Crisis in Agrarian Economy in Punjab: Some Urgent Steps
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Crisis in Agrarian Economy in Punjab

Some Urgent Steps

Agricultural production and crop yields in Punjab have nearly stagnated. Land and water, the two most critical resources on which Punjab's rural economy is built, have sharply deteriorated over time. Profit margins of the farmers have come down drastically. The paper argues that there is an urgent need to diversify the state's agrarian economy not only in the narrow sense of diversification within the crop husbandry sector, but also in its wider sense, i e, to promote allied agricultural and non-farm activities and agro-processing in rural area.

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Punjab, until recently the most prosperous state of the country, is in deep economic crisis. Its predominantly agrarian economy is at the cross roads as agricultural production and crop yields have nearly stagnated.[1] Profit margins of the farmers have come down drastically [Singh and Kolar 2001, Table 2]. Farmers are resorting to suicides.[2] Soil resource, which is a critical requirement for sustainable development, has sharply deteriorated because of excessive use of chemical fertilisers and growing the same crops over and over again. Underground water table is going down at an alarming rate [Sidhu and Dhillon 1997]. Punjab has one of the lowest forest covers in the country.[3] Nearly four lakh farmers in Punjab have tractors and other farming assets worth lakhs of rupees which were bought with liberal loans from land development and cooperative banks which are still outstanding. The vote bank politics has played havoc with the state's financial health. There is rampant corruption almost at all levels.[4]

Any kind of planning has remained an anathema to the Akali-BJP government in Punjab during the last five years. Otherwise, one cannot explain the fact that not even a single meeting of the State Planning Board was held during their five-year rule. The Sangat Darshan programme initiated by former chief minister S Parkash Singh Badal was born out of the anti-planning attitude. However, to be fair to the Akalis they are not solely responsible for the mess in which Punjab economy finds itself now. Things have been deteriorating for quite some time. Right now condition of Punjab economy is much worse than what it appears at the first sight. Is there any light at the end of the tunnel? We hope so. But before we come to the possible solutions, a brief description of how Punjab model of agrarian transformation was evolved over time and what are the main issues would be in order. This paper restricts itself to the rural economy of Punjab even when everything is not fine on other fronts also.

The Punjab Model

The Punjab model of agrarian transformation was born out of the food shortages of the 1960s when a nation lacking the resources to buy foodgrains from abroad had to ask for food aid from the US under the PL-480. Around the same time India had an unexpected war with China in 1962, has had two consecutive droughts in 1964-65 and 1965-66 and another war with Pakistan in 1965. The major donor of foodgrains, US, was threatening India to withdraw the food aid unless the country accepted the policies suggested by western powers vis-à-vis Pakistan [Alavi 1975]. As a result of the drought and diversion of resources, the domestic production of foodgrains in India during 1965-66 was pegged to 72 million tonnes against a market demand of around 90 million tonnes. Given the income level and its distribution, there was a gap of around 20 per cent between the market demand and domestic production of foodgrains. This could not be filled through imports. The country lacked resources to buy grains. Besides the foreign exchange difficulties sheer logistics of transporting and distributing food in such a huge quantity was not easy. Food imports increased steeply from 3.5 million tonnes in 1961 to 6.27 million tonnes in 1964 and an all time high of 10.36 million tonnes in 1966.[5]

There were only two ways of increasing foodgrains production. One option was to implement radical land reforms for land redistribution because it was conclusively established that smaller holdings had higher productivity than their larger counterparts [Sen 1964] and a redistribution of land in favour of smaller landholders and landless labourers would lead to an increase in aggregate output. Alternatively the nation had to find a technological solution to the country's chronic food shortages within the existing institutional framework through adoption of high yielding varieties of seeds and a package of cheap subsidised inputs along with provision of credit, assured remunerative prices to farmers and a centralised state sponsored mechanism to mop up food surpluses to put in place a food delivery system which could take care of the weaker sections of the society. Given the class character of the Indian state, it was not feasible to carry out any radical land reforms particularly when there was no such pressure from small peasants and landless workers who lacked organisational strength. In this scenario India opted for the second alternative. This alternative was also being touted by a host of western scholars sponsored by Ford Foundation and Rockfellor Foundation as a suitable strategy for India's chronic food shortages without disturbing the balance of political forces [GOI, 1959].

