was held responsible for keeping the prices of agricultural commodities lower than what normal market mechanisms might allow. This, it was argued, was not only harmful to the farmer but also dissuaded large-scale private investment in agriculture. To maintain accelerating growth in

¹⁰That these policies have not been unqualified success is probably evidenced by recent NSS survey (NSS 2003) on the condition of farmers in India: only around 29% of farmers understood what minimum support price meant!

agriculture, large scale private investment was thought to be crucial and it was expected to occur only under conditions ensured by free markets with minimal state support or subsidy.

Political neutrality of agrarian policies and an over-emphasize on increasing productivity came under attack from the political left and environmentalists. It was pointed out that increasing productivity without effective land re-distribution was a recipe for increasing inequality. It was argued that such policies were likely to have limited success in increasing effective demand, which hindered the development of down-stream industry so important for the healthy growth of the economy.

It is important to note that food sufficiency is not a static but a moving target. By its very definition food sufficiency means a balance between the food supply and demand. However, such an equilibrium condition can be satisfied for a very low demand also. A low demand itself might be an indication of low incomes. Therefore, lack of recurrent food shortages, absence of large-scale famines, and food riots alone cannot be taken to mean food sufficiency has been reached. India is a good case in point to understand this important aspect. When India was deemed to have reached food sufficiency in 1970s, the per capita grain consumption per year was nearly 170 kg. This was half the world average at that time and compared unfavourably with many other developing countries like China. This feature of Indian economy is to be attributed to the fact that farm incomes and wages of a majority of agrarian population remained stagnant since independence, even though incomes increased more rapidly in urban areas. In constant 1980-81 prices, the agricultural GDP per capita increased from Rs. 860 in 1950-51 to Rs. 1117 in 1989-1990, the same period saw the non-agrarian incomes to rise from Rs. 1886 to Rs. 4858 (e.g. Dandekar 1992). The same period saw a much greater increase, than indicated by the average, in the agrarian incomes of a minority of farmers who directly benefited from the Green revolution. This means a majority of farming community might have seen their incomes stagnate or even fall during this important period.

Environment groups have also been critical of the green revolution agrarian policies. The main emphasis of these policies revolved around increasing the wheat and rice production ¹¹ by monoculture cropping. However,

¹¹In India, the main impact of the green revolution was an enhancement of the wheat productivity. In Mexico and Philippines, where HYV rice seeds were developed, a similar increase in rice productivity occurred.

the increase of productivity of a marketable commodity like wheat did not necessarily mean the total production from the land increased. Shiva (1998) points out that the use of high yield variety (HYV) seeds led to an increase in wheat production but a loss of production of net biomass that included straw, a natural byproduct of wheat cultivation using traditional practices and an important animal feed and fertilizer, and therefore an increase in the productivity of wheat didn't necessarily mean greater productivity of land. Also, the input costs were not only greater in terms of fertilizers, etc. but also finite and often fragile resources like water ¹². By their very nature, these policies tended to favour larger farm-holdings, as a steep increase in the cost of inputs could only be easily recovered when the production exceeded a certain minimum. Many studies had suggested that small farms tended to have much larger overall productivity ¹³, particularly in terms of output-input ratio, so it made less sense to rely on large farms for increasing productivity, especially when important inputs like chemical fertilizers, pesticide, and tractors had to be imported. It was pointed out that traditional varieties of food-grains like Jowar, Bajra and Ragi might be more suitable for ecological balance as well as over-all nourishment of the population.

The real beneficiaries of the green revolution capital-intensive technologies were Western Europe, North America and other industrialized countries. As noted above, these technologies were more suitable for large farms, which was a norm in these countries. Also capital-intensive technologies are more

¹²It is generally implicitly assumed that green revolution technologies were crucial to improving food productivity. Even though this claim has been refuted by a minority, this thinking is so deeply entrenched as to be seriously questioned by a majority. In a recent university of Michigan (USA) study based on 293 examples from across the world, it was shown that organic farming can easily feed the entire world at a level compared to the maximum achieved by the green revolution technologies. The study also shows that the rotation of other crops with green manure and legumes can regenerate Nitrogen in the soil with efficiency achieved by artificial fertilizers (Badgley et al 2007).

¹³Sen (1962) showed it first in a pioneering study using data from India. This anti-correlation between the farm size and productivity has subsequently been demonstrated using data from across the world (see e.g. Hazell et al. 2007). Monbiot (2008) notes

In some cases, the difference is enormous. A recent study of farming in Turkey, for example, found that farms of less than one hectare are 20 times as productive as farms of more than 10 hectares. Sen's observation has been tested in India, Pakistan, Nepal, Malaysia, Thailand, Java, the Philippines, Brazil, Colombia and Paraguay. It appears to hold almost everywhere.

profitable where the labour is scarce, as was the case for these countries. With large-scale mono-cropping, application of chemical fertilizers and pesticides, and use of tractors and threshers, these countries greatly increased the productivity of food grains like wheat and corn, e.g. the corn productivity in the US increased by roughly a factor of four (24 to 100 bushels per acres) in the five decades from 1930 to 1980.¹⁴

As noted above, European imperial powers were net food importers till the second world war; food was imported from colonies and increasingly from settler colonies like the US, Canada, and Australia. US used its position as a food exporters to these countries to its advantage during both the worlds wars. Ex-imperial powers achieved food sufficiency in 1950s and were poised to large-scale export by 1970s. While rapid development of food-processing industry absorbed a fraction of this surplus food, both Europe and north America had excess food (grains, meat, and dairy products) by 1970s.

5 End of the 'golden' era: Stagflation of 1970s

The era of 1970s saw the end of the 'golden period' of economic growth that lasted nearly 25 years following the second world war. Not only was the supply of food staples out-stripping the global demand but so was industrial produce. This over-capacity or over-production crisis is thought to be endemic to the capitalist mode of production. However, unlike in the past, the recession wrought by this over-production did not result in falling prices but steep inflation. This phenomenon came to be known as stagflation and was unique to economies of the industrialized countries. Bello (2008a) summarizes the salient features of the economic development of this period:

The golden period of postwar growth globally that skirted major crises

¹⁴An important difference between tropical countries and Europe is the far greater bio-diversity of the former. In a typical small farm of a low-income tropical country like India, a farmer can harvest up to three crops, e.g. wheat, tomatoes, vegetables, in one year. Multi-cropping and rotation of cereal with legumes allows the farmer not only to maintain the fertility of the soil, and thereby minimizing the use of chemical fertilizers and fallow period, but also fully exploit the bio-diversity of the tropical climate. Mono-cropping depletes soil fertility and therefore requires increasingly larger amounts of fertilizers. However, equally importantly, same technology is not readily applicable to variety of different crops, which is a norm in the tropical world. For instance, tomatoes can be grown in some parts of southern US in summer, but its production process remains highly labour intensive; the labour is provided by the under-paid immigrant labour from Latin America.

for nearly 25 years was due to the massive creation of effective demand via rising wages for labor in the North, the reconstruction of Europe and Japan, and the import-substituting industrialization in Latin America and other parts of the South. This was done principally via state intervention in the economy. This dynamic period came to a close in the mid-seventies, with stagnation setting in, owing to global productive capacity outrunning global demand, which was constrained by continuing deep inequalities in income distribution. According to the calculations of Angus Maddison, the premier expert on historical statistical trends, the annual rate of growth of global gross domestic product (GDP) fell from 4.9 per cent in what is now regarded as the golden age of the post-World War II Bretton Woods system, 1950-73, to 3 per cent in 1973-89, a drop of 39 per cent. These figures reflected the wrenching combination of stagnation and inflation in the North, the crisis of import substitution industrialization in the South, and erosion of profit margins all around.

