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World Agriculture— Its Crisis, Cause And Solution

I. Agriculture—The Most Important Human Profession

Agriculture is the most important human profession that is linked with the entire process of environment (i.e., comprising air, water, land, climate, bio-diversity, forest, etc.), on the one hand, and constitutes the lifeline of human species (i.e., human food and health), on the other. As such, agriculture demands the highest priority in human agenda. But, in fact, it occupies a very low position in the prevailing world corporate capitalist system's list of business and thus given a third place in the economy, with the first two positions going to services and manufacturing sectors.

The basic reason concerning agriculture's 3rd rate position in the present society lies in corporate capitalist system's fundamental concept which holds that money or wealth constitutes the capital (i.e., the most precious thing) in society and that money generation is the most important task, with its generators (i.e., wealth-owners) enjoying every right to use the environmental and human resources in any manner they deem fit.

2. Crisis Of World Agriculture

Today, world agriculture is, in general, faced with a multi-dimensional crisis. This can be seen from the May 2005 report released by Food And Agriculture Organisation of the United Nations. The Report (as summarised by the Hindu: 29.5.05, p- 12) said, "close to midway mark of the 2015 deadline set by the World Food Summit in 1996 for reducing hunger, the Food And Agriculture Organisation (FAO) of the United Nations has described the progress made so far as disappointing.''

Also climate change threatens to increase the number of the world's hungry by reducing the area of land available for farming in developing countries.

The FAO made this observation in a report presented to the committee on world food security that reviewed the progress on hunger in the world this week.

India stands to lose 125 million tonnes, equivalent to 18 percent of its rain-fed cereal production from climate change. However, "in about 40 poor, developing countries, with a combined population of 2 billion, including 450 million under-nourished people, production losses due to climate change may drastically increase the number of under-nourished people, severely hindering progress in combating poverty and food insecurity,'' the FAO said.

The severest impact was likely to be in sub-Saharan African countries, which are the least able to adapt to climate change or to compensate for it through increased food imports.

Sixty-five developing countries, home to more than half the developing world's total population in 1995, risk losing about 280 million tonnes of potential cereal production as a result of climate change. This loss would have a value of $56 billion, equivalent to 16 percent of the agricultural gross domestic production of these countries in1995.

The World Food Summit goal was set in 1996 and reinforced by the Millennium Development Summit (MDS) in 2000."We are almost certain to miss by a wide margin the target for cutting the number of under-nourished people in half (by 2015), if the current trends persist," the FAO notes.

The FAO estimates that 852 million people worldwide were undernourished in 2000-02: 815 million in developing countries, 28 million in the countries in transition and nine million in the industrialised countries. South Asia and sub-Saharan Africa have disproportionate share of the world's hungry. The number of under-nourished people in the developing countries decreased by only nine million during the decade following the World Food Summit baseline period of 1990-1992. However, during the second half of the decade, the number of chronically hungry in developing countries increased at the rate of almost four million a year, wiping out two-third of the reduction of 27 million achieved during the previous five years.

These estimates refer to chronic under-nourishment. However, causes such as conflicts, economic failures and natural disasters including the recent Tsunami estimate the "transitory hunger" to affect around five to ten percent of the world population".

The comment speaks for itself.

3. State Of Indian Agriculture

Turning to the present state of Indian agriculture, while it has, during the past 54 years (1950-2004), quadrupled its agricultural production (50 million tonnes to over 200 million tonnes), its agricultural growth rate has been far less than the world standards and, today, its agriculture is confronted with serious challenges in its both sectors: (1) irrigated farming, and (2) dry land cultivation.

A. Challenges Facing Irrigated Farming

Over Exploitation Of Water Resources

The chemical based agricultural technology requires and uses much more water in its production process than the traditional technology. With its stress on crop intensification, it adversely affects the water balance of the concerned region. Naturally, the water table in the area where ground water is used declines. Sometimes, when the shallow tube wells go out of use, the farmers are required to spend additional money worth crores of rupees for installing submersible pumps.