Thus came into existence the Intensive Agricultural Districts Programme (IADP) which with the advent of new high yielding varieties of wheat, rice, maize and bajra and package of other inputs like chemical fertilisers, insecticides and pesticides and assured irrigation facilities came

to be known as a 'new agricultural strategy' or 'green revolution'. Around mid-1960s, the government of India setup agencies such as Fertiliser Corporation of India, Food Corporation of India, Agriculture Price Commission and Public Distribution System. An agricultural research system with a number of agricultural universities with Indian Council of Agricultural Research as a nodal agency was also put in place. The most important feature of this 'new strategy' was the focus on popularising modern inputs and practices in the most productive areas where these were most likely to show results rather than spending the limited resources thinly over a large area. It was known even at the outset that this strategy of agricultural development will benefit more those areas which fulfilled certain basic conditions in terms of irrigation facilities and which had relatively better off farmers who could arrange money to buy state subsidised modern inputs. That it would further increase regional imbalances was also known forehand but this aspect was ignored. Punjab, which was a relatively developed state with requisite irrigation facilities and infrastructure, became a major beneficiary of this national strategy and was projected as a showpiece of India's 'successful green revolution strategy'.

After more than three decades of the adoption of new agricultural strategy with its obsession with grains to the exclusion of other foods and cash crops, Punjab's agrarian economy with a highly skewed agricultural base is in deep crisis. In the meantime the food scenario at the national level has completely changed from the food shortages of mid-1960s to the burgeoning surpluses of late 1990s and early years of the 21st century. In this changed context Punjab's wheat-paddy dominated agrarian economy is becoming economically as well as ecologically non-sustainable and the state is being treated as if it has become a liability for the nation.

Main Issues

Specifically, the most pressing issues before Punjab right now are enumerated below in some detail:

First, the growth rate of nearly 5 per cent per annum achieved by the state's agricultural sector since the beginning of 'green revolution' in mid-1960s, though remarkable by almost any standards, has been declining over time. For example, during the first decade of 'green revolution' when the new technology was only confined to wheat, the state because of its soil type, climatic conditions and irrigation potential was the most prominent beneficiary and its agriculture recorded a 6.63 per cent compound rate of growth per annum. During the second decade from mid-1970s to mid-1980s, which was characterised by the extension of new seed fertiliser technology from wheat to rice the growth rate of Punjab agriculture came down to 4.74 per cent per annum.[6] And in the third decade it was 3.87 per cent per annum. During the last five years or so Punjab agriculture has grown at a rate of less than 3 per cent per annum which is sometimes even less than the all India average [Punjab Government 1999]. Consequently, in terms of the per capita income Punjab has already slipped from the first to the 2nd place in the all-India ranking.[7]

Secondly, it is not merely the deceleration in the agriculture's rate of growth which is disturbing, much more important is the fact that the Punjab agriculture's capacity to absorb labour has also declined over time. In early 1970s the employment elasticity w r t aggregate output in India's agriculture was 0.54 meaning thereby that one per cent increase in agriculture output was giving rise to 0.54 per cent increase in labour employment. By early 1980s it came down to 0.49 and by late 1980s it was merely 0.36 [Bhalla 1993]. Calculations by PAU, Ludhiana, have shown that in the case of Punjab agriculture employment elasticity w r t aggregate output is less than 0.2 which means even 5 per cent rate of growth in agricultural output would create only 1 per cent growth on the employment front. With a huge backlog of unemployed youth which is put at 14.71 lakhs as per government estimates[8] and the incapacity of agriculture to absorb any more labour force the situation is really alarming for the state's planners and policy-makers.

Third, given the input and output price structure and superior yields of wheat and rice compared to the competing crops, Punjab agriculture has become essentially a wheat-rice monoculture. About 43.20 per cent of the total gross cropped area of the state is under wheat and another 33.20 per cent is under rice. Thus, more than 76 per cent of the total gross cropped area of the state is under wheat and rice. As described earlier (see note 1) rice yield per acre has nearly stagnated. Wheat yield is still rising but at a much slower pace. And given the high cost structure of Punjab agriculture, Punjab does not enjoy comparative advantage in either of the two major crops. For instance the 'economic cost' of Punjab wheat to Food Corporation of India is Rs 850 per quintal if transport and storage costs are taken into account [Gulati 2000]. In contrast to this wheat is available internationally at less than $100 per tonne which works out to Rs 475 per quintal. Even the best quality American wheat is selling in the international market at $127/tonne which works out to roughly Rs 620/quintal. The government of India is not allowing free import of wheat from outside and has imposed substantial import duties on agricultural commodities. Thus, but for the government's import restrictions, it would have been extremely difficult for Punjab farmers to sell their agricultural produce. With more than 54 billion dollars of foreign exchange reserves, India also cannot deny minimum market access in foodgrains under the WTO rules to major wheat exporters for a long time under the pretext of balance of payment problem. Once it happens the high cost Punjabi producer will be in real trouble. Already the marketing of wheat and rice is posing a serious problem both for the farmers as well as for the state controlled buying agencies.

