Green Revolution, Equality and Environment Protection: A Study on Western Uttar Pradesh

Chapter I: Introduction

The region of Western UP is generally regarded as one of the leading green revolution regions of India. Within UP this is frequently held as a model for other regions. However a more balanced view of development experience of this region would reveal that while in terms of crop yields and fertiliser use this region is certainly much ahead of other regions of this state, at the same time several serious ecological, economic and social problems have emerged which demand immediate attention. Land fertility is declining, water table is also declining at several places in this region known for abundance of water, farm workers face increasing unemployment as a result of mechanisation, consumption of liquor is increasing very fast causing distress in particular to women.

What can be learnt from the experience of the green revolution phase in the development of Western UP? To what extent the objectives of development based on socio-economic equality and sustainability have been achieved? If the experience has not been happy in this crucial aspect then what can be done to improve the situation in the near future.

It was to study this and related questions that Disha Social Organization based in Saharanpur district of Western UP initiated a research project. This project received financial support from Action Aid. Disha involved four other voluntary organisations of Western UP in this study. Together these five voluntary organisations surveyed five villages of this region.

Bharat Dogra prepared the questionnaire for village surveys, and field tested it in Kot Kadar village. He also visited Sikri village for more interviews. In addition he consulted a wide range of secondary sources to write the final report on the basis of five village surveys (FVS) as well as secondary sources.

This nine month project (October 1999 to June 2000) throws light on several important trends but the research work needs to be continued further to get a more complete picture (based on wider consultation with villagers) of the path of sustainable development based on socio-economic equality. Enough information has already become available to start experimental action efforts to accompany the research effort.

Overall coordinator of survey – Disha/KN Tiwari

	Name of village studied	Voluntary organisation which conducted the survey/lead person for survey work
1.	Sikri Kalan village, Block Sarsawa, District Saharanpur	Disha/Paltu Ram
2.	Pir Nagar Sudhna, Block Hapur, District Ghaziabad	Men's Institute for Development and Training/Bhoop Singh
3.	Bibipur (Virpur) Village, Block Oon, District Muzaffarnagar	Social Reconstruction through Awareness and Manpower – SRAM/ Yogendra Sigh
4.	Muhammadpur Dhumi village, Block Jaani, District Meerut	Gramin Samaj Vikas Kendra/Mehar Chand
5.	Kot Kadar village, Block Kotwali Dehat, District Bijnor	Pragatisheel Bal Vikas Sansthan/ Zameer Hasan

Table 1: Basic Statistics on Western UP

		Western UP	Entire UP
1.	Population density (per sq km 1991)	603	473
2.	Percentage of urban population to total population (1991)	26.3	19.8
3.	Allopathic hospital and primary health centre per 100,000 population (1993-94)	3.1	3.6
4.	Maternity and child welfare centre and sub-centre for 100,000 population (1993-94)	12.8	14.3
5.	Literacy percentage 1991	42.0	41.6
6.	Women's literacy percentage 1991	26.6	25.3
7.	Junior basic school per 100,000 population (1994-95)	50	55
8.	Senior basic school per 100,000 population (1994-95)	9	11
9.	Irrigated land percentage	80.8	67.0
10.	Percentage of electrified villages	84.8	74.3

Table 2: Yield of Main Crops (1993-94) in Western UP (Quintals/Hectares)

1.	Total foodgrains	22
2.	Wheat	27
3.	Rice	22
4.	Potato	223
5.	Oilseeds	10
6.	Sugarcane	637

Chapter II: The Reality of Green Revolution

Western UP is a leading green revolution region of India which is very well placed in terms of most of the commonly used indicators of agricultural development. For example the yield of foodgrains is 22 quintals per hectare in Western UP compared to 12 in Bundelkhand region of UP and 18 in Eastern UP.

Per hectare fertiliser use in Western UP is 40 per cent higher than in Eastern UP and more than four times higher than in Bundelkhand region (1993-94 official data). On

the basis of such statistics, this region is frequently represented as a model worth emulating by the rest of the state.

However, a more careful look at the agricultural development experience of Western UP during the last 30 to 35 years (the green revolution phase) would reveal the emergence of serious ecological, economic and social problems which must be kept in mind in any balanced evaluation of this region's development. These aspects have been explored recently in a FVS conducted by Disha and four sister organisations. These five villages are located in five different districts of Western UP.

From the point of view of sustainable development, one of the most important causes of concern is the decline in the fertility of land. In all the five villages surveyed, this is one issue on which all farmers agree that the fertility of land is declining. They also agree that if present cultivation practices continue then this decline of fertility can become more acute in a decade or two and reach crisis proportions.

It is also interesting that in any discussion on agricultural development initially farmers may not even mention this problem. One reason for this is that they are preoccupied with the immediate problems – arranging their inputs and marketing their product. Another reason is that in this region farmers' movements always emphasise marketing and pricing problems but do not take up ecological problems or the issue of sustainable development. But if one talks to farmers patiently and gradually moves from issues of immediate concern (such as the increase in the price of inputs) then it becomes clear that they are deeply concerned about this issue. Particularly the elderly, more experienced farmers realise fully the seriousness of this problem. As they discuss this issue, their voice becomes very sad and thoughtful.

In Sikri Kalan village where we discussed this issue with a group of farmers, the elderly farmers openly said that they do not at all like the new technology of chemical fertilisers and pesticides as it destroys the natural fertility of land. However, a young farmer Mam Chand opposed this view strongly and defended the new technology vigorously saying it has enabled him to increase the yields greatly. Mam Chand listens regularly to government's agricultural development programmes broadcast on radio. He visits new technology fairs arranged by the government and he is always eager to try the latest technology recommended by the government. He did not like elderly farmers criticising the new technology. However, as soon as the issue of decline in the natural fertility of land came up, he surrendered immediately and expressed full agreement that this is a very undesirable and undisputed impact of the new technology. On this issue he became one with elderly farmers and said that if this problem is not tackled, then during the next generation the problem may simply get out of hand.

The fact that decline of fertility of land has emerged as a leading issue of concern in all the five villages (located in five different districts) of Western UP in the FVS is significant. What is more, almost all farmers who were contacted appeared to agree that this is a genuinely significant issue. One hopes that the government as well as farmers movement will give adequate attention to this issue.

Secondly, most farmers agreed that the golden period of quickly raising yields is over. In the last few years the yields have declined, stagnated or at best have risen very moderately. Of course there can be year to year fluctuations depending on weather conditions and related factors. But the general trend in recent times has been one of stagnation, some decline or at most moderate rise. In sharp contrast the inputs demanded by the green revolution agriculture are rising very fast. The land demands more chemical fertilisers, new kinds of chemical fertiliser, the crop demand more pesticides and weedicides, the government and dealers keep recommending new types and brands of these chemicals, the price of diesel keeps going yup, the

water table keeps going down. So for most farmers, in recent year it has been a story of a fast rise in expenses with much more modest rise in yields, in many cases simply a stagnation or even decline of yields. In such a situation, the economic problem of most farmers can easily get worse. Despite the fact that the support price announced by the government for wheat and paddy as well as the price at which mills purchase sugarcane has been rising, this has not been adequate to cover the rising costs of farmers.

In addition farmers also feel threatened and harassed by the growing uncertainties of green revolution agriculture. Almost all farmers agree that the threat from pests and disease to their crops has been increasing in recent years. Some farmers say that even when they were able to get the advice of officials about which pesticide to spray for protection from a particular pest, generally this advice did not prove useful. More often, in desperation farmers seek the advice of pesticide dealers or just see what the neighbours are using. The overall experience is that despite spending much larger among of money on pesticides and weedicides they find that the problems caused by pests are increasing.

Some elderly farmers recall that in the days before the green revolution, they had full knowledge of the seeds they grew. In any case these varieties had much lower pest and disease problems but even when the problems arose they had their own methods based on locally usable materials to tackle these problems. But now they do not really know how to tackle the numerous pest and disease problems.

Now their dependence on purchasing seeds from the market is also much higher. As many kinds of seeds are available they are sometimes very confused about which seeds to select. So lack of actual knowledge about the varieties they are growing and about their pest and disease susceptibility makes them very vulnerable. This is why sometimes they incur heavy losses.

