Punjab Faces A Dreadful Agricultural Crisis, Its Cause Lies In Anti-Farmer Policy Of State And Central Governments

Solution Only Resides In Empowerment of Punjabi Farmers On The Basis Of People-Environment-Led Cooperative Farming

1. Punjab's Multi-Dimensional Agricultural Crisis

A

Punjab is one of the smallest states of India, representing 1.5 percent of its geographical area and 2.6 percent of its cropped area. As a part of the world, it covers 0.0003 percent of the global geographical area.

Punjab used to be a model in foodgrains production for the world in general and India in particular in the post-green revolution period of 2.5 decades (1970-95) of the 20th century. At the global level, it used to produce 2.27 percent of wheat, 2.04 percent of rice and 2.05 percent of cotton in the total production of these commodities. At the national level, it used to produce 9 percent of the total national agricultural production, producing 21 percent of wheat, 10 percent of rice and 15 percent of cotton of total produce under these crops in the country. It has been contributing 50 percent of rice and 70 percent of wheat to central pool for the last 2.5 decades. Further over 95 percent of the foodgrains that are moved inter-state to feed deficit areas through the public distribution system are the stocks procured from this state. Obviously, the concepts of India's national food-security and self-sufficiency rest heavily on Punjab.

B

At the time of independence and partition of the country in 1947, Indian Punjab (which then included present areas of states of Punjab, Haryana, parts of Himachal Pradesh and Chandigarh Union Territory) was a foodgrain deficit area. In 1951, production of foodgrains was about 1.99 million tonnes only, of which wheat was 1.10 million tonnes and rice 0.11 million tonnes. Total real gross domestic product of the state at 1970-71 prices was Rs. 655 crores only, 54.4 percent of which originated from the agriculture sector. Although at that time also the cropping pattern was dominated by foodgrain crops, occupying 68 percent of the cropped area, yet 38 percent of the area was cropped with pulses and coarse grains, mainly on un-irrigated lands. With net area of 3,544 thousands hectare and gross cropped area of 4,170 thousand hectare, intensity of cropping was 118 percent only. Fertilisers and pesticides were not used by the farmers, tubewells were conspicuous by their absence and tractors were not much known in the state. Only 52.3 percent of the area was irrigated and land-holdings were quite fragmented.

In the 1950s,the state of Punjab (which then included Haryana also), started moving on a growth path with mandatory consolidation of land-holdings, which was considered a prerequisite for utilisation of canal irrigation water that became available through the Bhakra-Nangal Canal System. Simultaneously, availability of electric supply through Bhakra Hydel Project encouraged the installation of tubewells on consolidated holdings that provided assured irrigation supplementing the canal water supply. Yet even in 1960-61, the agricultural GDP of the state (54.01 percent of the total state GDP) at constant prices was Rs 473.7 crore only. Production of foodgrains improved to 3.16 million tonnes of which wheat was 1.74 million tonnes and rice 0.25 million tonnes. Balance 1.84 million tonnes were coarse grains and pulses. Irrigated area increased to 54 percent of the net sown area and intensity of cropping improved to 121 percent.

The cropping pattern was still dominated by wheat with 29.6 percent of the cropped area, pulses 19.08 percent, coarse grains 10.52 percent and cotton with 9.4 percent of the cropped area of the state. Gross Cropped Area and Net Sown Area increased marginally from 4,170 thousand hectare and 3,544 thousand hectare to 4,732 thousand and 3,757 thousand hectare respectively. Productivity of crops started improving but only marginally. Yield of wheat in 1960-61 was still 1. 244 tonnes per hectare. Rice productivity was 1.0 tonnes, American cotton 0.269 tonnes and sugarcane 36.54 tonnes only. This situation continued with only marginal improvements up to the mid-60s.

C

A breakthrough in Punjab's agricultural production was achieved in the year 1965-66 when the green revolution technology, including its high-yielding Mexican varieties of wheat were, for the first time, introduced in the state. Another big advance came in mid-1970s when, with the introduction of dwarf varieties of paddy, the production of rice increased manifold.