Fourth, the Food Corporation of India is saddled with burgeoning food stocks which at the moment stands at 58 million tonnes while it requires around 14 million tonnes annually for managing the public distribution system (PDS) and another 10 million tonnes for food security and price stabilisation purposes. Thus, against the prescribed norm of around, 24 million tonnes it is holding more than 58 million tonnes. Wheat procurement in Punjab is almost complete and the state has procured around 10 million tonnes of wheat this season. The government claims that the cost of handling grain is around Rs 2,500 per tonne apart from minimum support price of Rs 620 per quintal. Since large quantities of these grains are stored in the open leading to deterioration and wastages the actual cost of these surplus grains to FCI could be much more. FCI and other state procurement agencies have no storage space in the state. Open fields, schools, government buildings, godowns, unused roads, or for that matter any vacant space you name, are overflowing with gunny bags containing wheat and paddy. Some stocks are as old as three years and are rotting. Procurement agencies simply do not know what to do with these stocks. The

central government proposes to withdraw FCI gradually from procuring foodgrains and want to pass on this activity to the state agencies. If it happens it will be totally disastrous for states like Punjab and Haryana because the task is beyond the competence of the states. Once proud of being the food basket of the country, Punjab is finding it increasingly difficult to sell its wheat and paddy.

Fifth, farmers in Punjab have made huge investments in farm machinery. The state has 4.34 lakh tractors [CMIE 2002: 7], 1.45 lakh seed drills, 3.25 lakh threshers, 7300 combine harvesters and more than 9 lakh tube wells. The total investment in farm machinery is at least worth Rs 8,000 cores [Singh and Kolar 2000]. The tractor population of the state constitutes about 25 per cent of all tractors in the country. Each tractor is being used for about 400 hours whereas to be economical it must be used for at least 1000 hours [Singh and Kolar 2000]. More than nine lakh tube wells are being supplied electricity by the state free of cost. As a result, these are being used indiscriminately. This is leading to depletion of underground water table which is falling at a rate of 23 cm per annum [Sidhu and Dhillon 1997]. Every year farmers have to deepen their tube wells which alone is costing the state's farmers about Rs 50 crore annually. As a result of falling water table soon ordinary tubewells will no longer be in a position to lift underground water. Farmers will have to install submersible pumps. A submersible pump costs at least Rs 70,000 which is beyond the reach of a small/marginal farmer. Shift over to submersible pumps will not only raise the cost of cultivation, but will also lead to even more iniquitous use of common community resource, i e, underground water which only rich farmers with resources to install submersible pumps will be able to make use of. Falling water table is not only threatening to seriously disturb the ecological balance leading to make much of Punjab land barren, but will also effectively exclude small and marginal farmers from making use of this common resource leading to tension and social strife.[9]

Sixth, the state's agrarian economy is in crisis not only because of the slowdown in growth rate, but more so because of declining profitability of the major crops. Recent calculations by Punjab Agriculture University (PAU), Ludhiana show that paddy wheat rotation in the state agriculture gives an annual net return of Rs 9,000 per hectare or a return over variable cost of Rs 23,800 per hectare [Singh and Kolar 2000]. About 23.5 per cent farmers in Punjab own land below two and a half acres. 42.6 per cent have landholdings below five acres.[10] Therefore, a family of five or six members with five acres of land will earn Rs 47,600 from crop husbandry. Even after making allowance for income from dairying which constitute about 43.78 per cent of the total income of small farmers [Sain and Sharma 2000], a farm family owning land up to five acres along with dairying can earn Rs 5,700 per capita per month which is roughly equal to the gross salary of a newly appointed clerk. Infact, 69.3 per cent of the land holdings in Punjab are below 10 acres in size and a farmer with 10 acres of land will be earning less per capita income than an average Punjabi family. With such meagre earnings at least 70 per cent farmers in Punjab cannot afford to send their children to colleges or universities for higher education which of late has become prohibitively costly. This, of course, is true for other states of the country as well. The point we are trying to make, however, is that a majority of the farmers in apparently prosperous Punjab are having roughly the same economic condition as farmers in other states of India.

There are reports of suicides by farmers because of their inability to return loans.[11] More than one thousand farmers have committed suicide during the last five years or so [Iyar and Manick 2000]. Distress sale of farm machinery, tractors and even land are being reported almost daily. Agriculture which continues to be the main stay of state's economy is in serious crisis. The tertiary sector in Punjab is already over grown and cannot be expected to be a major absorbent of labour force. Most of the industry in the state is small scale which is finding it difficult to successfully compete with bigger players in the present liberalised and globalised environment. Even otherwise a significant proportion of labour force employed in Punjab industry consists, of non-Punjab migrant labourers and scope of absorbing Punjabi unemployed youth in Punjab's small-scale industrial sector is rather limited. Now with agriculture getting saturated and failing to absorb any more labour force, unemployment problem is becoming very serious. The situation is alarming and calls for urgent attention of the scholars and policymakers.