What is more, the economics of agriculture works out quite differently for big farmers and small farmers. The big farmer is able to sell the greater part of his sugarcane to a mill, while the small farmer frequently has to sell a greater part and sometimes all of his sugarcane to a crusher where the price is much lower. In the case of other crops a big farmer faces free market conditions so that he can sell where he get higher price. But the small farmer has often taken advance loans because of which he has to sell the crop at a cheaper rate. The smaller farmer sometimes cannot afford to take his crop to the government-managed markets which are located at a far distance.

There have been frequent complaints of very long delays in the payments due to cane farmers by several mills. The problems in marketing cane are likely to increase with the closure of several mills in the government sector. There have been times when a bumper crop has been followed by more distress for farmers as cane couldn’t be sold and part of the standing crop had to be burnt in the field.

The green revolution technology involves heavy infrastructural expenses in the form of tractor, its accessories, other machinery, tubewells, etc. This can become viable if the landholding is big, but not if landholding is small. The big farmer because of his higher resource base can withstand occasional adversities, such as pest attack or adverse weather, without getting into debt. On the other hand a small farmer who has invested heavily in green revolution agriculture doesn’t have any resources left to withstand any adversities. So he gets into debt which may involve borrowing money from a moneylender at interest rates of over 60 per cent per annum. Once this indebtedness starts the high interest payment and the low resource base makes it difficult to emerge out of debt trap.

Small farmers often hire the tractors of others, and buy irrigation water from the tubewells of others in order to practice the green revolution agriculture. This not only increases their costs, in addition they also have to wait till the others agree to give them tractors and tubewells after their own needs. Thus their various cultivation operations get delayed, the yield is lower, the risk of loss is higher.

On the other hand in the pre green revolution days for some farmers if the yield was lower, then the investment too was negligible and so the risk too was lower.

It was hoped at one time that by enabling him to grow the proverbial two blades of corn instead of one the green revolution technology will help to increase the economic well-being of small farmers. But things have not worked along the expected lines despite the fact that small farmers worked hard and spent money so that they could actually increase their yield significantly. The use of the green revolution technology (high yield varieties whose seeds need to be purchased from the market regularly, chemical fertilisers, chemical pesticides and weedicides, tractors and other expensive farm machines, intensive use of water) for the purpose of raising yields led to so many other problems that the small farmers' real income did not increase significantly but his economic tension increased considerably. In many cases he became indebted, in some cases he was taken to jail for defaulting on government loan and then he had to sell a part or all of his land to pay back these loans. In the FVS we have several examples from Bibipur villages of farmers who met this tragic fate. Two of them couldn't withstand this shock and died soon after these tragic incidents.

Some of these problems increased also because the green revolution inputs are of poor quality and adulterated. In Sikri Kalan village, for example, some farmers complained bitterly about the poor and uncertain quality of chemical pesticides, weedicides and fertilisers purchased by them.

The FVS survey indicated that several small farmers have been forced to sell their land. Some others have not sold their land but they do not also cultivate it on their own. They do not have the resources to cultivate the land on their own, so they lease it out to others. This can be done by giving them a one crop contract, or else on the basis of sharing the crop. But when someone takes the land on contract, then he tries to squeeze the land as much as possible in just one season, without thinking about the yield of the next year. This is done by adding salt to urea. So if these small farmers keep giving their land on contract, then after sometime this land may lose all fertility even to a greater extent than ordinary, self-cultivated land is losing its fertility.

Some small farmers due to their economic hardships also sell top soil to brick kilns but when the fertile top soil is dug up then the land loses its fertility. What is more, the neighbouring land starts getting eroded and sooner or later is also likely to be sold to the brick kilns.

In this way several small farmers are losing their land or else are likely to lose it in future. At the same time in several villages, including some villages covered by FVS, resourceful people from outside the village are buying land on a large scale. Some of these have already become the biggest and most influential land owners of the area. On the other hand, the landless farm workers who have been aspiring eagerly for some land to be given to them under the scheme announced by the government have still not received this land.

The landless farmers have received some increase in their cash earnings but this gain has been lost due to inflation as well as reduction of employment opportunities. FVS shows that most male workers get a wage of around Rs 50 per day, while female

workers still get only Rs 30 per day. There can be small variations from one place to another but by and large the wage of women farm workers is still quite low. In Muhammadpur Dumi village a worker who has taken loans works at lower rates than the normal worker. In Bibipur village advance payment of Rs 5,000 to Rs 6,000 ensures that the worker will toil only for this employer during the year.

What is more the work opportunities for all farm workers, including women workers are decreasing. In FVS many landless farm workers say that in their village they now get work only for about three months or so. The reduction of work opportunities have been caused by mechanisation, many farm workers complain. Although combine harvesters have not yet reached the five villages covered in this survey, the use of tractors as well as its various accessories is widespread. In addition the use of chemical weedicides has taken away the employment which was earlier available for removal of weeds by hands. In some villages where eucalyptus and poplars are replacing crops, this too has led to a reduction of employment opportunities.

While employment efforts have decreased, occupational health risks have increased for many workers, particularly when they work at threshers or spray chemical pesticides. Many workers have been physically disabled. Several others recall examples where they fell unconscious while spraying chemical pesticides. At the time of such accidents, they generally do not get any compensation payment. Exposure to a poisonous chemical may keep a worker out of work for several days, and during these days he has to manage without any earning. The saddest case, is that of the disabled farm workers who have lost their arms in thresher accidents and now face the grim prospects of spending their life with very few livelihood opportunities.

One way of improving the condition of landless farm workers is to give them land under the government's land distribution programme for poor and landless people. But the situation that emerges from FVS reports is that

(i) only a few *pattas* were given
(ii) open brines had to be paid to get that *pattas* and
(iii) some of these *pattas* are being cancelled now.

In Muhammadpur Dumi village some allotees got notices of cancellation of their *pattas*. As many as 13 poor persons were asked to pay bribes, and as they were very eager to get land, despite their poverty they somehow took loan and paid the bribes. So far they have not got land and their money has also not been returned. All the persons duped in this way belong to dalit families. In Kot Kadar village also some landless farm workers were asked to pay bribes but they didn't get promised land. In Bibipur village same allotees were never able to occupy the land which was allotted to them in 1969 and 1985. Several land *pattas* have also been cancelled here. According to Yogendra Singh who studies the villages fro FVS, 44 *pattas* amounting to about 240 bighas of land were cancelled. Some influential persons have also managed to get some *pattas* allotted in their names. Some of these disputes are not pending in courts.

While the income of farm workers as well as small/marginal farmers is limited by their low resource base and limited employment opportunities, some undesirable social trends are leading to a rise in nonessential, unproductive and harmful expenditure. There has been a big increase in liquor vends available within the village or very close to it. Sugarcane is a leading crop of this region, linked to a large number of sugar mills. Their by product – molasses – finds a ready outlet in the manufacture of liquor. The industry is eager to find new buyers of liquor in villages while a cash starved government appears to be only too happy to increase its earning from the sale of liquor. However, for thousands of poor families the spread of liquor consumption and addiction in villages means that even their limited survival capacity is threatened. Scarce funds badly needed for essential expenses are increasingly spent on liquor by many men (in some cases even male children). There

are also the other costs of ruined health, domestic violence, crime and disputes. There is also an increasing trend towards the use of tobacco-laced powders and other intoxicants.

In addition there has been a substantial increase in the expenses incurred on a daughter's marriage and the dowry given to her. It appears that rich families set the trend and other families which cannot afford the higher expenditure have to follow the trend for the reason of family prestige. The rise in consumerist values caused by exposure to urban life style and media, particularly TV, have also contributed to aggressive demands for expensive dowry items such as motorcycles and colour TV. Even a landless farm family is expected to spend around Rs 50,000 on a daughter's wedding while a modest farmer is expected to spend around Rs 150,000. These expenses often involve borrowing money at a compound interest of 5 per cent per month from private moneylenders.

Thus the weaker sections face a double burden of low earnings and the erosion of their earnings by unproductive expenditure is forced on them by prevailing, highly unproductive social trends. There is increasing shift from medicare in government hospitals to the private doctors and nursing homes, due to the dissatisfaction with the service provided in government hospitals. So medicare and medical emergencies also need more cash.

Due to various reasons a landless farm worker or small farm families having very limited income can also become indebted and then the interest payment and loan repayment further erodes their limited incomes. KN Tiwari, director of Disha Social Organization, which works with farm workers in several villages of Saharanpur says, "During the rainy season when we go the *dalit bastis* in many villages where most farm workers live, in many places that is so much mud and slush that it is difficult to approach the *bastis* and work there." Surat Singh leading social activist says, "Several families have only one room. The cattle are ties so close to it that it appears as if they all are sharing this room." The cover of a cot is used to provide bathing space.