During the past 30 years (1970-2000), the foodgrains production in Punjab increased from 2 million tonnes (MT) to 24 MT—i.e., a twelve-fold increase.

The total production of foodgrains (cereals and pulses) in the year 2001-02 was 24.9 million tonnes. But it seems that the yields of wheat and rice have reached a plateau and there is a notable fall in areas under other crops.

Today, out of Punjab's total area of 5.04 million hectare, 4.21 million hectare is under crops. Thus, over 84 percent of the area is cropped. Intensity of cropping has increased from 118 in 1947-48 to 185 percent today. Some 94 percent of the cultivated area is irrigated against 53 percent in1950-51. Thus, extensive crop cultivation mainly with paddy-wheat in rotation, widespread irrigation and intensive use of chemical inputs (insecticides, pesticides, fertilisers, etc.) characterises the Punjab agriculture.

However, the afore-mentioned pleasant facts are only one side of the story.

D

The other side of the above story is marked by more distressing facts.

That is, Punjab agriculture, after an exemplary rise in production, is today confronted with some very serious problems. Its productivity of rice, wheat, cotton, sugarcane, maze, etc., is declining. Its environmental factors of production—soil, water, forests, bio-diversity, etc.—are getting overstrained, with the soil even getting degraded. Its rural economy is becoming more and more inequitable. There is no scope of expansion of the area under cultivation. Most of the crop land has come under plough. The cropping intensity has risen to a very high level. The consumption of the major agricultural inputs is much above the national level—170 kg. In view of the growing population, the fragmentation of land-holdings has made agriculture uneconomic for the marginal and small farmers. The increase in the price of inputs and labour wages has pushed the cost of production up. Data available from 1975-76 to 2001-02 shows that the cost of cultivation of wheat is up 7 times, cotton 8 times and paddy as much as 11 times. The growing cost of farming has led to increased indebtedness among the agricultural community. The total agricultural debt calculated for Punjab stands at Rs 12,494 crore in 2003 from Rs 5,701 crore in 1997. The annual interest burden of debt has been worked out at Rs 2,500 crore, i.e., about 15 percent of the net value of crop production. The developing unviability of the Punjab agriculture has widened the rural-urban income gap, given rise to depression and drug abuse amongst youth, generated family tensions, increased crime, like dacoities, thefts, means of illegal money-making affected the overall state's economy resulting in declining per capita income compared to other states in India and resulted in a large number of farmers suicides (officially stated to be 2,116 in 2004, while some Kisan organisations of Punjab put them at more than 13,000). All this is obvious to a keen observer of Punjab agricultural scene.

Now it is more than clear that, while the green revolution in Punjab contributed the major share in achieving the food security in India, it immensely harmed Punjab's natural and human resources.

E

The 2004-Human Development Report for Punjab, an initiative of the state government in association with the United Nations Development Programme and the Planning Commission,

provides some startling statistics; while there is sharp decline in the percentage of cultivators between 1961 and 1991 (46 to 31), there has been a significant rise in the percentage of agricultural labourers in the same period (10 to 23). Since the proportion of agricultural labourers compared to the entire body of agricultural workers was only 8 percent in 1951, it is apparent that the reverse trend started only in the post-1960 period soon after the green revolution phase.

The steep rise in agricultural labourers, the Report refers to as pauperisation of the small and marginal farmers. Since then, holdings have shrunk three times. Now, as the Report states, anything less than 5 acres is not viable. Various schemes being introduced come a cropper for the small and marginal farmer who is so engrossed in making two ends meet that corrective steps by the government fail to convince him. The upshot of this is that every household in the state is making a bee-line to go abroad by fair means or foul, otherwise seeking some job in any Indian city.