What measures could be taken to stave off this double scourge of stagnation and inflation? The North suffered from the problem of over-supply and over-capacity compounded with (or caused by) falling demand (e.g Magdoff & Sweezy 1986). The South continued to be strapped by both low supply and low demand. According to a suggestion of Kahn, a leading Keynesian economist, both these problems could be simultaneously addressed if the North transferred its excess industrial capacity and associated technologies (especially for making capital goods) freely (or at highly concessional rates) to South. This would also have helped industrial development in the South, enhanced incomes, and spurred demand. In medium to long run, this increase in the demand in the South could in turn have absorbed the products of the North. This suggestion came to known as 'global Keynesianism' (for a critical appraisal of global Keynesianism, see Patnaik 1987).

It is sometimes thought that Keynesian policies adopted during 50s and 60s encompassed salient features of 'global Keynesianism'. During this period, south did import technologies from the North, largely by using borrowed capital from the North. For instance, India's Green Revolution had a substantial imported component. The foreign component of the fourth five-year plan 1966-1971 was estimated to be 1,114 crores (28 billion dollars); the total agriculture allocation in the previous five-year plan was Rs. 191 crores (Shiva 1998). The debt of developing countries multiplied by a factor of nearly 12

between 1968 and 1980.

Even though the terms of loans to the developing country were not very onerous before 1980, conditionality attached to these loans strongly favoured the lender—variable interest rates, investment in areas which eased participation and penetration of technologies of North, irrespective of the needs of the South etc. were notable features of such loans. Gradually but inexorably, countries of the south were falling into a debt trap. The terms of trade of their exports fell throughout the so-called 'golden era' (e.g. Kaldor 1976, Nkrumah 1965) and they struggled to keep trade or current account balances, as part of their deficits had to be covered by new loans and loan services kept mounting (see e.g. Patnaik 2002 for an elaboration of many reasons of the deteriorating terms of trade of the developing countries and other references).

5.1 Post 1980s: The era of SAP and WTO

While the Keynesian economists sought to overcome stagnation to solve stagflation, the monetarist economists put greater emphasis on controlling inflation. The latter won the battle between the two main economic thoughts prevalent in the capitalist economic system in 1970s. In the society dominated by large industrial monopolies and financial banks, it was a victory of the latter over the former. What the so-called monetary economic thinking unleashed came to be known as neo-liberalism or Washington consensus or supply-side economics. In more ways than one, the monetarist policy was a throwback to the dis-credited economic policies prevalent before 1930.

The monetarist policy of sharp increase in the interest rates to curb inflation in the US in 1980 sent shock waves across the world. As all the available capital flowed towards the US, developing countries barely managing to service their debts were faced with the double blow of higher amounts to be paid compounded by a scarcity of credit. The debt crisis that followed brought developing countries scrambling to international banks and institutions dominated by the North, which gave the countries of North greater leverage over the economies of South.

The debt crisis gave the North the needed opportunity to solve their problem of over-production by forcing open the markets and resources of the developing world to the under-performing, prying capital of the north. Bello (2008a) succinctly summarizes the aims of these policies:

Another [policy] was corporate-driven globalization or "extensive ac-

cumulation,” which opened up markets in the developing world and moved capital from high-wage to low-wage areas. As Rosa Luxemburg long ago pointed out in her classic *The Accumulation of Capital*, capital needs to constantly integrate precapitalist societies to the capitalist system to shore up the fall in the rate of profit. In the last two decades, the most spectacular case of incorporating a precapitalist society into the global capitalist system was China, which became both the world’s second biggest exporter and the primary destination of foreign investment

An important aspect of the recovery of the economies of the North was to overcome inflation by continuously obtaining primary commodities at lowest possible prices (Patnaik 1987). Opening markets of the South, therefore, had the dual aim of dumping surplus of the North on the markets of the South and to obtain at the raw material from the South at the cheapest possible prices.

How could the North sell its excess agricultural produce to the developing countries? As noted above, most developing countries had comprehensive policies with strong state support to achieve long-term food security. These policies came under strong attack from the North and a section of the elite from the developing country. One of the conditionalities of the structure adjustment programs (SAP) imposed by the IMF on debt-defaulting developing countries was the withdrawal of state support from agriculture (for a discussion of the political economy of SAP see Patnaik 1994).

It should be noted that in principle it would have been possible for the South to absorb the excess food of the North, if only the economic policies employed led to a great increase in demand. However, the neo-liberal policies were geared to reduce effective demand (see e.g. Patnaik 2007). It is most clearly seen in their insistence on the reduction of the role of state in the agriculture and slashing import/export duties to allow free inflow/outflow of goods. It was not very difficult to see that these policies would hit hard a majority of agriculture producers, and that too in countries where a majority of population depended on agriculture for livelihood.

The hypocrisy of such policies is obvious. The North heavily subsidises its agriculture¹⁵, and these subsidies increased rapidly after the down-turn

¹⁵The extent of agriculture subsidy can be gauged by producer subsidy equivalent (PSE). PSE measures the percentage of the commodity price that would have to be paid to the producer if the subsidies were removed. For EU, Japan, and the US, the PSE is in the

of markets in 1980s to make their agricultural produce more competitive in the international markets (Patnaik 2003 (Table 7)). However, the same North was forcing the developing countries to remove agricultural support, which led to a rapid increase in the prices of important agricultural inputs like fertilizers in the developing countries. The net effect was that North's subsidised food products flooded the developing countries at the time when their agriculture was being made less viable. The food staple markets of the South were not captured by supplementing the South's production with additional food but by undermining its production base and replacing it with imports from North.

The agriculture subsidies in the North increased sharply in the past twenty years and their total value (in the form of tax cuts, direct payments at farm gate or to exporters) stands at nearly \$ 400 billion per annum at the present. These subsidies allow the farmers to over-produce and dump the excess on international markets at lower costs, thereby pushing the world prices artificially low. A good example is the role of the US in the world Cotton trade (Sengupta 2003):

While Cotton prices have declined by more than 60 percent since 1995, U.S. subsidies to its 25,000 cotton farmers reached 3.9 billion dollars in 2001-02, double the level of subsidies in 1992...