In same villages covered by FVS Balmiki caste women still have to carry nightsoil from dry toilets. In a village like Kot Kadar there are quite a few women who still have to do this work and despite all the provisions of the government for the rehabilitation of scavengers, they have not been given any help to find alternative livelihood.

In such a situation it is not difficult to accept that hunger exists even in this green revolution region. According to FVS villages in Sikri Kalan identified about 20 families who remain hungry or half-fed during some lean months in the year. When asked how many villagers get adequate nutrition, they said only 25 to 30 per cent get adequate nutrition in the form of a regular supply of pulses, vegetables, fruits, milk and milk products.

In Pir Nagar Sudhna village about 20 to 22 families don't get enough food while the numbers of those who don't get enough food while the number of those who don't get balanced nutrition is very high.

The survey of Bibipur village revealed that as the production of pulses has declined gradually in the green revolution phase, so the availability of pulses to poor people has also decreased greatly. Hence the most important source of proteins has clearly declined. Milk is being sold more to the cities, its consumption and processing within the village has declined. When milk was processed into ghee in the village the poor people got the proteins-rich-by-product called *chhaachh*. But its availability has declined sharply now.

Several social activists of Disha who work regularly in several villages of Saharanpur were asked in your opinion how many percentage of household are unable to meet their basic needs. Their replies ranged from 10 per cent to 50 per cent. Some of the higher estimates were from Ghad region where the land is less fertile. Such smaller tracts of low fertility exist even in some district otherwise know for their agricultural bounty.

In any discussion on nutrition elderly villagers invariably talk about the higher nutrition as well as better flavour of the crops and crop varieties which were grown earlier. Varieties of rice like Ramjwan and Lalmati are remembered for their flavour and aroma. The traditional varieties of cane are remembered for their good taste and the great quality of their juice. In addition many varieties of rice and coarse cereals had medicinal values. However, the most important fact is that the mix of cereals, coarse cereals, millets, legume and vegetables which the farmers grew earlier was bale to provide villagers a balanced diet. In addition the traditional cropping practices helped to maintain the fertility of land. For example wheat was intercropped with *chana*, a legume crop, and when pesticides were not used there a green leafy vegetable called *bathua* grew alongside on its own. So for the same land one could get a cereal, a legume and a green leafy vegetable – a complete food in itself providing essential nutrients. But *chana* cannot be grown when new wheat varieties use a lot of nitrogen chemical fertiliser while *bathua* is wiped out like a weed by the use of chemical weedicides.

Earlier several crops could be grown together and land could also get some rest. But now land doesn't get the benefit of legume crops with their nutrition fixing abilities (these crops are still grown but to a much lesser extent than before). Excessive chemical fertilisers make it difficult to grow these crops and in addition harm the fertility of land. Earlier crops were grown without chemical fertilisers, but now land has got so addicted to chemical fertilises that farmers can't think of growing their crops without chemical fertilisers. Use of excessive chemicals has killed farmer friendly earthworms, bees and butterflies, other friendly insects and birds on a large scale. Water resources too have been polluted.

Earlier the tall-growing grain varieties gave much fodder and the legume crop also provided fodder. Now mainly dwarf varieties of grain are grown which give less fodder while legume crops have decreased. Hence fodder availability has decreased, so that less animals can be kept. Less animals lead to less organic manure and so this is a vicious cycle.

Where is the way out? Clearly the resource base of landless farm workers has to be improved by giving them land on a priority basis, and if some land is still available after meeting their basic needs, then this land should be given to the marginal and small farmers. This group of the landless and small/marginal farmers should also be given priority in other income earning activities for which government help is available. They should be encouraged to start various cottage scale artisan activities.

As far as possible encouragement should be extended to the promotion of organic agriculture using labour intensive methods and local resources. It is sometimes said that there can be no going back once farmers have taken up green revolution technology and mechanised methods. However, recent experience of Cuba shows how it is both possible and useful for farmers used to chemical-based agriculture to give up this technology in favour of organic agriculture. In India there are numerous examples of successful experiments related to organic farming. Some of these have also been reported from Western UP or also from other nearby green revolution areas such as Haryana.

Some farmers say that their land has got so addicted to chemical fertilisers that they cannot give it up. At the same time they admit that if the land is left free for one or two seasons and adequate organic manure is applied to it then it can still get back its fertility. They say earthworms will return to such land if it is treated in this way. It is true that friendly organisms such as earthworms have been killed on a large scale by the heavy use of chemicals, but they can return to land if land is left free and treated with organic manure. Once earthworms return, they will make the soil porous and allow the circulation of sunlight and air in it apart from increasing the water retention capacity of soil.

But if farmers keep the land free, they how will they earn their living. In this context it is suggested that a farmer can divide his land into three, four or five parts. One part can be treated in one year, one next year and in this way the entire land can be treated in five years. Some villagers retaliate that even leaving one fifth of the land uncultivated for one season will not be accepted by farmers and this may not even be possible for small farmers. To this the response is that instead of giving subsidies on chemical fertilisers, the government should give subsidy directly to those farmers who keep the land vacant and treat it with organic manure and compost. If the government gives them the equivalent of one season's crop, then they will be very happy to treat land to get back its fertility, villagers say.

Once the land gets back its fertility it should be possible to grow a wide diversity of traditional varieties of various crops particularly legume crops. It is interesting to know from elderly villagers that some traditional varieties of cereals were earlier grown which were able to give high yields. For example, *lathmaar* or *gunthani* variety of paddy grown in lowlands were able to give yields comparable to green revolution varieties and that too without using any chemical fertilisers and pesticides. *Saavaan* and *manduwa* are other crops from which some villager here have obtained high yields of nutritious food in the past.

Even if some farmers are willing to grow traditional varieties of crops which grow will without chemical fertilisers and pesticides, from where will they get seeds of these crops? Some farmers say that within this long green revolution belt there are a few villages where due to shortage of water or other factors the green revolution varieties could not spread. So the traditional varieties can still be obtained there. For example, Kot Kadar village covered in FVS is completely covered with green revolution varieties, but at a distance of about 15 km from here there is a village called Barhpura where traditional varieties can be obtained. A woman activist of Disha Social Organization says that traditional varieties like *gunthani* are still grown in her maternal village.

Kunwar Prasun is an activist of Save the Seeds Movement in the hills of UP (Garhwal region) a movement which has saved several traditional varieties of hills. He says that some varieties needed in western UP such as *gunthni* variety of rice can be obtained fro hills as well.

In addition some other traditional varieties of wheat, rice and other crops grown here can also prove successful in plains he says. But it'll be even better if Western UP farmers are able to trace these varieties in their own region for which they can make an effort similar to what has been made by Save the Seeds Movement in the hills. In the *terai* bhabhar area where the hills meet the plains they can find some traditional varieties grown without chemical fertilisers and pesticides which can be of use in other parts of Western UP as well, he says.

So problems like non-availability of traditional seeds and the addiction of land to chemical fertilisers can be overcome by a joint effort of villagers, people's movements, voluntary organisations and the government. If the practice of organic

farming spreads then it should be possible to get premium rates of organically grown cereals and vegetables in the cities of Western UP as well as in Delhi. Village youth can organise cooperatives for direct sale of these products to consumers in cities, bypassing middlemen. This will help consumers as well as farmers.

FVS has revealed that elderly villagers in particular remember a wide range of traditional practices which were earlier used to keep away harmful insects and other pests as well as to increase the fertility of land without depending on any chemicals. Most of these demand hard work and dedication to farming. But several youths are not inclined to work so hard and to spend so much time at farms. They are more used to tractors and chemicals and regard these as symbols of progress. In fact when some elders praised traditional methods, these youths expressed their suspicions of the usefulness of the said methods. “The world is going ahead, while you are asking us to go back.” They said with contempt. So the task of moving towards organic farming is not going to be an easy one. Nevertheless, the quest for changes which are based on equality and sustainability, which help the poor and also protect environment, should certainly be accorded high priority.

Chapter III: Land Fertility Declining Fast in Green Revolution Villages

Most farmers in green revolution villages agree that fertility of their land is declining and this can become a serious crisis in the next one or two decades. This is one of the most important findings of a recent survey of five villages (in five different districts) of Western UP. The green revolution technology has spread entirely in all these villages but farmers agree that short-term gains in yield have been at the cost of declining fertility.