According to the Report, diversification to high return crops is the need of the hour because while the yield of wheat has grown at a snail's pace, the yield of rice has remained stagnant and that of cotton has declined. As the net value of all crops per acre has remained stagnant, expenditure on farm inputs has grown stupendously. This has resulted not only in indebtedness of the farmer but also in a negative agricultural growth in the state. There are of course other adverse effects, including declining ground water table. Similarly, contract farming requires private sector participation in capital inflow and transfer of technology. Obviously, in the process, unless the interests of the private sector entrants are safeguarded, the scheme would not make much headway. Not just this, unless the farmer finds his own interests secure, he would not venture into the scheme. This obviously requires assured marketing of the crops produced under the scheme.

The underlying theme of the Report is the need to have a strategy, which delivers a high as well as a sustainable growth rate. The steps taken over the years in the field of agriculture have not borne the required results.

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From the foregoing account, it can be seen that Punjab is facing a serious multi-dimensional agricultural crisis.

Firstly, the environmental dimension of the crisis is quite serious due to the decaying of natural resources. Soil is sick; water resources are declining; salinity and water-logging are on the rise; water, both surface and underground, is getting polluted due to industrial effluents, such as nitrate, sulphate and chloride and is becoming unfit for human consumption. The forest cover (mainly concentrated in Shivalik hills) is shrinking. It forms only 5 percent of the state's geographical area, although it should at least be 20 percent of its land size. Even 10 percent tree cover constitutes an unhealthy environment.

Secondly, the human related aspect of the crisis is no less serious. Human numbers are growing; poverty increasing; unemployment is on the rise; education (especially at the primary level), health-care and infrastructure are in a bad shape; a discouraging atmosphere prevails in rural areas due to lack of education, poverty, unemployment, ignorance, superstition, etc. The condition of the agricultural worker and the marginal and small farmers is getting worse.

The third, feature of this crisis is that agriculture is no longer a remunerative profession in the state. The agricultural productivity is falling, while the cost of inputs is constantly rising; the overall and the pre capita agricultural growth rates are far less than the national averages; there is a declining trend in cotton, sugarcane and maize, while wheat and rice are stagnating; per acre real income (base 1981-82) from paddy-wheat rotation cropping has gone down; Punjab rice has lost its earlier attraction in the country, due mainly to lack of quality norms of the procured paddy; Punjab farmer remains entangled in the paddy-wheat rotation, because he sees no wayout; indebtedness is fastly growing, leading to suicides.

Fourthly, the agrarian extent of the crisis is also visible. The rental value of land has, due to fall in agricultural profitability, gone down. The increasing size of the family is getting the land-holdings divided. The continuously diminishing size of the land-holdings is making them incapable of producing an income to meet the average needs of an ordinary family—thus turning them non-viable. At present, the total number of such holdings (with an area less than 4 acres) in the state is about two-third of the total land-holdings, that is, two-third of farmers in the state are marginal and small

farmers, living on subsistence level. If agricultural workers (mostly living below the poverty line) are added to them, they all make up nearly 90 percent of the rural population in Punjab.

Lastly, the overall economic reflection of the crisis is very alarming. The general development of the state has slowed down; there is decline in average annual growth rate; the state economy is imbalanced, with agriculture dominating its GDP, without adding anything to its kitty; no big central project worth-citing exists in Punjab in comparison to other states; centre's assistance to Punjab is the lowest in the country; no major private investment has come to Punjab from any part of India; much of the industrial backwardness may be attributed to lack of finance, sickness in SSI units is also spreading due to exorbitant bank interest rates; sugar industry (with 20 working mills) is in a mess.

2. Reasons Underlying Punjab's Agricultural Crisis

(A) Short-Term Cause

The short-term cause underlying the above crisis lies in the prevalent corporate monopolised 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 21ist 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.

It is worth-noting that the entire architecture of the chemicalised agriculture was conceived and produced by the philanthropic associations (like the Rockfeller foundation, Ford foundation, etc.) connected with the agriculture related leading MNCs who continue to hold its (i.e., chemical-related agricultural technology) 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.

Another equally important reason behind the Punjab agricultural crisis rests with the unviable and unjust pattern of its land-holdings which have been putting a damper on its agricultural growth and social equity.