In areas where water is available through canals, or where the ground water table is nearer the surface, the problems of water logging and salinity have arisen, making these areas unfit for cultivation of crops.

Soil And Environmental Degradation

The chemical technology adversely affects the soil health, because its chemical inputs, like fertilisers, pesticides, insecticides, etc., while serving the crop, have a negative effect on land-creating micro-nutrient deficiencies, aeration problem and nitrate pollution. Alongside the degradation of land, the chemical inputs cause the killings of many bird and animal species, add to climate warming and harm the growth and spread of trees—thus degrading the entire environmental process.

The chemical technology experts have also been forced to modify their input service by adopting the technique of integrated nutrient management and a change in the cropping pattern. It suggests the incorporation of crop residues like legume and green manuring crops in the cropping system. This traditional organic manure improves the potential of the soil to sustain high yield in addition to saving of nitrogen and improving micro-nutrient availability. Farmyard manure, poultry manure and press mud manure—all these sources of organic manure are now being suggested by chemical professionals. Also, the burning of wheat and paddy straw left after combine-harvesting need to be recycled rather than burning and creating pollution problems.

Growing Pest Problems

The liberal use of chemical inputs and crop intensifications has accentuated pest problems. To check the pest damage, pesticides, are used liberally. The overuse of pesticides has resulted in the development of resistance in some of the pests and resurgence of new pests. The use of spurious pesticides and insecticides further worsens the problem. Pesticides spray technology being adopted by the farmers also needs correction. To avoid further spread of these maladies, the chemical technology experts suggest the integrated pest-management that include mechanical, biological and cultural measures and host plant resistance.

Adoption Of Faulty Technology

Cultivation of spurious germ plasmas and staggered sowing of cotton has resulted in the generation of many new dreaded pests in cotton. It has also resulted in excessive withdrawal and wastage of underground water. Disease-prone germ plasmas and harmful varieties of sugar-cane have harmed the farmers.

High Cost Of Production

The cost of inputs, i.e., fertilisers, pesticides, herbicides and hybrid seeds has increased enormously. The excessive use of inputs has led to the resurgence of new pest species—weed biotypes and pathogen strains. Pests like heliothis and white fly in cotton and Phalaris minor in wheat have developed resistance to potent pesticides. Excessive use of inputs adds to the cost of production.

Likewise, the kind of machinery available today has become uneconomical due to the shrinkage of land-holdings. Tractors have often remained under-utilised and added to the debt of farmers. As a result, this debt has either resulted in the suicides by thousands of farmers in India or led to the desperate sale of this machinery in local market to pay back debts.

Inadequate Post Harvesting Arrangements

There is a huge wastage, about 30-40 percent, of perishable agricultural products such as fruits and vegetables. Next, due to lack of organised marketing network, the involvement of inter-mediaries is very much high. Thus, there is an urgent need to set up large-scale processing units. Efforts are also needed to develop fruit and agricultural varieties suitable for processing. Likewise, infrastructure for bulk handling, transport, storage and marketing of various agricultural commodities need to be established. The necessities of roads, power, tele-communication for linking processing units to producers of raw material in rural areas are inadequate at this moment and need to be arranged before taking up these new ventures.

To bring further improvement in milk products, it is necessary to make arrangements for providing better facilities like chilling at the dairy level and its transport to milk processing units and to ensure remunerative disposal of milk and milk products.

Lack Of Agro-Based Industries

The wastage of farm products in India is estimated at over Rs 52,000 crore each year. This has been stated in a study presented at the third India-ASEAN Business Summit, October-2004 at Chennai. It said that 25 percent of India's agriculture produce was wasted between harvest and consumption. The Indian food processing industry is still nascent. Only 2 percent of fruits and vegetables and 15 percent of milk products are processed. Thus, to meet the challenges of new emerging problems, agro-based industries need to be established forthwith.