This survey which was conducted by Disha voluntary organisation with the help of four sister organisations revealed that the disruption of old crop rotations which protected the fertility of land (for example by growing several legume crops) as well as the heavy use of chemical fertilisers and pesticides has caused the decline of land fertility. Same farmers said that the land has become addicted to high doses of chemical fertilisers. Absence of reliable advice and soil-testing facilities also contributes to the indiscriminate and harmful use of chemicals, farmers complained.

Abdul Samad is a middle-aged, educated farmer belonging to village Kot Kadar, district Bijnor, UP, who unlike many other farmers carefully records the yields of his fields as well as expenditure he incurs on various inputs such as chemical fertilisers and pesticides.

Speaking about the experience of green revolution farming in his native Kot Kadar village of Bijnor district, he says that initially the yield certainly increased but in recent years despite increasing use of chemical fertilisers the yield has declined.

He says that wheat yield peaked to about 4 quintals per bigha (five bigha is equal to one acre) in 1990 and by 199 it declined to about 3 quintals. Similarly the paddy yield peaked to about 6 quintals in 1990 and it has now declined to about 4 quintals.

However, from 1990 to 1999 the use of chemical fertilisers increased from 30 kg per bigha to 60 kg. The expenditure on chemical fertiliser increased from Rs 140 per bigha to Rs 360 per bigha he says. The expenditure on chemical pesticides and weedicides increased from Rs 20 to Rs 100 per bigha, he says or increased nearly five times.

This tendency of chemical fertilisers and pesticides to increase while yields decline is the real reason why farmers in our region are in a crisis, says Abdul Samad.

Exploring this trend, Samad argues that excessive use of chemical fertilisers and pesticides has led to a decline in the fertility of land. If the trend persists, he says, then a very serious situation can develop in the next one or two decades. This is a feeling that is shared by almost all the farmers of his village. Most farmers are too preoccupied with the daily chores of green revolution farming which keeps them very busy, but if one raises the question declining land fertility, they take notice and agree strongly that this is a major problem. "*Zameen ki takat khatm ho gai* (the land has lost its strength)," is a frequently expressed comment.

Subhash Chand is a considered one of the biggest and most prosperous farmer of this village. But even he agrees that declining fertility of land is a serious problem. It is not that villagers are not aware of the importance of organic manure, but they find themselves helpless as there has been a big decline in the number of farm animals with the advent of tractors and decline of pastures, so that enough cowdung manure is not available.

Within the prevailing constraints, he feels that green manuring, that is, growing some fertility enhancing vegetation and ploughing it into the fields can increase fertility. But whatever the reasons, not many farmers are practising this today on an adequate scale, probably because they want to grow more sugarcane and grain.

Tek Chand, a middle level, elderly farmer says that there has been a big decline in pulse corps or legume crops. *Chana* or Bengal gram was widely grown here but now this is hardly grown in the village. The reason is that this can't grow in chemical fertiliser conditions. Farmers are aware that legumes are good for soil. But in present conditions they have been giving up legumes. This also had a harmful impact on land fertility.

This problem of declining land fertility increases when land is given on contract basis for cultivation. Zameer Hasan says, "When I gave my land for contract farming, the person who took this land said I won't be able to grow anything next season. I later learnt that he mixed salt with urea so that all the nutrients of soil were completely depleted for the next crop. When I got back my land, I had to leave it follow for some time and put a lot of organic manure in it. Only then it could be used for cultivation again."

Abdul Samad says that the use of pesticides has increased very heavily and this has proved quite harmful for land. Last year despite very heavy use of pesticides the paddy crop still couldn't be saved. Even when official are contacted they cannot guide properly, he says. Some farmers say that as a result of heavy use of chemical fertilisers and pesticides they have seen earthworms perishing in large numbers. Other farmer-friendly insects such as bees and butterflies have also been depleted due to chemical poisons. All this leads to reduction of fertility and productivity.

Some farmers are convinced that despite the fact that high yielding varieties were adopted widely in their village, the old-style traditional farming without chemical fertilisers and pesticides was better. Wazir Ansari is one such farmer. He remembers nostalgically the old farming methods, the leisurely ways and above all the fragrance and taste of the old varieties of crops. "Sugarcane juice in those varieties was like milk. Jaggery made from that juice could cure many diseases. If *hansraj* rice was being cooked in one household, you could smell it a street away. Similarly for *methi* (fenugreek) vegetable." But above all, he says, fertility of land was well-maintained. You didn't have the problem you have now.

In other villages also some farmers agree with Wazir Ansari. Sahib Singh, an elderly farmer of Ahmedpur village (Saharanpur district) feels strongly that the traditional system was clearly better and sooner or later we'll have to recognise this. Desraj, a

respected elder of Sikri village says tha the entire modern system is just too expensive and it has poisoned the entire food system with chemicals. His wife died of cancer due to this, he feels strongly. In the old times when did you hear of cancer in our village, he asks passionately.

Younger members of his family like Pratap Singh take a less critical view of the green revolution but even they agree that the decline in land fertility is a major problem which cannot be avoided. Maam Chand is a known modern farmer who was in the forefront of adopting the new technology. He still advocates it, but agrees that the next generation will face a real big problem in the decline of land fertility. He is also disillusioned by adulterated and harmful chemical pesticides and weedicides. For example in Halalpur village when a weedicide was sprayed, along with the weeds the main wheat crop was also destroyed, he complains bitterly. For green revolution to succeed, proper soil testing is necessary, but soil is never tested properly in our village, he says. So how can we have balanced use of fertilisers, he asks.

Whatever be the reasons the common argument is that land fertility is in danger and something needs to be done about it – green manuring, more organic manure, some rest for land are some of the solutions that are mentioned. If a farmer can take away a small part of his land for one year and treat it with organic manure and green manure, some fertility will return. But can hard-pressed farmers afford to leave land fallow for one year or even one season. Perhaps the government can help by subsidising his efforts. This may be better than subsidising the use of chemicals.

Chapter IV: Indebtedness Increases in Green Revolution Villages

Farmers as well as landless farm workers are getting increasingly indebted even in the supposedly prosperous green revolution villages. This disturbing trend has been highlighted in a recent study of five villages in Western UP conducted by Disha voluntary organisation and four sister organisations. Rising costs of farm inputs and implements, high interest rates, corruption, increasing marriage expenses and spread of the liquor habit have all contributed to the growing indebtedness of villagers. Dependence on private moneylenders is still high, and they charge 5 per cent per month compound interest.

Bhoole Yadav and Shauram Yadav, farmers of Muhammadpur Dhumi village complain that an influential person took loans in their names from a credit society and as he didn't pay back the loans this has been increasing with compound interest.

In Bibipur village (Muzaffarnagar district) some farmers have been forced to sell their land to pay back their loans. Some of them even left the village after selling their land. In a study of this village researcher Yogendra Singh of SRAM voluntary organisation also identified seven cases when farmers who could not pay back loans were jailed. In all these cases their families finally had to sell a good part of their land to get them released from jail. In two of these seven cases the indebted persons after they had paid back the loans the indebted persons after they had paid back the loans and had been released from jail felt very demoralised and depressed and died an untimely death. The villagers relate their untimely death to the shock and shame they experienced on being jailed due to their inability to pay back the loan.

The government interest ranges from 12 to 16 per cent compound interest in societies and banks while the private moneylenders change as much as 60 per cent compound interest which in extreme cases (for example where there have been delays in payments) can even go up to 120 per cent per annum compound interest (5 to 10 per cent per month).

Lakshmi Chand of Dhula Heri village (Sarsawa block) in Saharanpur district, Uttar Pradsh, took a loan of Rs 3,000 sometime back. Recently he got a notice for the payment of Rs 16,000 more than five times the principal amount. Hajra, a women of Ferozepur village in the same district took a few bags of chemical fertilisers on credit. The loan recovery notice she got was so big that she had to sell almost one acre of her land to pay back this loan.

Pala, another person of the same village, took a loan of Rs 6,000 but got a recovery notice of around Rs 19,000. These are a few examples of small farmers who have faced economic ruin after they borrowed from banks and had to pay very heavy interest.

A social activist of Saharanpur district Jasveer says," When the government makes an occasional announcement of writing off some debt, this applies only to some special category of loan but many people think that their loan has been cancelled. So they stop worrying about it but the interest continues to grow all the time."