A supplementary reason relating to the Punjab agricultural crisis has been its agricultural custom of paddy-wheat rotation cropping pattern. But now this supplementary reason has become the main plank of all the protagonists of the chemicalised agriculture who are making this argument as the root of Punjab agricultural crisis. The irrelevance of this reasoning can be seen from the fact of the similar types of negative results in all the diversified farming areas in Asia, Africa, Latin America and Europe.

Had diversification of agriculture been a medium to develop agriculture, the impact of chemicalised agriculture would have been entirely different from Punjab agricultural experience in the diversified farming countries and regions.

However, a major responsibility for Punjab's paddy-wheat rotation cropping pattern also rests with the central and the state governments. The centre's responsibility consists in the fact that, having

been a miserable failure to increase the national growth rate of agricultural production, it sought the shortcut of meeting its food buffer stock needs by placing excessive burden on Punjab and Haryana agriculture through various price and market inducements. Although it was, from the early 1980s, becoming clear that a grave agricultural crisis had been erupting in Punjab and that it had, according to government's own agricultural experts, been an effect of the paddy-wheat rotation cropping system, the centre covered up this emerging threat from the public in Punjab and continued to exploit Punjab agriculture for its partisan exigencies. Even today, it remains on the same track and does not persuade the Punjabi peasants to replace the paddy-wheat rotation cropping method by a more profitable and appropriate way of crop diversification. The state government is responsible in the manner that it did neither inform the Punjabis about the seriousness of the danger nor prepared any action plan to combat this challenge and nor asked the centre to undertake timely and appropriate measures to save Punjab agriculture and its farmers from this catastrophe.

All other reasons, like lack of skill and 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; shortcomings 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.

(B) Long-Term Cause

The long-term cause of the Punjab's agricultural crisis resides in India's existing corporate capitalist system which, in its development agenda, gives first priority to IT, manufacturing, services and infrastructure, relegating agriculture to the third position, treats Punjab farmers in a step-motherly way on all agricultural issues, e.g., finance, agro-industries, agricultural infrastructure, exports, research, ignoring the diminishing size of land-holdings, minimum support prices and is now desperately trying to transform the diffused agricultural system into a corporate enterprise through various deceptive moves.

3. Solution Of Punjab's Agricultural Crisis

(A) Short-Term Solution

The short-term solution lies in adopting the organic technology (i.e., seeds, fertilisers, pesticides, insecticides, etc.) in place of chemical-based technology as well as the newly arisen GM or transgenic technology. The harmful results following the 40 year long practice of the chemical-based agricultural technology are well-known to all Punjabi farmers. Now what they need to know is the injurious effects of the GM farming and the environment-human friendly character of organic cultivation.

(a) GM Technology

As regards GM technology, 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 agricultural 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 fertilizers, 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, everyone 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 rights groups, farmers and other interested people be conducted in the different regions and areas of each country on the following points.

1) Should agriculture be market-driven or environment-human oriented?

2) 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?

3) How should one define a just and proper agricultural policy?

(b) 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.

(i) 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 products—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.

(ii) Initial Phase

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 scarce—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.

(iii) 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.

(iv) 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 provide 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 fertilisers 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, slaughter-house by-products, ground limestone, seaweed, woodash may also be used.

Finally, crop rotation encourages a 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

(v) 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.

(B) Long-Term Solution To Punjab's Agricultural Crisis
On The Basis Of Empowerment Of Punjabi Farmers

As the preceding facts denote, none of the two alternative technologies—GM and Organic—can be immediately applied. The application of GM technology is not possible because of the divided world public opinion, particularly the scientific community. And the hurdle before the organic technology is that a change from chemical-based agriculture to organic agriculture will take a long time. The problem can only be resolved by sorting out a relevant long-term solution.

In our view, the following formula can provide us an immediate as well as a long-term wayout of the Punjab's agricultural crisis.

The long-term solution of punjab's agriculture crisis rests with people-environment led cooperativisation of agriculture, comprising two stages. The difference between the two is that, while in the first stage, the shares of different members of any cooperative farm are decided on the basis of their respective land-holdings, in the second stage, they will be based on the equitable income principle (with a maximum income difference of 1:2), and not on equal basis.