Insufficient Emphasis On Exports

Tremendous potential exists for the export of fruits, vegetables, flowers, potato, basmati rice, durum wheat, etc. There is need to demarcate the areas under these crops for production, procurement and processing. Further, efforts are needed for their bulk handling, storage and transport to reduce cost of production.

For export in agriculture, there is an urgent need to create marketing units of experts at the state level, who should be well aware and equipped with the latest trends in marketing of the agriculture produce.

Constraint Of Diminishing Size Of Land Holdings

A major constraint on agricultural development is the continuously diminishing size of the land holdings. With increasing population pressure, land holdings are getting subdivided and have become uneconomical. It would be impossible to apply profitable technology on such undersized farms. Though the productivity of small farmer is similar to that of a big farmer, yet the average income is low because of small holdings. Over the time, the rental value of land has also gone down. The land lease/ownership laws would need to be amended to develop large operational holdings, such as 100 acre cooperative farms comprising small farmers and 10 acre private farms owned either by middle farmers or taken on lease by some small or middle farmers from the poor farmers.

Low Funding For Research

Under the changing scenario of agriculture, research institutes must be funded liberally to develop commodities suitable for international marketing. Ample funds are needed to deliver the improved technology at the door-steps of the farmers by the extension workers. Government is required to

frame policies for funding in research / extension to save the Indian farmers, 70 percent of which is dependent on agriculture.

Inadequate Insurance Facility

The state of insurance facility in agriculture is highly deplorable. It hardly touches even 10 percent of the total crops. A crop insurance that is based on accurate estimate of risk can work as an incentive for all categories of farmers.

Stagnation In Productivity

As a result of the above-mentioned disincentives, there has occurred stagnation and even some fall in agricultural productivity.

Decline In Farmers' Incomes

The stagnation in agricultural productivity and even some fall in it at some places has inevitably resulted in decline in farmers incomes.

Farmers' Indebtedness And Drug Abuse

The fall in agricultural productivity and decline in farmers' incomes has been naturally followed by farmers' indebtedness, especially the poor. Unable to pay their outstanding debts back, the farmers have, in order to forget their worries, resorted to drug abuse on a large scale.

Suicides By Farmers

All the above-stated negative features in agriculture have frustrated the farmers beyond control who, after their persistent efforts to get out of their agricultural existentional crisis, sought their salvation from continuing worries through suicides.

B. Challenges Facing Dry Land Cultivation

As regards dry land farming, the following issues need to be tackled both on the short-term and the long-term basis.

Dry Land Problem

Dry lands are impoverished areas which are deficient in essential plant nutrients, especially nitrogen and phosphorus. According to experts, dry land constitute about 40 percent of the earth's surface.

Dry land cultivation in India is practiced on about 97 million hectares or about "70 percent of the total arable land of 143.8 million hectares. Even after the entire irrigation potential of India is developed by about 2010 AD, some 50 percent of the arable land will remain rain-fed. And further, many of the rain-fed areas are subject to uncertain rains.

India's dry land cultivation supports 40 percent of the human population and some 60 percent of cattle. It contributes about 40 percent of India's total food production.

Dry land holdings are very small. About 76 percent of dry land farmers own less than two hectares which may be scattered and fragmented. Even limited mechanisation becomes difficult under such conditions.

Soils of dry land are extremely damaged. Extended periods of aridity and unrestrained grazing destroy the vegetative cover. Naked soil exposed to the vagaries of nature, like the running water and blowing winds.

Removal of humus rich top soil leaves behind subsoil impoverished of vital plant nutrients. On an average, soil loss due to erosion in the country is 16.4 tonnes hectares per year. This explains rampant infertility typical of dry land soils.

Soil erosion has been and will continue to be the most serious problem on the productivity front. About 175 million hectare of India's total geographical area of 329 million hectare suffer from various processes of land degradation.

Animal husbandry is widely prevalent in dry land areas. So creating fodder is as important as food security for human and animal survival.