The US has increased its export market share drastically between 1998-99 and 2002-03. From a share of 18.16 percent in 1998-99, America's share in world exports jumped to 38.96 percent in 2002-03...

Estimates by the International Cotton Advisory Committee (ICAC), using its World Textile Demand Model, indicate that the withdrawal of American cotton subsidies would raise cotton prices by 11 cents per pound, or by 26 per cent...

The refusal to cut cotton subsidies by the US has adversely affected the condition in many developing or least developed countries, which are exporters of cotton. The government of India puts its losses at \$ 1.3 billion, Argentina at over \$ 1 billion, and Brazil at \$ 640 million in 2001-02. However, countries located in Africa, especially Benin,

excess of 40 percentage for many important commodities like Wheat. For all the OECD countries, PSE for agriculture produce is 30 percent (WDR 2008, p97). PSE in developing countries is far smaller and is generally negative (WDR 2008). This means that agricultural produce is charged a direct or indirect tax

Burkina Faso, Chad and Mali, who depend heavily on cotton exports for their economic conditions, have been hit the hardest by the secular decline in prices. In 11 countries in Africa, cotton export earnings bring in one fourth of all export revenue. In the four above-mentioned African countries, 30 per cent of total export earnings and over 60 per cent of earnings from agricultural exports come from cotton. According to Oxfam, U.S. cotton subsidies are destroying livelihoods in Africa by encouraging over-production and product dumping...

According to an Oxfam Report (2001), costs of production for one pound of cotton are three times higher in the US than in Burkina Faso. Other major producers like Brazil also have far lower production costs. In spite of this, the US has expanded production in the midst of the price slump.

It is sometimes thought that the main stumbling block in the agricultural trade between the North and the South is the large subsidies in the North and once these subsidies are removed, this trade would be fair. However, there are reasons to believe that this view is not tenable.

Firstly, in the recent past the US has agreed to lower its cotton subsidies but it doesn't mean the cotton exports from the South would become competitive again. As an example, after India opened its cotton markets in 1995, Indian farmers found it very difficult to cope with the presence of subsidised imported cotton in local markets. These farmers were driven into a debt-trap, which was followed by destitution and large-scale suicides, especially in the cotton belt of Vidarbha. Many of these farmers took to farming food staples for subsistence along with producing Soybean for exports. One of the assumptions of international trade organizations like WTO is that farmers can instantly respond to the international market conditions. However, it is highly unlikely that these farmers, already ravaged by the vagaries of international markets, would be inclined to respond to international signals of an upturn in cotton prices, unless probably if they are bankrupted again owing to a collapse in international Soyabean prices. This means that the US is likely to retain most of its cotton markets, even after it lowers subsidies on cotton. The only effect of removing these subsidies is likely to be transmitted to international markets as an increase in cotton prices. The net effect of this overtly devious process would be the ruin of the farmers of the developing countries by initial import of subsidised cotton followed by an increase in cotton prices which are likely to be even higher than what the consumers

paid in the pre-liberalization era. We shall return to this theme below.

Second, some of the main imports of the North are commodities that cannot be produced in the North e.g. agricultural commodities like coffee, Cocoa, and tea. The prices of these commodities are unlikely to be affected by subsidies in the North. The prices of these commodities also collapsed following the liberalization of trade in 1980s. Under IMF-sponsored SAPs, the South was advised to increase the production of these commodities for export earnings to pay back debts, dismantle state support, and allow direct entry of the large multinationals of the North in this trade in the markets of the South. The net result of these policies was not only the price collapse but also worsening terms of trade and an even smaller share of the South in the final retail price (e.g. Sethi 2008b).

In most countries, food staples were considered too important to be traded without adequate protection on international markets until 1980s. The US, EU, and Japan had insisted that food trade be kept outside the ambit of GATT negotiations up to 1980s and continue to impose large tariffs on the import of food items in their countries.¹⁶ However, much before the Uruguay round of negotiations in 1986, the North had started to penetrate the food markets of the South. This process intensified from early 1980s and continues unabated up to the present. Many hope that successful, but yet inconclusive, multilateral negotiations under the auspices of WTO will rectify many imbalances in the trade between the South and the North. However, as noted above, the North has actually increased subsidies after 1980s, even as it negotiated removal of subsidies in multilateral forums like WTO. Also, much of the penetration of the markets of developing countries has occurred by bilateral or regional agreements so the failure of WTO agreement should not be seen as the strength of the bargaining power of the South.

How did North sell such policies to the South and how did the South sell such obviously regressive policies to its populations? As noted above, most countries in the South were facing balance of payment difficulties and this was the opportunity needed by the North to force open their markets. Trade liberalization was held to be crucial to keep the South credit-worthy. The failure of the South to service its debts, it was prophesied, was owing to its closed markets which did not allow the South to fully exploit its comparative

¹⁶Europe ravaged large parts of the world to obtain sugar for nearly three hundred years. But it became self-sufficient in sugar production (from beet-root) in 1980s by imposing large tariffs, and continue to import sugar on a quota system at the present.

advantage. The leaders of the South pleaded their incapability in dealing with the debt crisis without taking 'austerity measures' which were likely to be unpopular in the short run but the resulting 'efficiency' might benefit everyone in the long run. A systematic campaign using the government and corporate media was unleashed to buttress the virtues of 'free markets'. The voices that were muted in 1960s for their obvious imperial bias in supporting open markets in developing countries were heard loud again on state and corporate media and increasingly from the pulpit of state beurocracy and the government.

6 SAP and agriculture in developing countries

The SAPs, and other similar policies imposed on the developing countries under the aegis of IMF and WTO, made the following set of recommendations:

1. Removal of quantitative restriction on hitherto protected commodities and industrial goods and opening markets by reducing import and export duties on industrial and agricultural goods. The aim of these policies, as noted above, was to allow the South to maximize its comparative advantage by free trade.
2. Reduction in state budget deficit (both revenue and capital). This meant the state was to reduce its funding in important sectors like health and education. The state was also to reduce direct investment for the development of agriculture and indigenous industry, including important capital goods industries whose main aim had been to achieve self-sufficiency (import-substitution). The state was also expected to actively encourage private investment in these important sectors of economy hitherto dominated by the state. Another important aim of these 'austerity' measures was to keep the rate of inflation under check. The earlier role of state to create demand by deficit financing was adjudged to be less important than the aim of low inflation. It should be clear from this discussion that out of the two possible way to control inflation—increasing supply or decreasing demand, the latter was considered more worthy of consideration under these policies (e.g Patnaik 2003).