(a) Punjab's agricultural sector naturally comprises two inter-connected parts, i. e., the social human factor of the farming community and the agriculture's mode of production. Both are inter-related. Study of the one without the other does not give a realistic picture anywhere.

(b) Social organisation of Punjab's human farming community should be based on the pro-people-pro-environment cooperative principle according to which all existing farming units can unite and participate in the process of farming on people-environment led cooperative basis, without any change in their respective owned farming units.

(c) The mode of Punjab's agriculture should be organised on the basis of developing various agro-climatic zones each of which is naturally suitable for the production of one or two specific crops. The existing system of enforced crop-growing against the nature of soil brings forth poor quality crops with lower yields. Most of such zones or areas have already been demarcated in the records of agriculture and horticulture departments. The remaining can be immediately assessed through inter-action with agriculture experts and by sharing the experiences of local farmers. Such a mode will give best performance in terms of quality and productivity.

(d) In each agri-climate zone, a crop specific cooperative farming society should be formed consisting of all the farmers (big and small) owning lands from the lowest unit to the highest one who will get their shares in accordance with the size of their respective land units.

(e) Each crop specific zonal cooperative farming society should establish a relevant agro-processing industry in its agro-climatic zone for value addition to the related raw one or two specific crops. It will provide required quantity of good quality and low cost produce with minimal transportation cost. Agro-industry will strengthen the economy of the concerned zone and provide employment to its unemployed.

(f) Each crop specific zonal cooperative farming society should develop market infrastructure with cold storage centres for safe preservation of product in the concerned zone to attract buyers from the other parts of India and abroad.

(g) Each crop specific zonal cooperative farming society should set up its own farmer-centric market mechanism (i.e., management system) for the sale of its surplus products at the appropriate time and the purchase of its required farming inputs. In both these transactions, it will hold increased bargaining power enhancing the profit margin of the concerned farm. Each market mechanism will establish its market research and investigating wing.

(h) Each crop specific zonal cooperative farming society will, as a rule, employ the necessary labour from within its zone as required by the various farming operations. Besides, it will make an appeal to the government to fulfil the following just demands of the agricultural workers: (1) each

agricultural worker to be ensured for Rs 50,000, with equal contribution from the concerned state and the centre; (2) old age pension scheme for agricultural workers; (3) implementation of a rural house site-cum house construction scheme; and (4) social security for drinking water, educational and health services.

(i) Each crop specific zonal cooperative farming society should make an appeal to the government to take the following measures for democratising the rural structure:

* To improve the quality of education, health services and infrastructure in rural areas;

* To develop the knowledge and skill of the rural masses;

* To ensure a stable price policy, fair national market, long-term credit, export facilities, etc., to the crop specific zonal cooperative farming societies;

* To authorise the village elected committees to supervise the proper utilisation of funds earmarked and spent on their village development under various schemes, i. e., IRDP, Jawahar Rozgar Yojana, Indira Awas Yojana, etc.;

* To fully democratise the cooperative movement now based on a bureaucratic law by a people-environment-led law.

* To make women co-owners of their respective husbands belongings, including land, and give them 50 percent reservation in all elective bodies; and

*To make every panchayat (i.e., all of its members) accountable to its electors by placing a legal obligation on its each member to visit his constituency after every six months (i.e., twice a year) and present his six monthly record before the electors general meeting for the latter's discussion and remarks.

(j) Each crop specific zonal cooperative farming society should make an appeal to the government to set up a professional committee comprising the zonal expert of the crop, zonal scientist of the crop, representative of farmers and representative of the market wing. The committee should meet as per requirement to discuss the problems of the said crop. The area specific-crop specific committee of experts will be more capable to sort out problems concerning the specific crop.

(k) Each crop specific zonal cooperative society should appeal to the state and central governments to increase their respective budgetary allocations to agriculture sector.