The previous Akali-BJP government has left the state highly indebted. Right now the state government's direct loans are more than Rs 28,000 crore. The government has given counter guarantees to the tune of another Rs 22,000 crore on behalf of the public sector undertaking and agencies. In fact, the annual debt servicing liability of the state is larger than the annual plan size of the state [CMIE 2002]. Rural education in the state is in a total mess. It is really alarming that in terms of literacy rate, the state which was having 7th rank among the Indian states in 1971, has slided down to 17th position by 2001. Schools in rural areas do not have proper buildings, furniture or even a black board. They do not have adequate number of teachers and teachers themselves, are ill equipped and do not perform their duties honestly. An average 'educated' Punjabi youth from a typical rural school can barely read or write a letter in Punjabi. In fact, he is worse than an illiterate for he is neither fit to do a factory job nor is he interested in doing manual work at the farm. He is a burden both for the family as well as the society and a potential risk for anti-social activities.

Urgent Steps to Meet Challenge

There is an urgent need to diversify the state's predominantly agrarian economy. Diversification in the narrow sense of the term within the crop husbandry sector would mean going away from wheat-rice combination to production of other crops such as sugarcane, cotton, gram, pulses, oilseeds, soyabean, etc. In a broader sense diversification would also mean moving away from crop husbandry to other allied activities such as dairying, poultry, fishery, piggery, bee-keeping, horticulture, sericulture or flouriculture, etc. In a still broader sense it means moving away from agriculture to other rural non-farm activities and agro-processing. In the initial stage, such activities can be confined to the petty shopkeeping, trading or service activities but over a period of time it can develop into manufacturing proper particularly agro-based industries. In this context, Punjab can learn a lot from Japanese or Chinese experience of rural industrialisation where economic activities were taken to people's doorsteps rather than people going to urban areas in search of jobs. In this paper, we will discuss the possibilities of diversification of Punjab's predominantly agrarian economy in both the narrow as well as broader sense of the term.

Punjab Agriculture University, Ludhiana has recently suggested that at least 20 per cent area under paddy must be diverted to other crops if the deterioration in the underground water balance of the state is to be checked and the state's land is to be prevented from becoming barren [Singh and Kalar 2000]. But a mere advice to the farmers to go for crops other than wheat and/or rice will not work because given the input-output price structure and yield levels still wheat rice is the most profitable and least risky combination for the farmers. Earlier whenever Punjab farmers have tried alternative crops they have failed primarily because of the lack of marketing support. They have had bitter experience with sugarcane, potatoes, tomatoes, sunflower, and other minor less important but supposedly highly paying cash crops such as chillies, turmeric or menthe, etc, because of lack of marketing support. In case of sugarcane they were expected to succeed but failed because bureaucracy in connivance with the lower level operating staff turned even profitable sugar mills into loss making by leaving larger sugar content in molasses and selling it to the private distilleries at a premium which went into their pockets but in the process sugar recovery obviously came down thus bringing sugar mills into the red. Until there is an integrated sugar mill which covers all operations right from sugar to molasses and conversion of that into industrial alcohol which can be used as a motor fuel, sugar mills cannot become profitable and sugar cane cannot compete with wheat-rice combination. Thus, any attempt to diversity must also include reining in corrupt bureaucracy and strengthening of the cooperative system which at the moment is hamstrung by beaurocratic controls. In this case at least Punjab can learn from Maharashtra's experience with sugar cooperatives.

For diversification to become successful, we strongly feel that Punjab should be divided into a number of agro-climatic zones. Each zone should consist of a cluster of villages which are homogeneous in terms of soil type, weather, quantity, quality and type of irrigation and suitability for a particular type of cropping pattern. Each zone should be designated as most suitable for a particular cropping pattern. For instance we can have wheat-basmati rice zone; wheat-permal rice zone; wheat, gram, sarson, cotton zone; wheat, maize, oilseed, pulses zone; potato, tomato, vegetables zone and so on. Farmers in each zone should be allowed to go in for only those specific crops and specific varieties of those crops for which a zone has been designated as 'most suitable' by experts on the basis of soil, irrigation, quantum of underground water available, etc. Agro processing units to be set up in each zone for value addition should be commensurate with the cropping pattern of the zone.