Water Harvesting

By now, it has been well-established that there is enough scope to harvest rainwater even from areas with low rainfall. Rain annually delivers 400 million hectare meters water equivalent on Indian soil. Due to topographical limitations, around 40 percent of the available surface flows can be diverted to big reservoirs (reports of the irrigation commission).

A significant quantum of rainwater is thus available for harvesting through small scale interventions, like watersheds (a watershed is a land area that drains surface water through a single outlet. An area drained by a river is thus the largest watershed, while medium watersheds are those that are drained by rivulets or streams). The intercepted water can effectively counter the drought related crop failures. The National Commission on Agriculture has suggested rainwater harvesting through water-sheds.

Further, every effort should be made to conserve the runoff water in small and medium reservoirs (i.e., tanks, wells, ponds, etc.) to augment drinking water supplies to meet the needs of the livestock and provide for crop-saving irrigation.

Apart from raising productivity and imparting stability to dry land agriculture, the check on runoff water will eliminate erosion, improve the hydrology of the catchment area, provide much needed water during periods of crisis and reduce siltation.

Land-Use System

Not all dry land are suitable for crops, some may be suitable for pasture development and others for tree-farming, dry land horticulture and agro-forestry systems. Alternative land-use systems are less risky, more productive and remunerative, particularly on marginal lands.

Dry land farming technology is highly soil-specific and thus varies from region to region, depending on the type of soil and rainfall pattern in the area.

Selection of land-use farm will depend on land capability, environmental conditions and market acceptability and demand.

Choice of improved crop varieties, fertiliser use and timeliness in agriculture operation are key elements of improved crop technology. Crop diversification is a compulsory component of any land-use system. Tree or pasture-based crops are harmonised with agriculture on a catchment basis.

Dry Land And Poverty

Dry land farming is closely related to the perpetuation of poverty in India. 70 percent of our arable land providing subsistence living to 50 percent of population speaks for itself. Logically, its solution will, on the one hand, help the conservation of our environment, and, on the other, benefit the large number of the masses of our people and the national economy.

Obviously, it is a stupendous task which cannot be solved by traditional bureaucratic methods. It calls for a basic change in attitudes and behaviours. First of all, involvement of the people is a pre-condition for arresting further land degradation and its regeneration. This is essential not only because of the vastness in area but also due to its tendency to expand if left unattended. Next, the existence of a large number of landless adds another dimension to the problem. The complication comes from the ownership of a major portion of barren lands by the state alongside a large number of individuals. Another issue is the implementation of watershed programs involving the lands of various owners.

To overcome the above constraints and resolve the problem in a proper manner, it is necessary to take the following steps.

A. To propagate the sociology of dry land farming and its beneficial effects for the villages, regions and the country by opening information centres at various selected places in rural areas.

B. To provide various incentives to various categories of farmers. That is, the allotment of cultivable waste lands (excluding the forest and common lands) and illegally occupied forest, government or pasture lands to the landless (through the lands distribution committees having 50 percent reservation of the landless) along with the requisite financial aid to meet the needs of cattle, implements and other inputs; reduction in the debt burdens of dry land farmers; credit facilities to the necessary extent, etc.

C. To organise the concerned persons into cooperatives and form village-wise associations (Gram Vikas Mandals, GVM) for attending to the problems of dry land farming in each village.

D. To inculcate in the village community the responsibility for all the dry land farming operations in the village regardless of the different positions of ownership.

E. To involve the women in organising the movement for dry land farming by making them co-owners of the lands along with their husbands.

F. To work out the modalities and enact necessary legislation promoting co-operativisation of the watershed based dry land farming, considering soil and rainwater as national assets. Welded into a cooperative, a village community can play a crucial role in watershed-based resource development, its conservation and efficient use, namely, water resource development, waste-land development, soil and water conservation, agricultural extension, bio-gas, agro-forestry and savings/credit schemes.