3. Devaluation of currency. The justification for this policy goes back to the dogmas of economic theories in the 18th century which were further re-inforced in the 20th century and came to be known as The Quantity Theory of Money. Most of the developing countries were running trade deficit, and consequently balance of payment difficulties, in 1980s. The devaluation of currency makes imports more expensive and exports cheaper, and therefore more competitive in international markets. The expected outcome of this policy is to wipe out trade deficits with an increase in exports and a decrease in imports, with resultant improvement in balance of payment situation and creditworthiness.¹⁷ The seemingly apolitical nature of this economic step hides the harsh political measures needed to make it workable. When a country devalues its currency in a short period of time, its imports suddenly become more expensive which translates to sharp price rise in goods that contain imported component e.g. many important agriculture inputs like chemical fertilizers, tractors, etc. This inflationary pressure is particularly severe for countries running trade deficits, which was the case for most developing countries in 1980s. As noted above, one of the main focus of SAP policies has been to curb inflation. And the only way the inflation caused by policies like currency devaluation is to rely upon even stronger deflationary policies like wage freeze and/or restraint. Yet again we notice that the success of these policies causes a fall in effective demand.

More than 100 developing countries have adopted SAP policies (or a subset of the policies) in the past 25 years.¹⁸ We focus here on the impact of these policies on the agrarian sector of the developing countries.

The percentage of public spending on agriculture as a share of the total public spending has fallen throughout the developing world since 1980;

¹⁷The quantity theory of money dates back to times when money was backed by bullion (gold and/or silver). A country running trade deficit would see an outflow of bullion, which would result in an increase in the price of bullion in the country, effectively lowering the prices of goods exported from the country. It should be noted that this adjustment is spontaneous. In the present era of fiat currency, the same outcome could be achieved by a policy decision of devaluating the currency with respect to dominant currencies like dollar or by allowing the currency to 'spontaneously' adjust its value by 'floating' the currency.

¹⁸Using data upto 1987, Patnaik (2003) shows that, out of 78 countries that implemented SAP policies, more than 90% introduced policies like reducing budget deficit by reduction in government expenditure, 65% introduced wage restraints, and 54% adopted currency devaluation.

from 1980 to 2004, it fell in most african countries from an average 6.9 to 4 percent (for detailed data see WDR 2008, page 61). A study showed that seven African countries (Ghana, Ethiopia, Kenya, Malawi, Nigeria, Tanzania, Zambia) lowered their budget allocation for agriculture from around 5% to 3.5% between 1990 to 2000. And the actual expenditure was lower than the allocation in each of the seven country (Kidane et al. 2006). India adopted neo-liberal policies following the balance of payment crisis in 1991. Since 1990, the agriculture investment in India has decreased from nearly 3 to 1.9 percent of the agriculture GDP.

During the same period, the developing countries opened their markets to food and other agricultural imports, and reduced import tariffs and export duties (WDR 2008).

The outcome of these policies, to a large extent, followed the expected course evidenced by the case of cotton discussed above: initial in-expensive imports that displaced producers followed, more recently, by the sharp increase in prices. Edible oil policies in India provide a good example (Kasturi 2008):

In the early eighties, India imported 20-40 per cent of its edible oil requirements. Finding this to be a huge drain on its foreign exchange resources, the government launched the 'Oilseeds Technology Mission' (OTM) in 1986 to increase the production of oilseeds. The primary sources of edible oil in India at that time were nine oilseed crops, of which groundnut, rapeseed-mustard and soybean accounted for the bulk...

Edible oil production from primary sources went up to about 5.5 million tonnes in the oil year 1994-95 (November 94 to October 95) from 3 million tonnes in 1986-87; imports came down to negligible levels.

In 1994 the government, in a major policy shift, placed certain edible oil imports under the Open General License - which meant that imports could be made freely after paying duty...In succeeding years, even the import duties were lowered rapidly, from 65 per cent in 1994 to 20 per cent in 1996 and 15 per cent in 1998.

This lowering of duties combined with a sharp fall in international edible oil prices in 1999 led to a flood of cheap oil being imported into the country, initially in far greater quantity than the requirement. By 1998-99, imports reached the level of 4.3 million tonnes, a ten-fold

increase in four years...

After seeing a continuous increase in acreage up from 18 million hectares in 1986 to 27 million hectares in 1994, the area under oilseeds production has remained around 26-27 million hectares, falling at times of depressed international prices.

At the present, India import nearly half of its edible oil requirement. In the recent past, the rapid increase in the international edible oil prices have directly been transmitted to Indian markets owing to India's strong dependence on imports.

6.1 Land use, productivity, and food availability

The overall impact of SAP policies has been to alter the structure of the developing world agriculture:

6.1.1 Diversion of land resources from food crops to export crops

Since 1994, nearly 8 million hectares of land was diverted from food grains to horticulture in India (see RUPE 2008 for a detailed discussion on the state of Indian agriculture). In Mexico, the area under food grains fell by nearly one million hectares between 2000 and 2005 (NAFTA 2008). As noted above, Philippines went from being food sufficient to being the largest importer of rice in the past 15 years. Its rice imports increased from 230,000 thousand tons in 1990s to 2.1 million tons by 2002. Import of cheap, subsidized corn from the US forced the decrease in area under corn in Philippines from 3.1 million hectares in 1993 to 2.5 million hectares in 2000.¹⁹

¹⁹Mexico was forced to open its agricultural markets to foreign capital after serious balance of payment crisis in 1982. Bello (2008b) details the interplay of the opening of the markets, government spending, and debt repayment of Mexico and Philippines:

Interest payments rose from 19 percent of total government expenditures in 1982 to 57 percent in 1988, while capital expenditures dropped from an already low 19.3 percent to 4.4 percent. The contraction of government spending translated into the dismantling of state credit, government-subsidized agricultural inputs, price supports, state marketing boards and extension services. Unilateral liberalization of agricultural trade pushed by the IMF and World Bank also contributed to the destabilization of peasant producers...

Between 1986 and 1993 8 percent to 10 percent of GDP left the Philippines yearly in debt-service payments—roughly the same proportion as in Mexico. Interest pay-

The developing countries were advised to exploit their 'comparative advantage' by diverting their best land for export crops. As the poultry farmers in West Africa were destroyed by the cheap, subsidized imports from the EU and the US, West Africa expanded further the allocation of its best land resources to Cocoa, ground-nut, schrimp and prawn farming, earmarked for exports. EU also extracted concessions from West African countries like Senegal to allow European trawlers to fish in the waters off African coast. As a consequence, the Sengalese marine eco-system was over-exploited and between 1994 and 2005, the weight of fish taken from the country's waters fell from 95,000 tonnes to 45,000 tonnes (Monbiot 2008), depriving the local people of their most important source of protein. Clark & Clausen (2008) note the connection between Africa's under-performing economies and over-exploitation of their marine resources:

The collapse of fisheries due to overexploitation coupled with the expanding seafood market forced companies to look elsewhere for "the most traded animal commodity on the planet." African nations—such as Senegal, Mauritania, Angola, and Mozambique—confronting dire economic conditions sold fishing access to European and Asian nations and companies. In the case of Mauritania, selling fishing access provided over \$ 140 million a year, which equaled a fifth of the government's budget. Few countries can resist such bait, given the need for monetary resources. Industrialized trawlers descended into African waters, combing their seas for the treasured fish commodities. In the past three decades, Africa's fish population in the ocean has decreased by 50 percent and thousands of fishermen have become unemployed

6.1.2 Land productivity

The region worst affected by the neo-liberal policies has been sub-Saharan Africa. Most SSA countries won their independence from Western imperialism in 1960s and faced political instability caused by military coups and civil war, largely backed by the imperial powers to retain their stranglehold on the economies of these countries. Consequently, unlike Asia and Latin

ments as a percentage of expenditures rose from 7 percent in 1980 to 28 percent in 1994; capital expenditures plunged from 26 percent to 16 percent. In short, debt servicing became the national budgetary priority.