If a zone has been designated as suitable for cotton, oilseeds, pulses, wheat, etc, then which variety of cotton, oilseeds, pulses or wheat farmers should go in for should be determined by the experts. For example, if a zone is designated primarily as a cotton-growing zone then it should be ensured that farmers there go in for only that variety of cotton which gives much better returns but is resistant to pests and diseases. Right now, it is not being done allegedly under the pressure of insecticides and pesticides producing lobby because it will adversely effect their business. Only a cotton zone should have ginning, pressing, spinning or weaving unit. Thus, there should be synchronisation of micro level (say zone level) and macro level (state level) plan and the state should decide how much area should be allowed to go under a particular crop. For achieving this kind of 'optimal' cropping pattern which is sustainable in the long run, the state can use the instrument of subsidies and disincentives instead of giving a subsidy of Rs 4,000 per acre for reverting back to maize production as the Johal Committee is reported to have suggested.

Small and marginal farmers should be persuaded to go in for labour intensive crops such as ginger, turmeric, menthe, tomato, vegetables and chillies, etc, which give much better returns but require a lot of personal attention which only small and marginal farmers can afford to give. Of course, they would require marketing support. If possible the zones which are suitable for production of such crops should have processing unit to make turmeric powder, tomato or chilly paste or menthe accent extraction, etc.

On large farms capitalist agriculture should be allowed to develop. In this context land market should be allowed to develop by creating a suitable legal framework where the lessee has no fear of losing his land to the lesser. Even the ceiling laws may have to be given a relook. Alternatively contract farming can be popularised and necessary legal framework (for determination of mutually agreed prices, penalty for default, etc) should be created by the state cooperative agencies dealing with agriculture like MARKFED, and agro-industries corporation should be entrusted the task of creating a chain of cold storages which should also be promoted in the private sector. For example, if in a particular agro-climatic zone experts suggest people to go for exotic vegetables and flowers because it is most suitable for production of these commodities, state must provide farmers there with refrigerated containers which keep their produce fresh, a good network of rural roads so that these are quickly transported to urban centres, and may be even transport planes if these commodities are to be exported to foreign markets. In this context Punjab requires at least three to four airports in the state, if export of these agro products is to be given a real fillip. In this respect, Punjab can learn a lot from Israeli experience. In fact, it would be still better if instead of exporting fresh flowers we go for value addition, i e, extract the essence of these flowers which is then used in perfumes and cosmetics and can even think in terms of developing perfumes and cosmetic products industry which is hugely profitable.

In order to meet cash needs of the farmers and save them from clutches of commission agents/moneylenders, Punjab farmers should be given the facility of storing their produce in cooperative or government silos or stores and they be given 75 per cent of the expected value of their produce against the hypothecation of what they have stored there. This way even small and marginal farmers will be able to sell their produce at the time of their choice and they will not have to go for distress sale immediately after the harvest to meet their pressing needs for cash and to repay the crop loans. To some extent, this will save the farmers from the clutches of moneylenders/commission agents.

To tackle the problem of falling water table in most areas of Punjab, the state must initiate steps to harness rain water and recharge underground water aquifers. For this the technology already exists. Only it is a question of having the right kind of people doing the right job which they know how to do. But all these suggestions require massive investments in research and development of rural technologies and popularisation of appropriate technologies in rural areas. So far the universities of the state have not been responsive and alive to the solution of problems Punjab is facing right now. Their refrain has been that they are starved of funds. But except for Punjab Agriculture University rural Punjab has

never been a priority for the other three universities of the state. Otherwise, how can one explains the fact that none of the three universities of Punjab have a worthwhile department of rural development which, in fact, functions and conducts research on popularising appropriate technologies for rural areas? Recently Guru Nanak Dev University, Amritsar has taken a lead in this context, and, in principle at least, has decided to set up a centre for rural development. But in the absence of any funds, regular jobs and other required infrastructure whether it would ever become functional and contribute something worthwhile in solving the numerous problems of rural areas of Punjab is still a question mark. All the universities of Punjab should have full-fledged departments of rural development headed by competent persons, with rural background and rooted in ethos of rural Punjab who are prepared to work with a missionary zeal. The government should give liberal grants to set up such departments. It is a worthwhile investment. Once we have these department then a large number of outside agencies, are prepared to fund research projects. Only the initial capital cost of creating the necessary infrastructure has to be borne by the state. The Punjab government which claims to be wedded to the upliftment of rural people should happily come forward for funding this kind of infrastructure. These departments of rural development should not only carry out research on issues of contemporary concern, but should also act as nodal agencies through which a network of rural based NGO's should be created.

All NGOs working for upliftment of rural people should be supported. In fact, Punjab is way behind many other states in this respect.[12] Some of the extremely important social issues such as dowry, declining female sex ratio, empowerment of women, importance of having neat clean environment, etc, can only be addressed through NGOs.