However, several people blame corruption and financial irregularities for the sharp escalation of their loan. Nirmala, a social activist with Disha, a voluntary organisation active in the Saharanpur district, says, " A women of Dhaula Heri village took a loan of Rs 6,000 and paid it back promptly. Yet she got a recovery notice of Rs 7,065. So I took her to the bank in Doodhganj, where the officials told us to come again. When we persisted and went again they finally opened the account books where no loan return entries had been made. Fortunately this woman had the receipts and so on this basis late entries could be made. Otherwise the loan repayment would have been just denied." In some cases of loans given in the name of poverty alleviation, bank officials openly take bribes so that loan becomes burdensome from the outset.

The situation is even worse in the case of loans taken from private moneylenders. Here interest charged is very high. In Saharanpur district this can range from 5 per cent per month to 10 per cent per month. When the interest payment is delayed, the moneylender can increase the rate. In many cases the poor peasant or worker can just about pay the interest every month, or once every 3 or 6 months, while the principal amount remains.

Increasing marriage expenses frequently force small peasants and workers to take loans which they have little hope of paying back easily. In Saharanpur district in Hindu families even a landless worker is expected to spend Rs 50,000 at the time of one daughter's marriage while in the case of a small or middle level farmer, the expenditure is likely to be in the range of Rs 100,000 to Rs 150,000. In Muslim families the expenditure is generally somewhat less, but even among these families the burden can be quite heavy.

Maqsood, of Rawanpur village, took a small loan of Rs 6,000 to meet the marriage expenses of his daughter. After five years he had to sell two acres of land to pay back this loan.

Surat Singh, a leading social activist of Saharanpur says, "To pay back marriage loans sometimes the youth of a poor family has to work for long hours at the farm of the powerful creditor, and doesn't even get time off for lunch. When his wife goes to the field to provide him lunch, she is sometimes molested by the powerful creditor."

Increasing consumption of liquor and intoxicants is another cause for the growing indebtedness in families. Daupadi of Sikri village says that several families in her village face economic ruin and indebtedness due to high consumption of liquor.

But Brij Pal, a landless worker in the same village has become indebted even though he doesn't drink liquor. The reason of his indebtedness, he says, is that he doesn't have land of his own and in addition rapid mechanisation of farm work has reduced the availability of employment opportunities for him. On the other hand many farmers lament that increasing costs of green revolution agriculture and stagnant or even declining yields have forced many of them also into indebtedness.

In practice it is the combined impact of economic distress accentuated in some cases by social expenditures and/or liquor which results in high rate of indebtedness.

In Saharanpur district voluntary organisations like Disha are making a small but significant contribution to checking indebtedness by self-help groups which pool in small savings every month to meet the emergency needs or investment needs of the members. But the problem is too big to be tackled by a few self-help groups.

Surat Singh says, "All pending government loans are sent for loan recovery to the tehsil (an administrative unit) office and when the officials accompanied sometimes by police come for recovery, then the person who has been given the notice doesn't get a chance to obtain clear information on why such a big recovery has been sent to him. He has to pay back the loan or else he is sent to the tehsil jail. Here the conditions are so revolting that everyone tries to somehow pay the loan even if this means even higher interest borrowing from private moneylenders."

Riyasat Ali, another social activist adds, "If the loan can't be paid, then the farmer's land can also be auctioned. The farmer can lose his land and also feels badly humiliated, while local big landlords get a chance to purchase more land at a cheap rate. In this way rural inequalities increase."

Growing rural indebtedness is becoming one of the most significant causes of simmering tensions and discontent in many villages. Therefore, considerable relief to reduce the distress of people is needed. This will also help to bring the debts to reasonable levels which farmers can hope to pay back. Hence better recovery of same loans can also be achieved at the same time as reducing the distress of several farmers and farm workers. Genuine concern for rural poor indebted families has to be an essential part of any strategy aimed at improving rural credit and better recovery of loan.

Chapter 5: Land Inequalities in Western UP – Cake for the Rich and Crumbs for the Poor

Western UP is one of the leading green revolution regions of India, but a significant number of rural households, in fact a majority in some villages are unable to obtain the benefit of increased productivity as they either do not have any land or else their land holdings are so small as to make it difficult to use an expensive technology whose costs have been rising steeply in recent years. Land distribution among the landless and near landless families could have remedied this situation, but this much publicised effort has made very little progress. In several villages while the farm workers are still starved of land, resourceful people from outside the village have been buying huge chunks of land.

These and other important findings about stagnation and change in land relations in western UP have emerged from a recent study of five villages (FVS or Five Village Survey) located in five different districts of this region. This study was coordinated by Disha voluntary organisation and supported by other voluntary organisations.

In Sikri Kalan village of Saharanpur district about 60 families out of 200 are entirely landless. Paltu Ram from Disha who studies this village says that in addition 40

families own less than 2 acres of land. Thus nearly 100 families either do not own any land, or else own very little land. On the other hand, 47 families own more than 4 acres of land. Some of these are quite big and rich farmers. Twenty-five families have tractors. At the same time four families from outside the village have purchased significantly big plots of land.

Roughly 10 per cent of the village's farmland is given to share croppers, the rest is self-cultivated. The most common practice is that the sharecropper will provide his labour and one-fifth of the expenditure on chemical fertilisers, irrigation and extra labour hired at the time of harvesting. As for sharing the crop, the sharecropper gets only one-firths of the crop while the owner gets four-fifths of the crop. This leasing is generally done only for the paddy crop. Clearly this is very exploitative towards the sharecropper. Some land is also given on a long term contract basis. Generally only big farmers give their land on sharecropping basis in this village.

Pir Nagar Sudhna (district Ghaziabad) is a bigger village of about 460 families. According to Bhoop Singh who coordinated this village's study 101 of these families are landless while 210 own less than two acres of land. Eighty-one families own 2 to 4 acres of land while 68 families own over 4 acres of land. In the last category five families own more than 20 acres of land. In fact these five together own 200 acres of land. The five big landowners include three persons from outside the village who purchased big tracts of land and have now become quite dominant in the village landownership hierarchy.

Eighty-eight per cent of the land is self-cultivated. Fifteen per cent is leased out, 10 per cent on sharecropping basis and 5 per cent on contract basis. The contract rate is Rs 1,000 per *bigha* (roughly one fifth of one acre), generally paid in advance. There are three variations of sharecropping agreements, probably depending on the quality of land which involves giving the share cropper 1/2, 1/3, and 1/4 of the grain and fodder. A few expenses are also shared.

In Muhammadpur Dhumi village of Meerut district 11 per cent of the families are landless while 27 per cent have les than 2 acres of land. Fifteen per cent families have over 4 acres of land. In the last category seven big farm families which own around 16 to 20 acres of land each are also included.

Twenty per cent of farmland is leased out, mostly on the basis of sharing the main crop and fodder on 50-50 basis. The labour responsibility is entirely on the sharecropper. The contract rate is Rs 1,000 – 1,200 per year, half the amount being paid in advance. Both the big farmers and small farmers lease out land. According to Mehar Singh who studies this village, big farmers lease out land when their sons start living in cities and they can't manage on their own. Small farmers give land when due to low resource-base they can't cultivate it.

In Bibipur village of Muzaffarnagar district 22 per cent families are landless while around 21 per cent own less than 2 acres of land. About 50 per cent families own over 4 acres of land. Two farmers own more than 20 acres of land. Several persons from outside this village have purchased land. Nearly 20 per cent of the land is leased out roughly on the same basis as in Muhammadpur Dumi village. Basically only small farmers lease out land. Yogendra Singh of Shram voluntary organisation says that this is due to their low resource base.

Kot Kadar village (Bijnor district) has 1,149 families. Zamir Hasan of Pragatisheel Bal Vikas Sansthan says that according to a door-to-door survey of this village, 423 families are landless and 200 own less than two acres of land. In all 162 families own more than 4 acres of land while 236 own land in the range of 2 to 4 acres. Forty-

eight families own tractors. As many as 195 families have leased out land. The number of poor families/small and marginal farmers who lease out land is quite high.

Thus it is clear from FVS findings cited above that a large number of poorest people – say the bottom 30 to 40 per cent – have a very small share of land, sometimes a negligible share. Not only well to do families retain a good share of the land, in additions in some villages families from outside the village also purchase a lot of land while the poor people remain where they are. Government efforts to distribute land among the poor have performed poorly. In Muhammadpur Dhumi village bribes were taken from 13 families for land *pattas* but they haven't got land. *Pattas* of some families who got land earlier are being cancelled. In Saharanpur district hundreds of *pattas* of land which were given to women from poor families who got themselves sterilised are being cancelled. Earlier these women had been assured that they will not be evicted from their land.