America, they had a much shorter period of time to build stable indigenous institutions crucial to building national sovereignty before they were faced with neo-liberal onslaught. This meant that at time of implementation of SAP policies, African countries were far more dominated by the Western interests and consequently were far more vulnerable to these policies. Another outcome of this predicament was that the implementation of these policies usually took the form of direct management rather than coercive advice. Bello (2008b) notes how the World Bank and IMF officials directly managed the macro-economic policies of many African countries.²⁰

The land productivity in SSA befits a region that has suffered the longest under the predatory Western imperialism. In the last four decades of the 20th century, cereal production in SSA increased from 30 million tons to 70 million tons. As the area under these crops increased by roughly a factor of two in this period, the land productivity remained stagnant during this period. A break-up of the period shows that land productivity initially rose but started falling after 1980. In contrast, the land productivity for cereal production increased by a factor of 2.5 in South Asia since 1960.

The data on irrigated agriculture and the use of fertilizers further confirm the poor performance of agriculture in Africa. The fraction of irrigated agriculture is less than 3 percent in Africa and it increased by less than one percent in the past 40 years. By contrast the irrigated area in South Asia increased by roughly 20 percent during the same period (from 20 percent to 40 percent). FAO estimated that the land area under irrigation in SSA (12.7 million hectare) uses less than 5 percent of total available fresh water. Fertilizer use for cereal production increased by more than a factor of three between 1960 and 1980; it was 250 kg/hectare in 1980, roughly the same usage as South-East Asia. However, since 1980, the fertilizer consumption

²⁰Two examples of such management: Ethiopia and Malawi deviated significantly from neo-liberal policies and introduced state-backed plans to increase food productivity in 1990s. Their programs succeeded and they had bumper harvests and managed to build large food stocks. At this point, the IMF officials swooped down upon these countries and forced these countries to change their policies and sell their stocks in the international markets to pay their debts. Both countries faced bad harvests and starvation a few years later. In the resulting famines, tens of thousands perished (for the case of Ethiopia see Chossudovsky 2003 and for Malawi see Bello 2008b). World Bank and IMF mostly attribute the economic malaise of countries under SAP on reasons like corruption, weak governance and their 'lack of motivation' to properly implement SAP. However, it does recognize its failure in a few cases, e.g. how the pre-mature forced opening of the markets of Cameroon by the world bank negatively affected its economy (WB 2007)

in SSA started falling and dropped by roughly a factor of two by 2000; by comparison, South-East Asia increased its fertilizer consumption to nearly 600 kg/hectare by 2000.²¹ The cereal yields in SSA have remained stagnant since 1960 and stand at 1 metric tonne/hectare, a factor of 3 below South-East Asia.

Since 1980s, the fall in fertilizer usage in SSA has been accompanied by a fall in imported agricultural machinery (Kidane et al 2006). These data clearly show that as the state has receded from its traditional role of direct support to increase agricultural productivity, the private investors have not been able to fill that role.

An equally stark example of a positive correlation between the implementation of neo-liberal policies and fall in agricultural productivity is India after 1995. The agricultural GDP growth has dropped from an average of 3.5 percent per annum in 1985–1995 to less than 2 percent per annum in 1995–2005; this is the smallest decadal growth in agricultural GDP in the past 60 years. The same period has also seen a sharp drop in the productivity growth (yield per hectare) of most important crops—food grains, pulses, oilseeds, etc. Even the sunrise sectors linked to large-scales exports—fisheries, livestock, horticulture—have failed to keep up their initial sharp increase in growth rates (SCR 2007). Even as the agriculture productivity has stagnated, the export of agricultural commodities has rapidly increased. Agriculture and allied products contributed nearly 8.5 percent to India's exports in 2007-2008; these exports registered a 37 percent increase as compared to the previous year (Chandrasekhar & Ghosh 2008). With falling productivity, this sharp increase in exports has come at the cost of diverting land from other crops, as noted above. A combination of falling productivity and land diversion has resulted in negative growth in the output of non-horticultural crops and especially cereal production in the past decade in India (SCR 2007). These data are quite consistent with the fact that the same period has seen a drop in the total sown area (143 million hectares in 1990-91 to 140.9 million hectares in 2003-04), the net irrigated area (from 57.1 million hectares in 1999-2000 to 55.1 million hectares in 2003-04) and stagnation in the crop intensity (roughly 1.35 or only 35 percent of area is sown twice a year) (for more data and references see RUPE 2008).

²¹SSA imports 90 % of its fertilizers even though Africa is home to the largest phosphate rock reserves in the world (CWFT 2007).

6.1.3 Fall in food consumption and growing food insecurity

According to the canons of neo-liberalism, the developing countries stood to benefit from the import of cheap, subsidized food, even at the cost of risking local food security. The proponents of neo-liberalism contended that the cost of food production in the developing world was not only more than the food they could import more cheaply, they could use their land more profitably by growing export crops. The logic of this argument suggests that developing countries in principle could have increased their food consumption by exploiting properly their comparative advantage. However, as noted above, the neo-liberal policies are inherently deflationary, and nowhere is better evidenced than in the fall of food consumption of countries adopting these policies.

Patnaik (2003) notes the impact of neo-liberal policies on the six most populous countries in sub-Saharan Africa:

The six most populous countries of the region, all under structural adjustment, experienced a 33 percent fall in cereals output and a 20 percent fall in the food staples output per head in 1980s, while at the same time cash crops in volume terms were being exported at an annual rate of 6.5 percent (Kenya) to 13.9 percent (Sudan), despite falling unit dollar prices, while the competitive export thrust ensured a 35 to 50 percent fall in the unit dollar price for primary exports, so that no increase in exchange earnings took place at all for countries expanding exports at 6 to 8 percent or less every year...

All except one country [oil-rich Nigeria] suffered declines in the average calorie intake even after food imports were taken into account..

The average per capita per day calorie intake in SSA has stagganted around 2100 calories since 1960s, showing a slight increase since early 1990s. This is below the poverty line that is usually around 2400 calories per day e.g. in India.