Punjab Agriculture University (PAU), Ludhiana played a pivotal role in bringing out new varieties of hybrid seeds, popularising those varieties and persuading farmers to go for those varieties. To a large extent the credit for bringing about 'green revolution' in Punjab goes to PAU Ludhiana although national policy of giving remunerative prices to farmers through state trading, making adequate credit available to agriculture at subsidised rates, making inputs, water, and power, etc, available at subsidised rates also played an important role. It was former chief minister Sardar Partap Singh Kairon who sent agricultural scientist abroad, got them trained and brought them at par with the best in the world and once they were back those scientist were instrumental in developing hybrid varieties of wheat, rice, maize and bazra suitable for Punjab's soil conditions. This policy of investing in farm scientists and general agricultural research and development (R and D) paid handsome dividends in terms of growth of the agriculture sector and making the nation self-sufficient in foodgrains. Now, Punjab agriculture is in need of another technological breakthrough. Unless new varieties are developed which have substantially higher yields compared to the existing ones, which are qualitatively superior, which are resistant to pests and diseases, our farmers cannot be expected to compete with American, Dutch or Australian farmers. This task cannot be left to the MNC's which of course have the required resources and competence. The Punjab Agriculture University is currently starved of funds – 93 per cent of its budget goes for salaries and other committed expenses. A thorough revamping of the agricultural R and D system is absolutely essential.

Subsidies to agriculture also need a thorough relook. Input subsidies are a sensible proposition when new inputs or a new technology is to be made popular. Making inputs cheaper makes the adoption of new technological package by farmers easier particularly, if the idea is to make even small and marginal farmers also partner in this process of development. So input subsidies to agriculture have played a historical role. But over time the situation has undergone a vast change. From the food shortages of early 1960s the context has changed to the burgeoning surpluses. In the changed context, a shift from the policy of input subsidies to some kind of income stabilisation with alternative and sustainable cropping pattern is the need of the hour. While it is true that we cannot compete with developed countries in providing subsidies to our farmers but still the question of choosing the form of whatever subsidies we give needs consideration. We would not suggest any subsidy for keeping some area uncultivated or producing less because it would be morally and ethically wrong to give incentives for not producing anything particularly when at least three hundred million Indians are still not having two square meals a day.

Growing unemployment is one of the most challenging problems which Punjab's economy in general and Punjab's rural economy in particular is facing right now. The estimates of unemployed youth in Punjab vary but the most credible official estimates put the figure at 14.71 lakh [Gill 2000]. Another two and a half lakh join the pool of labour force every year out of which not more than 50,000 are absorbed every year in various jobs both in the government and private sector which means a net addition of about two lakh unemployed youth to the already existing army of unemployed. Punjab's tertiary sector is already overgrown and in fact, most government bodies are trying to 'downsize' or 'right size' its labour force. Organised industry is no longer creating very many jobs. The unorganised urban sector is still creating some opportunities but most of these odd jobs are being grabbed by non-Punjabi youths who are prepared to work at much lower wages. From rickshaw puller to vegetable sellers, vendors, masons, plumbers, sanitary workers, carpenter and brick laying workers you talk to any one 90 per cent chances are that he will turn out to be a non-Punjabi. Thus local youth have to fall back upon agriculture and other allied activities. Punjab agriculture's capacity to absorb labour force has come down drastically over time. And the growth rate of agriculture sector in the state itself is in the region of 2.5 per cent per annum only.

Perhaps something on the lines of Chinese town and village enterprises (TVE's) where Chinese rural labourer work during their free-time/off-season is the answer for Punjab's growing rural unemployment. These TVE's in China were set-up about 30 years back. An average Chinese TVE now employs around 31 persons every day. Their contribution to the Chinese National Economy (NSDP) is now 28 per cent, whereas agriculture proper contributes only 14 per cent of Chinese NSDP. Total rural sector now contributes about 45 per cent of China's Net State Domestic Product [Kalirajan 2001]. The role of Town and Village Enterprises in Chinese national income is twice as large as that of agriculture proper. To a large extent the phenomenal success of Chinese economy during the last three decades or so is attributable to these village-based manufacturing units called TVE's. How China has created interlinkage between TVE's and urban-based large scale industrial units should be studied thoroughly because it is the first and perhaps the only experiment

of its kind where village (small) and urban (large) scale industry work in tandem with each other and supplement each other's efforts. China has been able to create so many jobs within rural areas at people's door steps through the success of these TVE's. The Punjab situation demands that unemployed and underemployed youth and small and marginal farmer should be part time farmers and full time workers in these countryside enterprises if their standard of living is to be improved. If we succeed in creating rural industries on the lines of China, it will resolve the problem of mismatch between the kind of work available and aspirations of local unemployed youth.

What kind of industries can be set up in Punjab is a question which needs a serious consideration of researchers and policymakers. Normally one would argue that with lots of agricultural surpluses around, Punjab should go in for agro-based industries. But we must also keep in mind the fact that Punjab is a part of the relatively free, large Indian market and it has to compete with other Indian states and push its way through. In this context logically the state should identify a set of agro-based industries on the basis of comparative advantage vis-à-vis other states which can become nucleus of Punjab's future industrialisation strategy. The state must concentrate its limited resources on developing/supporting only those agro-based industries where it has a comparative advantage.