4. Reasons Underlying World Agricultural Crisis

The fundamental cause underlying the above crisis lies in the prevalent chemical-based agricultural technology. The basic agricultural inputs of this technology i.e., fertilisers, pesticides and insecticides, are highly chemicalised which, on the one hand, destroy all the organic nutrients contained in the soil and kill the whole lot of the crop friendly pests, thus resulting in the degradation of soil and finally turning it into a barren land and, on the other, deplete the water resources through their high water consumption. In the 40-years (1964-2004) of its operation in Punjab, this chemicalised agricultural technology has harmed all the main agricultural components, i.e., environmental resources, human health, crop productivity, financial growth, agrarian structure, etc. Similar types of negative effects have appeared practically in all those countries, using the chemical oriented agricultural technology. This highly negative performance by the chemical-based agricultural technology has brought it to a dead end in the very beginning of the 21st century. However, the whole lot of the top controllers of the existing world corporate capitalist order has, instead of admitting the entirely negative concept and role of their much-touted chemicalised agricultural policy zealously undertaken to cover up the reality by propagating that all the existing agricultural lapses of the chemicalised agricultural technology will be set right by the newly-discovered technique of genetic-modification (GM) or transgenic changes (whose real position has been dealt with in the next chapter).

It is worth-noting that the entire architecture of the chemicalised agriculture was conceived and produced by the MNCs who continue to hold its monopoly from its very start to this day. The corporate capitalist-led governments all over the world have since adopted this agricultural technology as the very foundation of their respective national agricultural sectors and policies.

From the very beginning of the chemicalised technology the corporate capitalist government and business leaders have been calling and publicising it as the emergence of the 20th century 'green revolution'. They continued to characterise it as the liberator of humanity from hunger and a corner-stone of food security for all times to come. But all these high-sounding claims have proved a flop. Nearly 40 years after the practice of this miraculous agricultural technology, the world is confronted with more deadly problems in the domain of agriculture.

All other reasons, like lack of skill & efficiency in resources and input use; poor infrastructural facilities (like power, transport, storage, etc.); inadequate credit services; high interest rates by money lenders; inadequate crop insurance service; negligible agricultural share in India's aggregate export; lack of farmer needed research; unavailability of information about modern farming techniques and market prices to the farmers; short-comings in the agricultural marketing system; lack of education, poverty, unemployment, outmoded customs and traditions in the rural areas; etc. are expressions of a mismanaged agricultural policy.

5. Two Alternative Ways To Come Out Of World Agricultural Crisis

A). GM or Transgenic Farming

One is the newly discovered agricultural model of genetically modified (GM) or transgenic farming. World food and agriculture organisation (FAO) has upheld this path as a great breakthrough

in the field of agriculture, providing an answer to world's agriculture problems. Trade markets, capital institutions, UN and all national governments have backed it.

It is interesting to recall to mind a similar type of appreciation by FAO and other agriculture experts at the time of the appearance of chemical-oriented agricultural technology about 40 years ago. It was then lauded as the green revolution of the 20th century.

Now, it is quite obvious that this chemical-based technology and its products have caused a great harm to almost all environmental components (land, water, bio-diversity, climate, forests, etc.) and human health, while only benefiting a few MNCs who continue to hold the monopoly of this technology and go on getting billions of dollars as subsidy each year on their products (chemicalised fertilisers, pesticides, insecticides) from almost all governments in the world. The fact of the degradation of the environmental resources has now been accepted by all renowned agricultural experts (including FAO) all over the world.

A highly reasonable worth-mentioning fact is that no agricultural agency or expert raised his little finger to demand a trial of the chemicalised agricultural technology even at the laboratory level. Everyone quietly accepted it as the harbinger of a new agricultural era. But, now 40 years after its performance, every one of them is in search of a new formula to pull agriculture out of the prevailing multi-sided crisis,

Again, the new formula of GM or transgenic technology has been provided by the same MNCs on the basis of research carried out by their employed agricultural experts. But this time, the situation is quite different from the earlier one. While the FAO and some other experts have started to welcome the above device an answer to the problems of the world agriculture, half of the world scientific community and all the environmentalist and humanist groups have raised their voice against the GM technology by characterising it as harmful for the environmental and human cause. The world corporate lobby and its hangers on desire that the new GM agricultural technology, like the chemical-based one, be silently accepted by the world community.

