

# :: I n f o s e r v e ::

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Drawing a global perspective on Intellectual Property Rights, Biodiversity and Trade from local sources.

## Questioning the success of the Green Revolution

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The world appears to be divided into two major camps of different interests -- the innovators and the consumers. Specifically, the rich North is a reckless innovator and the poor South an unprotected, helpless consumer. In other words, the South is supposed to consume with politeness and obedience what the North produces. This unequal North-South power relation is conducive for creating a global market open to technologies like Genetically Modified (GM) Food, a product of the recently innovated yet highly contested Biotechnology. To open this biotech market also in Bangladesh, meantime, a section of multinational companies (MNCs) and their local agents and naïve admirers as well as the vested interest groups have become active to manipulate the policy decisions in a variety of ways.

Advocating the adoption of biotechnology, former Vice Chancellor of Jahangirnagar University Professor Abdul Bayes wrote an article entitled Biotechnology for Food Security: Risks and Rewards published in The Daily Star on 30 September 2003. In justifying this technology, the article defends the Green Revolution as a "Messiah" that "salvaged" two-thirds of the crop areas now covered by modern varieties. The author reminds his readers by saying, "Had we not hailed adoption of modern rice technology in the 1960s and 1970s, we would have probably experienced a worse situation to turn into a beggar's bowl. Many of the forecasts at that time turned out to be futile. We can only hope that we shall be able to find a judicious path for our survival." He, therefore, prescribes the "judicious path for our survival" while he notes that "biotechnology can bring forth a revolution . . . in food production," and asserts that "Bangladesh . . . must strive for the alternatives, especially the opportunities created by the rice biotechnology."

The renowned, learned professor's concern about food insecurity is genuine because Bangladesh will have to face the toughest challenge to feed its fast-growing population in this century. According to a forecast, the current population of 130 million will nearly double over the next 30 years and the food requirement will be four times higher from now. This reality will continue to widen linearly and generate an increasing tension to feed the estimated 226 million people by 2030 (though, according to Dr.

NI Bhuiyan, Director General of Bangladesh Rice Research Institute (BRRI), the population will be 190 million by 2030).

Yet, any attempt to brand the Revolution as a success is not justifiable at all because it

has proved to be a futile and wrong approach to sustainable development as now it is groaning due to the chronic decline in crop yield coupled with the "intricate problems of pests and diseases." The defence of the Revolution as "Messiah," therefore, remains an illusory notion, a confusing perception, and misleading complacency. Below I will narrate how and why.

## Green Revolution

The search for Green Revolution began in the 1950s on a similar ground of tension for food security, which paved the way for channelling the modern rice technology into the "Third World" countries to grow more food and overcome the food shortage. The American agricultural advisers prescribed package of agricultural technology to the "Third World" countries including erstwhile East Pakistan. The package consisted of four major elements: use of high-yielding varieties (HYV), irrigation, and agrochemical and agricultural machinery. The Green Revolution technology, however, generated dramatic results while it boosted agricultural production by breeding "fertiliser-responsive varieties" of rice in the early 1960s and increased grain yields to 3.6 tons from 1.4 tons per hectare during 1934-58.

## Massive Adoption of Chemical Farming

Chemical farming produced cheap popularity among the farmers and the growers for a quick yield of crops. The growers found that it was much easier to cultivate crops without taking much trouble of preparing organic manure. The number of crops rose high round the year. The farmers took the advantage of growing more food with the chemical fertiliser and pesticide available from the local market. To it was added the high sounding propaganda that quickly motivated the agricultural experts and the farmers to flock around with an enormous response. This created huge marketing opportunities for the western industrialists to make quick money from their chemical fertiliser and pesticide business.

## Frustrating Results and Disastrous Impacts

The Green Revolution, however, ended up with inalienable frustration, as it is found that the rate of crop yields has climbed down and that it cannot be increased even with the optimum application of chemical fertiliser and pesticide. Moreover, the high yields have been cropped at the irrecoverable costs of the environment, ecosystem and human health. Following are some of the disappointing and disastrous impacts of the "Revolution."