Recently, some scholars including the author of this article carried out exercises on the basis of the three digit level data published by Central Statistical Organisation (CSO) since 1967-77 to identify agro-industries where Punjab has a comparative advantage vis-à-vis other states of India [Shergill 1994, Sidhu 1996; Singh 1999]. In the first exercise, we found that there are 38 agro processing industries which at present exist in the state and for which CSO publishes data. Together, these 38 agro-based industries account for 30.94 per cent of the total output, 39.10 per cent of the total employment and 48.52 per cent of the total value added in manufacturing industries. The top 12 industries which include grain mill products; manufacturing of vegetable oils and fats; spinning and weaving of cotton textiles; cotton ginning, cleaning and baling; hydrogenated oils and vanaspati ghee; knitted or crocheted textile products; wool spinning and weaving; dairy products; manufacturing of pulp; paper and paper products; spinning, weaving and manufacture of man-made textiles; manufacture of leather shoes; and manufacture of wooden furniture account for nearly 94 per cent of the total value added in agro-processing industries in the state.

In the second exercise we identified a set of 15 fastest growing agro-processing industries during the last two and a half decades or so. In the third exercise, we first identified five leading states of India on, the basis of production in each agro-processing industry and then compared Punjab with rest of the five leading states in terms of net value added and profit per unit of capital invested. On this basis, we identified 10 most competitive agro-processing industries vis-à-vis other states of India. A comparison of the top 10 most competitive agro-industries in Punjab with our earlier list of top 12 most dominating industries and top 15 fastest growing industries shows that a majority of the industries are common in all the three lists. On the combined basis of high rate of growth, the dominance of industry within the state and comparative advantage vis-à-vis other states of India, the following agro-processing industries were identified the future core of Punjab's future industrialisation strategy. These are (1) malt, liquor and malt; (2) dairy products; (3) manufacture of prepared animal feed; (4) tanning, curing, finishing, embossing and japanning of leather;(5) leather, footwear and other products; (6) weaving blankets, carpets and rugs; (7) weaving and finishing of cotton textiles; (8) manufacture of textile garments; (9) knitting in mills; (10) cotton ginning, cleaning and balling (11) paper, paper board and products; and (12) wool cleaning, balling and processing. Apart from these identified agro-industries Punjab can possibly go for some new emerging areas such as extraction of essence from flowers, packaging of fruit juices particularly of citrus varieties which are grown in some areas of Punjab, wineries in grapes producing areas, jams and pickles, etc. But that is possible only if we are able to keep a strict watch on quality control and ensure that products have long shelf life.

Another area which require immediate attention of Punjab government is rural education which at present is in a total mess. Panchayats should be given the powers to check the presence or otherwise of rural school teachers and a unanimous resolution by a village panchayat should be enough to suspend or even terminate his/her services. Apart from this the state must spend required minimum percentage of resources on education, rural health and hygiene and other civic services.

Conclusions

Punjab's agrarian economy is at the cross roads as agricultural production and crop yields have nearly stagnated. Land and water, the two most critical resources on which Punjab's rural economy is built, have sharply deteriorated over time. The future of Punjab Agriculture will depend upon their conservation, sustainable use and efficient management. Profit margin of the farmers have come down drastically. Farmers are finding it difficult to pay back the loans which they have taken at a high rate of interest. Machinery bought with these loans is lying idle for most part of the year. In addition to this, they have also taken loans from commission agents for consumption purposes at exorbitant rates. As a result, the Punjab farmers are highly indebted. Unable to pay back these loans and under pressure to alienate land or livestock assets, they are resorting to suicides. The state itself is so highly indebted that its annual debt servicing liability is larger than the annual plan size of the state.

There is a huge backlog of unemployed youth. Whatever jobs are created are sold to the highest bidder by those at the helm of affairs. In the present liberalised and globalised environment, Punjab's small-scale industry is finding it difficult to withstand the pressure of competitors and is unable to absorb any more additional labour force. In the absence of employment opportunities in the secondary or tertiary sectors unemployed youth is falling back on agriculture. Unfortunately agriculture's capacity to absorb labour force has also come down drastically over time. Therefore, unemployment is growing day by day.