Nature-Human Centric Viewpoint holds that a world debate by the agriculture experts, environmental and human right groups, farmers and other interested peoples be conducted in the different regions and areas of each country on the following points.

a). Should agriculture be market-driven or environment-human oriented.

b). Where does lie the cause of world hunger and under-nourishment existing in various areas and regions of the world. Does the cause of one-fifth hungry people of the world lies in the inadequate food production or in an unjust social order.

c). How should one define a just and proper agricultural policy.

B). Environment-Human Oriented (or Organic) Agriculture

The above approach holds that organic farming represents a mode of production that takes proper care to safeguard and develop all environmental resources, on the one hand, and upholds and serves the human interests on the other. The main features of the organic farming may be stated as follows.

Definition

Simply defined, organic farming denotes a system of agricultural production that prohibits the use of all synthetic inputs, makes soil building and crop rotations mandatory and uses the techniques of inter-cropping, mulching and integration of crops and livestock. It promotes and enhances agro-ecosystem, health, including bio-diversity, biological cycles and soil biological activity. Properly managed, organic farming reduces or eliminates water pollution and helps conserve water and soil on the farm. A few developed countries, e.g., Germany, France, compel or subsidise farmers to use organic techniques as a solution to water pollution problems.

Although still only a small industry, organic agriculture is becoming of growing importance in the agriculture sectors of many countries, irrespective of their stage of development. In Austria and Switzerland, organic agriculture has come to represent as much as 10 percent of the food system, while USA, France, Japan and Singapore are experiencing growth rates that exceed 20 percent annually.

The demand for organic products has also created new export opportunities for the developing world. Since demand for a variety of foods year-round makes it impossible for any country to satisfy

all its organic food needs domestically grown products—many developing countries have started to tap lucrative markets for organically grown product—for example, tropical fruits to the European baby food industry, Zimbabwe herbs to south Africa, African cotton to the European Community, and Chinese tea to the Netherlands and soybeans to Japan.

Difficulties In Early Phase Of Transition

Logically, farmers experience some loss in yields after discarding synthetic inputs and converting their operations to organic production. Before restoration of full biological activity (e.g., growth in beneficial insect populations, nitrogen fixation grow legumes), pest suppression and fertility problems are common. Sometimes it may take years to restore the eco-system to the point where organic production is possible. In these cases, other sustainable approaches that allow judicious use of synthetic chemicals may be more suitable start-up options. One strategy involves converting farms to organic production 'in instalments', so that the entire operation is not put at risk. Most studies have found that organic agriculture requires significantly greater labour inputs than conventional farms. Therefore, the diversification of crops typically found on organic farms, with their different planting and harvesting schedules, may distribute labour demand more evenly, which could help stabilise employment. As in all agricultural systems diversity in production increases income-generating opportunities and can, as in the case of fruits, supply essential health-protecting minerals and vitamins for the family diet. It also spreads the risks of failure over a wide range of crops.

Nevertheless, organic farmers face huge uncertainties. Lack of information is a major obstacle to organic conversion, according to 73 percent of North American organic farmers. Extension personnel rarely receive adequate training in organic methods and studies have shown that they sometimes discourage farmers from converting. Furthermore, institutional support in developing countries is scare—professional institutions capable of assisting farmers throughout production, post-production and marketing processes are non-existent in many developing countries. In such conditions, it is highly unlikely that tenant farmers would invest the necessary labour, and sustain the difficult conversion period, without some guarantee of access to the land in later years, when the benefits of organic production emerge.