In India, the average food grain (cereals plus pulses) availability per capita has dropped sharply from roughly 175 kg/year/person to 157 kg/year/person in barely 10 years since mid 1990s (e.g. SCR 2007).²² This level of con-

²²A way to understand this shortfall is the following. As noted above, nearly 8 million hectares of land was divereted from cereal production in India during this period. Assuming a typical cereal yield of roughly 3 metric tonnes a hectare means a productivity loss

sumption is comparable to very low levels of 1940s and is lower than the food availability in 1900.

However the average food intake captures only a part of the picture. Patnaik (2007) points out how the drop in average calorie intake was accompanied by diversification of food habits, e.g. an increase in meat intake, in SSA, a clear indication of growing inequality of incomes owing to neo-liberal policies. A recent report (SCR (2007)) provides data about the diversification of food intake in India. Through the neo-liberal era, the average intake of 'processed' food such as eggs, vegetables, meat, and fruits, has indeed increased, though far more in urban areas as compared to the rural India.

It is sometimes argued that both the fall in average intake of food grains and diversification of food habits is an indication of growing income levels that cuts across all social groups. This is an invocation of the so-called Engel's law based on studies in Europe in 1850s which indicated that with growing incomes people reduced the direct intake of food grains and diversified their diet. Patnaik (2007) completely debunks such a notion being applicable to the present day developing world. Patnaik (2007) shows that even as the direct intake of food grains has decreased in Western Europe or North America, the total food grain intake has sharply increased owing to growing incomes. This is obviously because, as already noted above, the processed food like meat, milk products, beer, etc use food grains more intensively as opposed to their direct consumption as food. For instance the US consumes an equivalent of nearly 900 kg/person/year and most of it indirectly as processed food. However, for developing countries, it is the falling total food availability, and not the directly consumable food in the form of grains, that is concurrent with diversification of food habits. It is strongly indicative of growing income disparity with the weakest sections of the society facing recurrent food shortages and starvation.²³

of roughly 24 million metric tonnes of food has resulted owing to this diversion in land resources, this is a little more than a tenth of India's total production of 220 million tonnes in 2007-2008. This can explain the loss in food intake from roughly 175 kg/person/year to 155 kg/person/year. If imported, this would have amounted to nearly one fifth of the total wheat and rice trade in the world.

²³Of all the reasons advanced to explain the recent rise in food prices, the most nonsensical is the growing food consumption in India and China. While it is true that both these countries have recently started importing food, the food imports have generally remained small. In most years in the past 10 years, these countries have actually been net food exporters. Also, as in the case of India, China has also seen its average food intake fall in the past 10 years (Patnaik 2008), even as China holds the largest food stocks in the

A World Bank-sponsored study to understand the impact of SAP on five countries—Bangladesh, Zimbabwe, Uganda, the Philippines, and Mexico—showed that the food security worsened in all the countries (SAPRI 2002).

6.2 Have developing countries achieved the aims of liberalization?

One of the principle reasons for implementing these policies was to overcome the debt crisis developing countries faced in early 1980s. However, the external debt of developing countries has increased by roughly a factor of 4 since 1980, and stands at nearly 2.5 trillion dollars at the present. From the World Bank data, Millet & Toussaint (2004) estimated that the developing countries re-imbursed to the North nearly 4.5 trillion dollars in debt repayment between 1980 and 2001; this amount is equivalent to nearly 50 Marshall plans, money allocated by the US to the Western Europe for reconstruction after the second world war.

This increase in debt is directly owing to the fact that these countries have failed to reduce trade and current account deficits. Following liberalization, the primary or even industrial products exported by developing countries have faced falling terms of trade, price reduction, and an even smaller share of the commodity's final price (e.g. Chossudovsky 2003, Sethi 2008a). At the same time, market liberalization has allowed the well-off sections of the society to import luxury products (whole range of electronic items, etc.) from the North. Also, as the South has abandoned the aim of import substitution, industries from the developing world have increasingly relied upon imported machinery for their production, made possible by easier access to foreign currency in the home country. The markets of developing countries have come to be dominated by the products of the north, which are either directly imported, or locally produced with imported machinery. India, touted as one of the most successful examples of neo-liberal 'reforms', has run a trade deficit throughout the period following the implementation of these policies. India usually barely break even on the current account owing to its large service sector exports (software etc.) and remission from its overseas workers (see e.g. Chandrasekhar & Ghosh 2008). For Africa, the trade deficit has remained around 12.5 percent of the GDP throughout the period of liberalization (see e.g. Kidane et al. 2006, p33)

world (FAO 2008a)

If one way to pay for imports from abroad is to contract debt, the other way implemented by many countries is to open their financial markets, which was yet another SAP conditionalities. This has allowed these countries to build currency reserves by attracting foreign capital in a macro-economic setting that boasts of low inflation and high real interest rates. However, this route has turned out to be even more hazardous than contracting debts. Much of the capital that flows in this way is 'hot', i.e. it can flow out as easily as it flows in. One of the main reasons of the crisis in East Asian countries, which had seen continuous growth for nearly two decades, in 1997 was the rapid outflow of this 'hot' capital. Also the cost of building these currency reserves is generally higher: the net return on this capital could be in the excess of 20 percent, while the reserves bring less than 4 percent as they have to be invested in safer portfolios e.g. US treasury bond. The North not only gains from this differential of return but also from dumping its highly over-valued, fiat currency as a useful asset on the South.

Not just the net trade deficit, the countries of the South have seen the agricultural trade deficit grow during the era of liberalization. For SSA: between 1961 and 1974, 42 countries had positive agricultural trade balance and 5 countries had negative balance. However, between 1995 and 2002, only 20 countries could manage positive agricultural trade income while 22 countries paid more for agricultural imports than they earned by exports (Kidane et al. 2006, p53, based on FAOSTAT data, 2005). Moyo (2002) showed, using FAO data, that the excess of agri-imports over agri-exports of Africa amounted to approximately \$ 3.8 billion in 1990 which increased to more than \$ 5.5 billion by 2000. A similar trend is seen in the agricultural trade balance of Mexico following the implementation of NAFTA in 1994 (NAFTA 2008).

If the South has failed to fulfill any major goals of adopting SAP policies, the North has succeeded in most of its aims: its over-produced primary and industrial goods have found markets in the developing countries and so has its under-performing capital. In addition, the North is able to obtain the exports of the South at the cheapest possible price by simultaneous opening of several markets in the South for the same product. The overproduction that ensued from the countries of the South competing against each other to sell to markets abroad has resulted in a crash in the prices of these goods.

An important outcome of SAP policies is the balkanization of the economies of the South. Some sectors of the economy—export industry, financial services like banking and insurance, local industry tied to metropolis capital,

foreign-exchange earning services sectors—have boomed. While other important sectors of the economy like subsistence agriculture and small-scale industry have to cope with cheap imports while being starved of bank credit and state support.