(l) To make Punjab agriculture human and environmental friendly, every crop specific zonal cooperative farming society should in the beginning undertake farming on the basis of two types of technologies, organic and integrated, i.e., a technology using both the organic technology and the chemical based technology. In the latter case, a part of the area will be cultivated on the organic basis and the other on the integrated technological way.

(m) To maximise the water use efficiency, the water withdrawal/recharge ratio should be maintained at the proper level. Every effort should be made to promote all environmental resources, i.e., air, water, land, bio-diversity and forests.

(n) Next to its specific crop, each crop specific zonal cooperative farming society should undertake dairy development as its next most important activity. Apart from the sale of milk, it will engage in its processing and the export of milk and milk products. Besides Dairy farming, other agriculture-friendly schemes, like bee-keeping, fisheries, khandsari, gur-making from sugercane, agro-forestry in arid regions, medicinal and oil bearing plants (like senna, guggal, isabgol, henna, etc.) and sheep-breeding in waste lands (e.g., Rajasthan) should be immediately implemented—thus supplementing the farmers' meagre incomes.

(o) To insure certain minimum level of income to the farming community in Punjab during the period of crop failure, each crop specific zonal cooperative farming society should demand of the government to arrange the launching of an effective crop insurance scheme.

(p) To stop all sorts of WTO unapproved i.e., illegal subsidies or grants to agriculture (as is being done by the US and EU) and to prepare a level playing field for world trade, all the crop specific zonal cooperative farming societies in Punjab should stand for fair trade in India as well as the world.

(q) Contract farming methodology is only a corporate capitalist device to corporatise the agriculture of the under-developed countries. With this understanding, however, if any such contract seems to be beneficial to any cooperative farming society, there is no harm in entering into such a deal, provided it is accompanied by two precautionary steps. One is to get such a contract whetted by

a legal expert. And the other is whether the state does undertake the responsibility to get the contract executed fairly and justly.

(r) 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), all the Punjab cooperative farming societies should make an appeal to the state and the centre government to give first position to the organic-oriented agriculture in India's development model in terms of investment, rural credit, crop-insurance on low premiums, exports, relevant technology, bio-seeds and bio inputs, land reforms, etc.

(s) Lastly, but importantly, taking into account the question of the acute indebtedness of Indian farmers which has resulted in 10,000 suicides of farmers in India, all the Punjab cooperative farming societies should appeal to the central and the state governments to fulfil the below noted three demands: (1) To remit the entire pre-2006 debt, whether institutional or non-institutional, due from the farmers (including the rural landless) living in India; (2) to make a provision for providing cheap credit to farmers through 30 percent of the whole institutional (official or semi-official) lending and 10 percent to rural landless and urban poor, while prohibiting all non-institutional lending; and (3) to restructure agriculture in India on the cooperative basis (which will not disturb the existing land-holding units in India and prove far superior in quality, productivity and profitability than the corporate farming that will, within a short time, lead to the dispossession of all the farmers, small or big, from their lands and transform them into a group of unemployed workers. Further, the cooperative farming will establish the vitality of its democratic, equalitarian and creative principles in contrast to the Soviet collective farming which even denied trade union rights to its workers.

4.Tasks Ahead

To put into practice the above-stated programme, the fulfilment of below-noted three points is highly essential.

One is to create awareness among the people, especially the farmers, as to how this programme represents a realistic and proper response to the existing crisis in Punjab's agriculture and how it demands of us to unite for putting it into practice.

The other is to convince and persuade all Kisan organisations in Punjab to unite into one Kisan Union on the basis of the afore-mentioned programme concerning Punjab's agriculture. And then chalk out an action plan for its implementation and realisation.

The third is to play a purposeful and effective role in Punjab's political process, especially in coming elections in Punjab. The purpose is to bring maximum number of cooperative farming model members in the assembly. And the effectiveness consists in uniting them into a group, irrespective of their party and personal affiliations.

5. 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 folows five 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 and which, 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—accords first place to agriculture in the social development model]. 01-03-2006