Impressive Premiums

Typically, organic exports are sold at impressive premiums, often at prices 20 percent higher than identical products produced on non-organic farms. The ultimate profitability of organic products varies, however, and few studies have assessed its long-term prospects. Nevertheless, under the right circumstances, market returns from organic agriculture can add to local food security by increasing family incomes. Entering this lucrative market is not easy, however. Farmers and agri-businesses seeking to sell their products in developed countries must usually hire an organic certification agency to annually inspect and confirm that they adhere to the standards established by various trading partners.

Environmental Gains

Most organic farmers are motivated by more than economic objectives—their aim is to optimise land, animal, and plant inter-actions, preserve natural nutrient and energy flow, and enhance biodiversity, all of which contribute to sustainable agriculture.

They have adopted many of the soil and water protection and conservation techniques used to combat erosion, compaction, salination and other forms of degradation. Their use of crop rotation, organic manure and mulches improves soil structure and encourages development of a vigorous population of soil micro organisms. Mixed and relay cropping provides a more continuous soil cover and thus a shorter period when the soil is fully exposed to the erosive power of the rain, wind and sun.

Organic farmers also employ natural pest controls—e.g., biological control, plants with pest control properties—rather than synthetic pesticides which, when misused are known to kill beneficial organisms, cause pest resistance and often pollute water and land. Reduction in the use of toxic synthetic pesticides, which poison an estimated three million people each year, should lead to improved health of farm families. Eliminating the use of synthetic nitrogen fertiliser greatly lowers

the risks of nitrogen contamination of water, while crop rotation is a widely used method of fertility maintenance of pest and disease control. Most certification programmes restrict the use of mineral fertilisers, which may instead be necessary to supplement organic manure produced on the farm. However, natural and organic fertilisers from outside the farm, e.g., rock phosphate, potash, guano, seaweed, slaughterhouse by-products, ground limestone, seaweed, wood-ash may also be used.

Finally, crop rotation encourages diversity of food crops, fodder and under-utilised plants, which, in addition to improving overall farms production and fertility, may assist in the on-farm conservation of plant genetic resources. Integrating livestock into the system adds income through organic meats, eggs and dairy products, as well as drought animal power. Three crops and on-farming forestry integrated into the system provide shade and windbreaks, while providing food, income, fuel and wood. Integrated agro-aquaculture may also be found within diverse organic agriculture systems.

Organic Farming—Thousands Of Years
Traditional Farming

In fact, organic farming is no new invention. It is the traditional agricultural production method that has, during the course of its ten thousand years practice developed to its present stage. Forty years before also, it was the predominant agricultural production system of the world. For the time being, it has not much appeal to the corporate business and ruling circles.

6. For According First Position To
Agriculture In Development Model

Taking into account the highly important position of agriculture (concerned with human food and health, on the one hand, and with the proper development of all environmental resources, i.e., land, water, climate, bio-diversity, forests, etc., on the other), it is highly essential that the organic-oriented agriculture be given the first position in the development model in terms of investment, rural credit, crop-insurance on low premiums, exports, relevant technology, bio-seeds and bio inputs, land-reforms, etc.

7. Social Need To Change Present
Corporate Capitalist System

To accord a proper place to agriculture in human society, it is necessary to change the capital (i.e., money and wealth)-oriented corporate capitalist system and its double dealing style (i.e., saying one thing and doing another) and to replace it by a nature-human directed social system which stands for two top priorities, i.e., environment and man and which follows 5 basic principles, i.e., environmental promotion, fair equality (i.e., empowerment of the people in place of corporate capital supported political parties and business circles, social security to every deprived and needy person and the rationalisation of irrational income differences in the proportion of 1:5), productivity (or growth rate), peoples-led democracy and all-sided transparency.

8. Sum Up

Summarising all that has been said above, one can say that the chemical-based farming has harmed world agriculture, beyond repair. The GM-oriented technology will further wreck the world agricultural structure. The only wayout lies in Nature-Human Centric (or organic) farming.