6.3 Recent food prices and agricultural terms of trade

Insofar as the recent increase in food commodities an indication of the pressure on global land resources, the developing countries are also expected to share the gains of this crisis, as they remain major exporters of agricultural products. Under neo-liberal policies, the developing countries have rapidly increased their agriculture exports.

The three most important commodities exclusively exported by the developing countries are tropical beverages coffee, cocoa, and tea. The net increase in price of these three commodities (in nominal terms), weighted by their export share, since 2005 is 60 percent. On the other hand, a similar price increase in the maize and wheat, two commodities almost exclusively exported by the industrialized countries, is 170 percentage ²⁴. This approximate analysis suggests that the agricultural terms of trade of developing countries have sharply worsened in the past three years. The situation might look worse if the price increase of important inputs to agriculture like fertilizers is included. As noted above, this increase is even sharper than the primary commodity price rise. The fertilizers are exported mainly by the North with 60 percent of the trade dominated by four companies located in the North.

Clearly, the developing countries are not equal recipients of the recent boom in the prices of primary commodities. And the reasons for this debacle have already been noted above. An intense focus on export to earn foreign exchange and the removal of other restriction (like a quota system under international coffee agreement) has resulted in the countries of the South over-producing and competing against each other to find a foot-hold in the stagnant markets of the North. On the other hand, the international food trade is completely dominated by a hand-full of companies located in the North ²⁵; these companies are integrated with the process of production and government subsidies in the North and can directly influence supply and

²⁴Derived from IMF data available at <http://www.imf.org/external/np/res/commod/table2.pdf>

²⁵The world trade of tropical commodities is also dominated by a few companies of the North e.g. 85 percent of Cocoa trade is governed by just three companies

prices. They are exporting to the South where the food production base is shrinking and the demand gradually increasing inspite of the deflationary neo-liberal policies. Such a progression of events is expected to have a tipping point, and that might have been reached in the past three year.

7 Conclusions

The recent increase in food prices is a natural outcome of a long-term process: structural damage done to the agrarian base of the south, which made them dependent on large-scale food imports since early 1980s. These conditions were accompanied by or indeed enjoined other changes in the international food trade: concentration of food trade in the hand of a few trans-national companies ideally suited for the penetration of these markets by speculators, which further distorted prices to the detriment of the food importers. Diverting food commodities to make bio-fuel further exacerbated an already-existing situation poised for disaster.

Even the world bank admits to the role SAP policies played in the structural damage of the developing world agriculture (WDR 2008):

Structural adjustment in the 1980's dismantled the elaborate system of public agencies that provided farmers with access to land, credit, insurance inputs, and cooperative organization. The expectation was that removing the state would free the market for private actors to take over these functions—reducing their costs, improving their quality, and eliminating their regressive bias. Too often, that didn't happen. In some places, the state's withdrawal was tentative at best, limiting private entry. Elsewhere, the private sector emerged only slowly and partially—mainly serving commercial farmers but leaving smallholders exposed to extensive market failures, high transaction costs and risks, and service gaps. Incomplete markets and institutional gaps impose huge costs in forgone growth and welfare losses for smallholders, threatening their competitiveness and, in many cases, their survival.

Not unexpectedly, the main criticism of the world bank is directed towards the failure to implement the policies rather than the policies themselves. This might seem to suggest that such policies and their failure are unique to our times and the multilateral institute like the world bank and IMF could be given the benefit of doubt for not being able to see their possible impact.

However, the current phase of globalization of trade and capital flow is highly reminiscent of the colonial era (see e.g. Patnaik 2007, Sethi 2008b). Only direct political control has given way to indirect control through external debt of the developing countries.

In the recent FAO meeting in Rome, the discussion focussed on the current food crisis and the possible ways to solve the problem of severe food shortages in the developing countries. The need to enhance the low food productivity of the developing countries was underlined at the meeting. Apart from other usual platitudes like the need for more donations by richer countries, ecological friendly strategies, etc., the need of a second green revolution was emphasized, but this time the driver of this revolution was prophesied to be Genetically Modified (GM) seeds.

The GM seeds have been extensively employed in the US, Latin America, and India in the past 15 years. In an assessment of the performance of Bt Corn (GM corn resistant to pests ECB and SWCB) in the US in the period 1996–2001 (Benbrook 2001), it was shown that even though upto 20 percent productivity gain was possible, it strongly depended on the soil conditions and other local factors. Overall the productivity gain was shown to be negligible as compared to more conventional seeds. Also, an additional outlay of \$ 659 million was needed for the purchase of seeds while the productivity gain was at least \$ 70 million dollars less. Bt cotton seeds have been used in India since mid 1990s. Their record is dismal if only for the fact that these seeds require assured irrigation for optimal performance while the cotton has traditionally been cultivated in rain-fed, drier regions of India. SCR (2007) shows that cotton productivity growth has fallen in the past one decade as compared to the period of 1985–1995.

In a recent report on the state of indian agriculture, it was shown that with existing technologies it was possible to increase the productivity of many important crops by more than 100 percent (SCR 2007). SCR (2007) argued that the main reasons of low productivity are lack of access to low-interest-rate credit, under-developed irrigation, increased cost of important agriculture inputs following neo-liberal reform, and adverse market conditions. The analysis of RUPE (2008) strongly suggests that debt burden might be the major stumbling block in the farmers' ability to increase capital investment in agriculture in India. One of the main recommendations of SCR (2007) to revive Indian agriculture is to increase state investment in agriculture from a historic low of 1.9 percent at the present to 4 percent of the agricultural GDP.

The under-utilization of agricultural resources in African agriculture has already been noted above. The New Partnership for Africa's Development (NEPAD) recommends the public investment in agriculture to increase to at least 10 percent of public expenditure to fully exploit the existing land and water resources. These recommendations are in direct conflict with the SAP/neo-liberal policies that insist on low government expenditure. However, the damage these policies have done is severe enough that the governments of developing countries around the world are being forced to reverse some of them. In the regard it is of interest to note that Cassava was the only food crop that performed well in Africa in the past 15 years. Its output increased by 30 percent from 1994 to 2004; the yield of Cassava has increased by 50 percent since 1970s (Kidane et al 2006). According to World Bank's own admission, it played no role in the production of this root crop which is an important component of the diet in Africa and can be adapted to varying weather and land conditions (WB 2007, p52).

Recent down-turn in the world financial markets has deflated food commodity prices. Even though the prices remain higher than in 2007, they have seen sharp decline from their all-time high in May 2008. These prices are likely to fall further in the event of an imminent depression and settle at far lower prices than were seen during the boom years since 2005. Is this downturn likely to allviate the food insecurity in the developing country, at least in the short term? If the recent history, i.e. the period following 1980, is an indication, then it is unlikely. As discussed above, both the terms of trades of the commodities exported by the developing countries and their agricultural trade deficits worsened during the time of low and stable prices. Patnaik (2008a) sums up the possible future scenario:

The third world countries will not escape the effects of this Depression...