Ghad area of Saharanpur district has witnessed land reform in reverse – the land belonging to the poor being grabbed from them by urban rich people supported by gangsters. For example a self-styled prince of Delhi has grabbed around 500 acres of land belonging to poor peasants and village communities to set up a 'dream valley'. Hundreds of acres of land from villages in Behat tehsil has been grabbed using one dubious tactic or the other, taking advantage of the poverty and illiteracy of villagers. In terai region (Bijnor district) several urban farm owners (some of them from Delhi) have occupied land ranging from 100 acres to 1,000 acres, or even more. In a village near Hardwar some celebrities including film stars and cricketers have occupied huge areas of farmland.

Hence land equality instead of being reduced is actually increasing. In some areas the *pattas* given to the poor are being cancelled while the rich are grabbing big tracts of land. The situation of 'cakes for the rich and crumbs for the poor' is being continued or even accentuated, while only lip service is paid to land reforms.

Chapter VI: Tension and Conflict in Western Terai

The tourist on the way to Mussourie or Nainital passes the beautiful green yellow and golden fields of the Himalayan foothills. But the appearances are deceptive. In the western UP terai, simmering tension has erupted again and again in recent years.

UP's terai is different from the old settled villages of the Gangetic plains further to south. Most of the settlements here are of recent origin, results of colonisation of marshy lands and forests. Interestingly, the inequalities spawned by these newly settled lands of 'socialist' India are no less acute than which exist in traditional Indian village society. In fact, the inequality is even more glaring because the mansions of big farmers of the terai are adjacent to the humblest of shanty colonies.

The virgin lands were opened up at great public expense in the 1950s, with the primary aim of resettling the partition refugees from Pakistan. The state also provided land to demobilised defence service personnel and 'political sufferers'. The pioneers flourished: irrigation was abundant and land was cheap. Soon, opportunity seekers arrived from all over, and a breed of gentlemen farmers grew out of the western terai.

The UP terai is one of the few places in India that has combine harvesters: the Pantnagar university was only next door to show the way. It was fashioned after American land grant colleges, with mechanised farms attached to it. The university is a major supplier of high-yielding seeds, and therefore became the Mecca of so-called progressive farmers. The Sikh gentlemen farmers settled here were among the first, like the Punjab farmers to incorporate green revolution technology in their fields.

Because the big landowners could not cultivate the vast tracts they had accumulated, they needed farm labourers who arrived from eastern UP and Bihar. At the same time the 'refugees' of population increase and environmental dislocation in the hills also came down to the terai, hoping to improve their prospects. The Garhwalis descended from Dehradun-Rishikesh area while the Kumaonis settled around Haldwani, Pantnagar and Rudrapur in the Nainital terai. But the best land has already been cornered by the relatively big landowners, and the stage was set for friction.

In all the coming and going of outsiders, the indigenous people of this portion of the terai the Buxa and the Tharu were forgotten. Their property gradually passed to others and they were pushed into unproductive land or had to work as landless wage labourers. They have been victimised by the frontier man's tradition of coercion, violence and manipulation.

All of the UP terai is not equally problem ridden. Relatively, the Nainital sector is marked by more inequality conflict and violence. Other areas are relatively calm. However, there are some features that hold common for most of the region.

Firstly, the indigenous inhabitants are increasingly marginalized. There have been occasional, ineffective campaigns to wrest out the original tribal lands from the landowners and return them to the Tharus or Buxas. In the Pauri Garhwal-Bijnor border the effort to deprive Buxas of *bhoodan* land given to them led to violence and incidents of torture.

Secondly, there is the question of land rights of those who have settled on Forest Department land and remain there under uncertain conditions. Recently, there has been widespread incidents of repression in the Bindulkhata area of the Nainital terai. Even elephants wee reportedly let loose on the huts of the poor families.

Thirdly, there are numerous land struggles as various organisations of the poor strive to let landlords with above-ceiling holdings to let go out of their poverty. After suffering through a prolonged campaign and for their rights the poor of Tehriwala in Dehradun district actually succeeded in wresting land from the rich.

Fourthly, there is the general demand of the farm workers for better working and living conditions. The most violent incident in this context occurred in 1978 at the Pantnagar university, when a massive police firing took lives of at least 10 workers, possibly many more. Today, the demand for better working and living conditions is more muted, but it continues.

But as more awareness of the politics of socio-economic and human rights permeates the *bustis* of tribals and the landless poor in UP terai, the demand for a fair deal will become more strident.

Chapter VII: Farm Mechanisation Not an Unmixed Blessing

Farm mechanisation has spread very widely in green revolution villages but this has not been an unmixed blessing. Workers complain of reduced employment opportunities and higher accident rate, while some of the farmers who took loans to buy tractors have themselves become trapped in this debt. Some of them have even been forced to sell their land.

These are the broad conclusions of farm mechanisation trends that emerge from a recent survey of green revolution villages in western UP. This is one of the leading regions of the spread of green revolution agriculture in India. A recent study carried

out by Disha voluntary organisation and four sister organisations in five villages has revealed some disturbing aspects of the spread of mechanisation.

One factor common to all the five villages surveyed (in five different districts) is that everywhere the use of tractors and threshers has spread widely. Ninety per cent or more farmers appear to be using these implements. At the same time the use of bullocks for various agricultural operations has declined dramatically in just three decades. Of course only some farmers in a village can own tractors, but others pay cash to the owners for the use of their tractors and threshers. In this way almost all the villagers can use these machines.

But there is a difference in the use pattern of big farmers and small farmers, says KN Tiwari, director of Disha. While the well-to-do-owners of tractors and threshers can complete their agricultural operations at the appropriate time the smaller farmers have to wait till the others can spare their machinery after their own use. Hence the agricultural operations of smaller farmers are frequently delayed, leading to lower yields for them.

Yogendra Singh of Shram voluntary organisation says on the basis of a survey of Bibipur village (district Muzaffarnagar) that several farmers who purchased tractors by taking loans ultimately had to sell their land to pay back the loan. Phoola Singh purchased a tractor in 1982. The interest increased rapidly and the loan multiplied. Finally he had to sell the substantial land and also the tractor to pay back the loan. Jumnal took a loan from a bank in 1987 to buy a tractor. Later to pay back the loan he was forced to sell 2 acres of land. Ghasita also had to sell 2 acres of land to pay back his tractor loans.

In Bibipur village several serious accidents involving the use of farm machines have taken place. Gyanchand lost his right hand. Ramchander got serious injuries on hand, feet and head when he fell from tractor on harrow. Padam Singh lost his fingers.

Despite this the fact remains that this village of about 135 farmer families (big and small) has a total of 22 tractors and almost all farmers use tractors to a lesser or greater extent. Clearly tractors fulfil an important role in the overall green revolution technology which involves speeding up the work. The shortage of fodder for bullocks is another reason which prompts the small farmers, who cannot afford to do so, to use tractors.

Kunwar Prasun, an environment activist and supporter of organic agriculture says that green revolution technology which emphasises dwarf grain varieties itself creates a fodder shortage and this what makes it difficult to keep bullocks. In addition in those green revolution areas (not the villages included in this survey) where the combine harvesters have also arrived, processing technology is such that dry fodder is lost. Hence green revolution practices themselves are biased in favour of tractors and against bullocks.

Sikri village of Saharanpur district has as many as 25 tractors for its 140 farm families. However, 40 families have less than 2 acres of land. Paltu Ram of Disha voluntary organisation concludes in his survey of this village that most of the small and marginal farmers use tractors but they don't really benefit from them as they have to pay rent apart from waiting too long for their turn to use tractors. This village also has as many as 60 landless families. Many of them complain that mechanisation has reduced employment opportunities and they frequently have to go to the city in search of some work. Even well-to-do farmers of this village like Pratap Singh complain that the price of tractors and its various accessories has increased

greatly and it is a source of tension to find the money for such a big purchase. To the price of tractor you should add the price of thresher, harrow, tiller, etc., he says.

Pir Nagar Sudhna village of Ghaziabad district has 32 tractors for 360 farmer families. Bhoop Singh of MIDT voluntary organisation who surveyed this village says that small farmers also do not deny the usefulness of tractors in a situation where it becomes difficult to keep bullocks. However landless farm workers complain of unemployment as well as accident injuries. Babu Nai lost his hands while working on the thresher. Vijay Singh also lost his hand in a thresher accident. For such disabled workers livelihood is a very serious problem, he says. Bhoop Singh complains that workers injured in such accidents are not paid any compensation by their employers.