## Rapid Decline in Soil Fertility and Productivity

The fertility and productivity of the soil in Bangladesh is declining at an alarming rate due to the depletion of organic matter caused by the intensification of the cropping pattern and rampant use of chemical fertiliser to meet the higher nutrient demand of the HYV crops. Notably, the depletion of organic substances degrades the soil structure which limits the penetration of roots, the infiltration of rainwater and the retention of water, making the soil and the crops susceptible to drought. Further, the microorganisms

essential for the maintenance of soil structure and fertility, and the several varieties of bacteria and algae which fix nitrogen and make it available to the plants have been damaged. The depletion of soil fertility has thus become one of the most serious threats to the future sustainability of agriculture in Bangladesh. This decline is one of the major "rewards" that modernisation has injected into the agricultural sector over the last 40 years.

### Loss of Biodiversity

The HYV has largely affected the biodiversity and traditional local varieties of rice, which have grown through centuries of cultivation in Bangladesh. Many local varieties that existed in the 1960s have disappeared now. The massive use of hazardous pesticide has been central to the depletion of biodiversity. Most insecticides are toxic to fish, birds and other flora and fauna. The habitats of plants and animals that reproduce are getting lost and a large number of them are threatened with extinction.

### The Silent Killing of Life on Earth

Chemical pesticides cause widespread environmental problems such as water pollution, soil degradation, insect resistance and resurgence, destruction of native flora and fauna, and human hazards. The sprayers are getting poisoned and facing premature deaths. The growers who are indiscriminately using pesticides in the field are not aware that they are facing health risk.

The chemical pesticides have largely dissolved in water-bodies through rainfall and floods and are destroying fishes and poisoning the groundwater we drink. Insecticides are heavily sprayed on the dried fishes for their storing and marketing. The potentials of rice-fish mixed agricultural practices to enhance fish production are threatened because the application of pesticides in boro rice crops causes fish mortalities.

Birds, beneficial insects, bees, fishes, etc are the most vulnerable to insecticides.

Insects are becoming stronger equally to beat the action of pesticides. The overuse of pesticides has caused massive destruction of natural enemies of insect pests and resurgence of pest species. This has ultimately increased the use of pesticides.

People are exposed to these toxic elements when manufactured, transported, stored, mixed and sprayed. According to the WHO, pesticides poison 25 million lives every year. About 20,000 unintentional deaths occur every year due to pesticide poisoning. Ninety-nine per cent of all these deaths take place in the developing countries using only 20 per cent of all these pesticides. Most of these pesticides are prohibited but are smuggled into the "Third World" countries and black-marketed in private capacities. For example, the USA exported more than 344 million pounds of hazardous pesticides during 1992-94.

### Our Threatened Existence

The use of chemical fertilisers in growing foods is threatening our existence as these foods have been found with nitrate residues of chemicals. A high dose of nitrite used in

processing the fertilisers gets easily diffused amongst the minerals that plants consume for their growth. Dependent on these natural sources, we are consuming foods along with the residues of poisonous pesticides which are highly persistent and accumulated quickly in tissues. Experts have warned that nitrite throttles the oxygen uptake in the blood, and reduces amino acid which is essential for the human biological system.

The farmers are making a chronic use of chemical fertiliser and pesticide for an increased harvest at the irrecoverable cost of soil fertility driving the future generations into a total uncertainty, says a report published on 19 October 2003 in the daily *Ajker Kagaz*. Mr. Mahbubul Karim, with a reference to a report entitled *Human Development in South Asia: Agriculture and Rural Development*, correctly argues that the so-called Green Revolution has not only damaged our ecology and environment but excluded millions of people from their livelihoods as well. The small farmers of this country have become the victims of a silent but savage process of marginalisation and pauperisation since the HYV was introduced in the 1960s (*The Sangbad*, 10 November 2003).

Hence the demise of the prospect of the GM approach to feed the huge global population.

Biotechnology appears to be another trap set by the industrialised North to hunt the vulnerable South and popularise another catastrophic rhetoric of feeding the hungry and malnourished population in the "developing" countries. This is a new form of the processes of imperial and post-imperial exploitation that have historically underdeveloped the South through unequal power relations with the North. The generations ahead may have to pay for these costs and sacrifice enormously over an unknown period of time to address the concerns and repair the damages if we fail now to choose the right path to our survival.

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[source: The Daily Star]

[http://infoserve.blogspot.com/2003\\_12\\_07\\_infoserve\\_archive.html](http://infoserve.blogspot.com/2003_12_07_infoserve_archive.html) [Accessed 31 March 2007]