Two areas are of special concern here. One is the inevitable decline in the terms of trade for primary commodities that will occur in a Depression, which will push cash-crop growing peasants into even greater distress and destitution and into even larger mass suicides. (These have been already occurring for some time on a disturbing scale in countries like India). The second is the loss of food security over much of the third world that will inevitably occur. There are at least three mutually-reinforcing reasons for this: first, the loss of foreign exchange earnings owing to the decline in exports and in the terms of trade will cause a decline in foodgrain availability in food-importing countries

owing to a decline in their import capacity. Secondly, even if food availability is somehow maintained, the decline in the incomes of exporting peasants and small producers and of those affected by the rise in unemployment will mean that large masses of people will simply lack the purchasing power to buy necessary food. And thirdly, if the terms of trade of non-food primary commodities decline relative to food, as has been happening for some time now, then both the above problems will be greatly aggravated.

Given the present state of economic relations between the South and the North, the South gains neither from the boom period nor from a depression. The worsening food security in the developing world is a manifestation of this design. These aspects are also reflected in the long term prediction of prices of the agriculture commodities, which are projected to remain high in the next decade (OECD-FAO 2008). The effects of the structural damage to the agriculture of the developing countries can only possibly be negated by comprehensive policies.

8 References

- Badgley, C. et al. 2007, Organic agriculture and the world food supply, Renewable Agriculture and Food systems, vol 22
- Bagchi, A. K. 1982, The political economy of underdevelopment, Cambridge university press
- Bello, W. 2008a, Capitalism in an Apocalyptic Mood, znet, available at www.zmag.org, Feb 23
- Bello, W. 2008b, How to manufacture a global food crisis: lessons from the World Bank, IMF, and WTO, znet, available at www.zmag.org, May 18
- Chandrasekhar, C. P. & Ghosh J. 2008, Balance of Payments: Do We Need to Worry?, Macroscan, August 1
- Chossudovsky, M. 2003, The Globalization of Poverty and the New World Order, Global Research
- Clark, B. & Clausen, R. 2008, The Oceanic Crisis: Capitalism and the Degradation of Marine Ecosystems, Monthly Review, July-August 2008, Volume 60, Number 3, available at <http://www.monthlyreview.org/>
- CWFT 2007, Current World Fertilizer trend and outlook to 2010/11, FAO
- Dandekar, V. M. 1992, The Indian Economy, problems and prospects, edited by B. Jalan, Penguin books
- Davis, M. 2001, Late Victorian holocausts: El Nino famines and the making of the third world, Verso
- Engdahl, F. W. 2008, 'Perhaps 60% of today's oil price is pure speculation', available on the Web
- Engdahl, F. W. 2008, World Bank Secret Report confirms Biofuel Cause of World Food Crisis, global research, July 10 FAO, 2008a, Crop Prospects and Food Situation, available at <http://www.fao.org/docrep/010/ai465e/ai465e01.htm>
- FAO, 2008b, Food Outlook, available at <http://www.fao.org/docrep/010/ai466e/ai466e00.HTM>
- Gera, N. 2004, Asian Survey, 44, no. 3, 353
- Ghosh, J. 2008, 'The Global Oil Price Story', available on the Web
- Hazell et al. 2007, The Future of Small Farms for Poverty Reduction and Growth, International Food Policy Research Institute, 2020 Discussion paper 42
- Kaldor, N. 1976, The Economic Journal, 86, 344

- Kasturi, K. 2008, *India Together*, August 14
- Kidane, W., Maetz, M., Dardel, P. 2006, *Food Security and Agricultural Development in Sub-Saharan Africa*, FAO report
- Magdoff, F. 2008 *The Political Economy and Ecology of Bio-fuels*, *Monthly Review*, July-August 2008, Volume 60, Number 3, available at <http://www.monthlyreview.org/>
- Magdoff, H. & Sweezy, P. 1986, *Stagnation and financial explosion*, *Monthly Review Press*
- Magdoff, F. 2008, *The World Food Crisis Sources and Solutions*, *Monthly Review*, May 2008, Volume 60, Number 3, available at <http://www.monthlyreview.org/>
- Millet, D. & Toussaint, E. 2004, *Who owes Who?*, zed books
- Monbiot, G. 2008, *These Objects of Contempt Are Now Our Best Chance of Feeding the World*, znet, available at www.zmag.org, July 20, 2008
- Monbiot, G. 2008, *Rich Countries Once Used Gunboats to Seize Food. Now They Use Trade Deals*, *The Guardian*, 26 August
- Moyo, S. 2002, *Africa's Agrarian Transformation: The efficacy of the NEPAD agriculture strategy*
- NAFTA 2008, *Fourteen Years of NAFTA and the Tortilla Crisis*, Americas Program Special Report, IRC Americas Program
- Nkrumah, K. 1965, *Neo-Colonialism: The Last Stage of Imperialism*, Thomas Nelson & Sons, Ltd., London
- NSS 2003, based on situation assessment survey of Farmers in India, four reports NSS 495–498, 59th round
- OECD-FAO 2008, *OECD-FAO Agricultural Outlook 2008-2017*
- Palme-Dutt, R. 1940, *India Today*, Left Book Club
- Patnaik, U. 2007, *The republic of hunger and other essays*, three essays collectives
- Patnaik, U. 2003, *Global capitalism, deflation, and agrarian crisis in developing countries*, social policy and development programme, paper number 15
- Patnaik, P. 1987, *Social Scientist*, Vol 15, No 4/5, p 45-57
- Patnaik, P. 1994, *Social Scientist*, Vol 22, No 9/12, p 4-17
- Patnaik, P. 2002, *Globalization of capital and terms of trade movements*, in the conference on Agrarian reforms and rural development in less developed countries
- Patnaik, P. 2008a, *A Perspective on the Crisis*, available at <http://www.networkideas.org/>
- Patnaik, P. 2008, *The accumulation process in the period of globalization*, available at

<http://www.networkideas.org/>

RUPE 2008, India's Runaway 'Growth': Distortion, Disarticulation, and Exclusion, available at www.rupe-india.org

SAPRI 2002, The Policy Roots of Economic Crisis and Poverty, SAPRIIN publication

Sengupta, R. Cotton and International Trade: Unfair Prices for the Developing World, available at

<http://www.networkideas.org/>

Sethi, S. 2008a, Coffee as a Global Commodity, available at

www.phalanx.org

Sethi, S. 2008b, Neo-Liberal view of colonization, available at

www.phalanx.org

Shiva, V. 1998, in "The Great Grain Drain", Books for Change

SCR 2007, Report of the Steering Committee on Agriculture and Allied Sectors for Formulation of the 11th Five Year Plan (2007-2012), Planning Commission

Vidal, J. 2008, Millions could starve as fertilizer prices soar, Hindu, August 15

WDR 2008, World Development Report 2008, Agriculture for development, world bank

WB 2007, World bank assistance to agriculture in sub-Saharan Africa, an IEG review