Muhammadpur Dhumi village of Meerut district has 36 tractors for almost 600 families. Mehar Singh of Gramin Samaj Vikas Kendra (GSVK) voluntary organisation who surveyed this village says that tractors are considered useful by villagers but on the other hand they've also caused higher indebtedness for some. Workers like Ram Singh (who lost a foot) and Chanti suffered serious accidents relating to farm machinery.

Some farmers also complained about the difficulties they face in obtaining diesel as well as repairs of tractors. Thus it is not only the poor families who don't own tractors whose dependence has increased. Sometimes tractor owners have to face problems due to difficulties in getting fuel and repair services.

Some farmers also highlight the dilemma they face when families get divided. Dividing land itself is difficult, but how to divide the tractor or other farm machinery? Some elderly farmers recall with nostalgia how strong their bullocks were in the earlier days. They say bullocks had a very important place in the farmer families and they were fed very well. They were almost like a part of the family. Farmer families decorated them on festive occasion and they were very proud of them.

Some elderly farmers agree that sooner or later the importance of bullocks will again be realised by villagers. Rehtu Lal, an elderly farmer says his family has a tractor but he has refused to discard the bullocks. Some villagers say some form of collective bringing up and use of bullocks should be arranged. Steps should be taken to increase the availability of fodder. Once bullocks are used by most villagers, their needs for organic manure will also be met to a greater extent. At present the difficulty in getting adequate quantities of *gobar* or cowdung manure has become a major cause for the decline of land fertility in villages.

Chapter VIII: Green Revolution Fails to Benefit Women

When new farming methods changed the face of agriculture in western UP, it was expected that this economic and technological change will also improve the condition of women. However, in this important green revolution region of India, such broad-based social change has proved elusive. Indeed in some respects the situation of women has even worsened.

This is one of the important findings of five villages (located in five different districts) of western UP conducted by Disha voluntary organisation and four other sister organisations.

In Bibipur village of Muzaffarnagar district expenses relating to dowry system and marriage of girls are increasing. Expenses in daughter's marriage can range from Rs 25,000 (for the poorest families) to as high as Rs 300,000 (for the richest families). Yogendra Singh of Shram voluntary organisation who studies this village says, "A bride who doesn't bring adequate dowry in the perception of her husband's family is

frequently abused and beaten-up. Sometimes she is even discarded and her husband remarried. Even after the marriage, when the girl visits her family she is expected to bring back gifts from them."

For many families it is becoming increasingly difficult to arrange the marriage of their daughters. Some of them become heavily indebted due to marriage expenses. There are examples of Nahli, Kripa and Diya who took debts at a high rate of interest and being unable to pay this back, they had to sell their land and even leave the village.

In this village hardly any middle aged or old woman is educated. The percentage of literacy is very low even among grown up young girls. However, at primary levels, about 50 per cent of the girl children go to school. But only 5 per cent of the girls are actually able to pass the eighth class. Thus the drop out rate of girl students is very high. In poor households girls are generally kept busy in looking after their smaller brothers and sisters, helping in domestic work and also participating in income earning activities in some cases.

Yogendra Singh adds that the normal tendency is to accord very low priority to the education of girls as they are supposed to go to other families and take up the household work there. Several villagers also think that grown up girls will not be safe if they have to go school everyday.

There has been no reduction in the *purdah* system or drawing a veil by the village women. A woman who doesn't observe the *ghunghat* or veil becomes the target of a lot of criticism in the village.

Women also suffer from discrimination against themselves. They often eat last and eat less nutritious food. Another aspect of discrimination against women in Bibipur village is that women farm workers are paid significantly less than male workers. Yogendra Singh's study recorded that while most male workers got Rs 50 for one day's work, female workers generally got only Rs 30 per day.

A somewhat similar wage difference is reported for Pir Nagar Sudhna village in a survey done by Bhoop Singh and for Muhammadpur Dhumi village (Meerut district) in a survey done by Mehar Singh. Sikri Kalan village (of Saharanpur district) studies by Paltu Ram has a district identity as it is located near Chilkana village. This later village was the scene of an impressive movement by women farm workers for the equalisation of male and female wages. This movement got very enthusiastic involvement of women farm workers not only of Chilkana village but also of nearby villages. But despite this, Paltu Ram's survey revealed that significant gaps exist between male and female workers even in Sikri village – males get around Rs 50 while females get around Rs 30. However, in the case of women workers the working time may be a little less. Hence the male female gap in wages appears to be a pervasive and persistent phenomenon and reasserts itself even in places where there has been a specific struggle against it. In Saharanpur district in particular, land *pattas* given to women from poor families who had undergone sterilisation are being cancelled on a large scale.

However in education the performance of Sikri village is much better than Bibipur village. Here about 75 per cent of girls attend school and at least 40 per cent of them complete class eighth, as reported in the study by Paltu Ram.

In Pir Nagar Village the dowry system is spreading among farm workers as well, making it difficult to arrange the marriage of their daughters. Disputes over dowry have also led to an increase in violence against women, even bride-burning has been reported. Other forms of violence against women, including sexual harassment and violence have also been reported in this village.

Similar is the experience of Muhammadpur Dhumi village where a woman Munni was burnt to death some time back. Other brides have been beaten up and/or deserted. Poor families have also reported increasing difficulty in arranging the marriage of their daughters. One facts common to all the five villages is the rising distress of women belonging to those households where men are addicted to liquor. The number of such households is increasing in all these villages.

The findings from these villages are supported by information available at the regional level. According to the 1991 census the literacy rate for women was only 26.6 per cent in western UP. Several alarming cases of violence have been reported from western UP in recent times. Increase of liquor consumption and addiction is also reported as a major problem in most parts of western UP.

Clearly surface level modernisation of villages linked to technology upgradation cannot by itself provide a better life to women. This needs a broad-based social reform with the involvement of people. Western UP still waits for such a social reform initiative.

Chapter IX: Liquor Addiction Spreading Fast in Green Revolution Villages

A big increase in the consumption of liquor and other intoxicants is fast wiping out whatever cash gains the green revolution might have recorded from higher yields. Several farmers and farm labour families have been ruined entirely by this rapidly growing social evil. This finding has clearly emerged from a recent study of the rural areas of western UP – one of the leading green revolution regions of India. This study has been conducted by Disha voluntary organisation with help from other sister organisations.

Dromti, a woman of Sikri Kalan village (Saharanpur district) says that many women in this village face acute distress due to the liquor addiction of their husbands. In recent years several suicides have taken place in this village. Dromti says that some of these were related to the distress caused by alcoholism.

Savitri adds that even small children are being addicted to liquor. Some of them were earlier distressed at the liquor addiction of their husbands. Now when they see that their son is also getting ruined in this way, their distress knows no bounds.

Anita says that women are frequently beaten very badly by their drunken husbands. Two women have been deserted by their husbands after frequent quarrels relating to the consumption of liquor by men.

In addition tobacco smoking as well as tobacco containing mixture (*gutkas*) have also increased, particularly the later. The use of *gutkas* (sold in small attractive packets) has been linked to the increased risk of oral cancer, yet it is being consumed on a large scale by children.

In Bibipur village the legal liquor vend is located about 5 km away, but some persons distil illicit liquor and make it available within the village at a cheaper price. Yogendra Singh, a social activist who surveyed this village says these liquor related crimes and violence have increased. After the sunset it becomes difficult for women to walk on the village streets without the risk of being troubled by drunken men, he says. Increased domestic violence against women and under nutrition of women are both related to growing consumption of liquor by men.

In Pir Nagar Sudhna village (Ghaziabad district) a legal liquor vend is located at a distance of just one km from the village. The easy availability of liquor has greatly

increased its consumption in this village. Bhoop Singh who surveyed this village says that some village youths sell their animals and even their land to find the money for buying liquor. Some others are driven to a life of crime. While liquor and *gutka* consumption has increased, traditional intoxicants like *ganja* and *bhang* also continue to be used in this village.

The distress related to increased consumption of liquor is mainly suffered by women who have to feed their children with very few resources and so tend to deprive themselves of essential nutrition. In addition they are frequently abused and beaten up, sometimes so violently as to cause serious injuries. They suffer physical as well as emotional distress. Some families face a serious livelihood crisis as even the main basis of their livelihood – land and animals – are sold to find the money for liquor. Or else they incur debts at very high rates of interest from private moneylenders which will be very difficult to pay back, and in order to pay back loans, they may have to lose their land. Liquor related crimes can completely destroy a family due to arrests, court cases and frequent bribes these families have to pay.