There is an urgent need to diversify state's agrarian economy not only in the narrow sense of diversification within the crop husbandry sector but also in its wider sense of going in for allied agricultural and non-farm activities and agro-processing in rural area. For diversification to be successful within the crop husbandry sector the state should be divided into a number of agro-climatically homogeneous zones. In such zone, farmers should be allowed to go for only those crops for which the zone has had been designated as 'most suitable' by agricultural scientists. To tackle the problem of unemployment and underemployment in the state, something on the lines of chinese town and village enterprises

(TVEs) where surplus rural labour force and small and marginal farmers work full time and farming becomes a part time vocation, appears to be the answer. In fact, the state should identify set of agro-based industries on the basis of comparative advantage vis-à-vis other states which can become nucleus of Punjab's future industrialisation strategy. The state must concentrate its limited resources on developing/supporting only those agro-based industries where it has a comparative advantage instead of frittering away limited resources on non-competitive areas.

The findings of our study suggest that the state should strengthen rural infrastructure and improve the standard of rural education, which right now is in a total mess. Apart from this the strengthening of the cooperative movement, empowering panchayati raj institutions and investing in rural R and D to invent and popularise appropriate technologies, is urgently required. For this to happen the government will have to show political will to collect revenue, control corruption, rein in bureaucracy, stop following populist policies of appeasing undeserving section of society and end fiscal profligacy, if Punjab's rural economy is to be brought back on the rails. EPW

Notes

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1 While wheat yields are still rising though at a slower pace, rice yields have totally stagnated. For instance, wheat yield per hectare was 3770 kg in 1992-93. It has gone up to 4700 kg per hectare by 1999-2000. But rice yield was 3390 kg per hectare in 1992-93. It touched an all time high of 3510 kg per hectare in 1993-94. Ever since it has remained below 3500 kg per hectare mark and it stood at 3350 kg per hectare in 1999-2000 [see CMIE, *Monthly Review of the Punjab Economy*, March 2002, p 7].

2 Some recent studies on this theme show that recorded number of farmers committing suicide was 95 in 1988. It went up to 128 in 1992, 199 in 1994, 220 in 1996 and 418 in 1997 [see Shergill (1998) Kumar and Sharma, (1998) and Iyar and Manick (2000)]. These studies show that the growth of suicides in Punjab during 1990s is much higher than the all India figure.

3 Only 5.74 per cent of the total geographical area of the state is under forests (see *Statistical Abstract of Punjab*, Government of Punjab, Chandigarh, 2001).

4 The recent exposure of Ravinderpal Singh Sidhu, the disgraced chairman of Punjab Public Services Commission in the job recruitment scam is only indicative of the extent of corruption prevailing in Punjab. Scandal after scandal is coming out in the press almost daily.

5 See *Statistical Abstracts of India* for various years, published by Central Statistical Organisation, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

6 We have calculated these growth rates on the basis of figures of agricultural production given in *Statistical Abstracts of Punjab* for various years. However, Shergill's (1998) study quoted above also shows that during 1960-61 and 1990-91 farm production in Punjab grew at a rate of 5 per cent per annum. This increase was higher in the case of wheat (6.69 per cent) and rice (11.80 per cent). Over these 30 years production of wheat went up by seven times and that of rice as much as 28 times.

7 Figures of per capita income given in the *Statistical Abstract of Punjab* show that Punjab has been lagging behind Maharashtra in terms of per capita income consistently since 1993-94. Punjab has 2nd rank if we take into account only major states of India. Otherwise even Goa is also ahead of Punjab and Punjab's rank slides down to the third position.

8 The Fourth Economic Census carried out by the Economic and Statistical Organisation of Punjab in April-June 1998 covering all the villages, towns and cities of the state put the figure of unemployed persons in the state at 1471527 out of which 897860 (61 per cent) were educated (see for example, Sucha Singh Gill (2000): 'Educated Unemployment in Punjab', *Indian Journal of Labour Economics*, Vol 43, No 4, October-December, p 705).

9 Already 90 per cent of the 138 development blocks in the state have been declared 'black' meaning thereby that water table in these blocks is falling at an alarming rate.

10 These figures are taken from *Statistical Abstract of Punjab* which in turn are compiled on the basis of *All India Report of Agricultural Census*, 1985-86.

11 Iyar and Manick (2000) treat the crisis of the agrarian economy and the growing indebtedness of the farmers as the foremost cause of increase in suicides in the rural Punjab. They make a distinction between the 'causative' and 'precipitant' factors while explaining these suicides. According to the authors while the 'precipitant' factors could be social and psychological, the 'causative' factors in most cases were economic particularly indebtedness. They define causative factors as the ones that produce those social conditions under which an individual begins to feel insecure and helpless.

12 Commenting on the suicides by farmers in the Rural Punjab, Iyer and Manick (2000) in their study specifically mention the near absence of NGOs in Punjab. The authors stress this point particularly because they feel that while in southern states of Karnataka and Andhra Pradesh, voluntary agencies have come forward to help suicide victim families, there seemed to be no institution or agency that was providing help to these families in Punjab.

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