As a result of this manifold distress spontaneous movements have been emerging in several villages and cities of western UP. Such movements have been reported from Muzaffarnagar, Saharanpur, Ghaziabad and other districts.

Perhaps the most prolonged of the movements took place in Pather village of Saharanpur district. For nearly three months the people of this village, assisted by Disha, a voluntary organisation, carried out a grim struggle for the removal of the liquor vend from the village. Nearly fifty persons of this and surrounding villages, particularly the women activists of Disha, were injured in the police repression unleashed on the movement. Such was the moral force behind the movement that despite this repression the movement continued till the government finally agreed to remove the liquor vend from this village.

The determination of the people in the face of sever repression won widespread admiration in neighbouring villages and Disha started getting requests to help other villages to get rid of their liquor shops.

The liquor vend at Pather had at one time become the number one problem of the people of this village. The location of the vend was such that it attracted truck drivers and tipplers from several neighbouring villages as well. Soon it became a meeting place of several anti-social elements. Drunk people at all times of the day and night created havoc in the market place and even ventured into some of the nearby homes. They frequently entered into violent brawls with villagers. On one occasion a communal riot was barely averted when they even entered a religious place.

Within the village the easy availability of liquor led to a big increase in its consumption. Even several children who tried to imitate elders got addicted to liquor and went to the extent of stealing grains and utensils from their own houses to buy liquor. Women were the worst sufferers. It was difficult for them to walk near the liquor vend but they had to come to the market and the bus stand located quite close to the liquor vent. There were several cases of harassment and attempted molestation. Domestic violence increased greatly in the village. One drunk person form a neighbouring village threw acid on a women.

Villagers organised a protest *dharna* in front of the liquor vend. Days passed into weeks and the weeks into months, but the administration chose to turn a blind eye to the mounting resentment in the village. Many villagers, particularly women, had to endure a lot of hardships at the *dharna* and had to forego their livelihood also. Frequently they were harassed by goons of the liquor Mafia, who even threatened to kidnap women activists and their children.

Finally the people decided to march to Saharanpur city to meet the authorities. It was here that the police unleashed a brutal lathicharge on the protest march of the anti-liquor movement.

Mahfooz, a physically handicapped participant in the movement was beaten so badly that it took three months to him to recover from his serious injuries. Several women activists had to be hospitalised for several days.

However the news of this repression spread far and wide and the administration and political leaders came under pressure to withdraw the liquor vend. As soon as the news of the cancellation of the liquor contract reached the village, people hugged each other and women cried with happiness. A *halwai* (sweet seller) distributed all the sweets stocked in his shop. People rushed to temples and mosques to offer thanksgiving prayers.

In the course of this agitation such a moral force was created that many habitual drinkers took a pledge to give up liquor. What is more many of these gains have been sustained. During a recent visit to this village, this writer met several people who gratefully recalled the movement which rid the village of its biggest problem. Several villagers testified that the consumption of liquor is now only about 10 to 20 per cent of what it was before the movement. As a result of this saving, several *kutcha* houses and shops have been converted into *pucca* structures, the village and in particular the market wears a new prosperous look.

As a result of the experience of villages like Pather, many villagers increasingly feel that the reduction in the use of liquor and other intoxicants is a must for the protection of physical and social health of the villages. They want that if the majority of villagers ask for closure of liquor vends located in or near their village, the government should remove this vend. They also want that several curbs should be placed on the marketing of tobacco or other intoxicants containing powders which are posing a health hazard for many children.

Chapter X: Interview With Leading Representative of Farm Workers Comrade Surat Singh, President of Janwadi Khet Mazdoor Morcha, Sharanpur

I am most intensely involved in working class issues in Saharanpur district but I have travelled all over Uttar Pradesh, particularly western UP and I can say with confidence, on the basis of extensive survey work, that as many as 40 per cent of people in many western UP villages live below the poverty line. In some places this percentage goes up to 60 per cent. For example, Saharanpur is regarded as a prosperous district, but I can tell you about a stretch of nearly 150 villages where almost 60 per cent of the population lives below the poverty line. On the west-north border of this district, bordering Haryana is located Janipur Rehna village. From this village to Mohund these villages are located in Sadholi Qadim and Muzaffarabad blocks. Similarly in district Hardwar (blocks of Bahadarabad and Bhagwanpur) in about 200 villages and further in Bijnor district (blocks of Najibabad and Kotwali Dehat) in about 200 villages almost 60 per cent people live below poverty line.

The minimum wage for farm workers in western UP is Rs 49.50 (now revised). In villages nearer to cities male workers sometimes get even more than this – around Rs 60 but in villages away from cities they are likely to get less – around Rs 40. But women in most places for most work get generally Rs 25 to Rs 35 even though they are as hardworking as men. Sometimes children are also employed and given as little as Rs 15 to 20.

I've gone to villages in Saharanpur, Muzaffarnagar, Meerut, Ghaziabad, Hapur, Bulandshahar, Garh Mukteshwar, and other district and what I've noticed after talking with many people is that even today farm workers at some places get only 60 to 90 days work in a year and at other places only they get 80 to 105 days work. Mechanisation has greatly reduced the need for human labour.

The number of permanent workers who could get year long employment with a farmer had declined greatly – in Devala village where there were 50 to 60 such workers earlier, you can hardly find three workers now. Such a big reduction in the number of permanent workers can be seen in many villages.

The term on which sharecropping is done is also quite exploitative. The terms can differ from village to village, but the most common arrangement that I've seen in Saharanpur district is that the owner gets three-fourths of the produce while the sharecropper gets only one-fourth of the produce. Costs of fertilisers and irrigation are shared in the same proportion. There is generally no stipulation that the sharecropper will get a share of the fodder, he may get fodder or he may not get it. As for land that is given on contract, generally the rule is Rs 1,000 per year. Nothing is done to improve the condition of sharecroppers, their existence is not even recognised in law. On the basis of my observations I can say that over 35 per cent of the land in western UP is being cultivated on sharecropping basis, including contracts.

Despite several promises to distribute land among the landless poor, in reality very little has been distributed among them. Some of this land was given as incentive/reward for sterilisation. But even in these cases the land *pattas* are being cancelled now in large numbers. These land pattas are now being treated as *asami pattas* which can be cancelled, although the land allotees were made to believe earlier that this land will never be taken back from the.

On the other hand some rich persons including politicians and senior or retired officials as well as companies are occupying hundreds of *bighas* of land defying ceiling laws. In Saharanpur district near Shiwalik hills some companies have cornered around 1,000 to 1,500 *bighas* of land while some have even grabbed up to 5,000 to 6,000 *bighas*. In Sikandarpur area of this district the story is the same. About 35 km from Hardwar is the village of Badarjur where a retired minister, a retired police officer and an ex film star have all cornered hundreds of *bighas* of land while the poor, needy people are denied land. In Palia block of Kheri district over 5,000 *bighas* have been grabbed by some persons. In district Bijnor thousands of *bighas* have been cornered by companies.

This poverty is worsened by several evils like liquor and dowry. Liquor consumption has gone up by perhaps about three times in recent years. Dowry problem is getting much worse. On the other hand education has not made adequate progress particularly among women. Hardly one per cent of the farm labour family girls manage to reach inter level.

When Dalits raise their voice against exploitation and deprivation then they frequently face violence and sometimes boycott. I'll give you some examples of Saharanpur district. Seven or eight *pattas* were given to dalits in Halalpur village of Punwarka block and there was an effort to deny possession to them by high caste landowners. At the time of harvest this tension led to violence. Two Dalits were killed, four were injured, and one high caste person was killed. In Deoband tehsil Dalits of Lakhari village were beaten up by high caste men of another village. In Aurangabad village of Saharanpur district Dalits were beaten up due to tension over land *pattas*.

In Kharanje village of Nanauta block workers were beaten up due to dispute over demand for better wage. This also happened in Thaska village of this block. When Dalits of Bhaila village asked for better wages they were subjected to social boycott, not allowed to take fodder and some of their youths were also beaten up in the presence of a police official.

In Raul village of Muzaffarabad block when a Dalit was acting in the interests of Dalits, his daughter was raped. In Sonaarjunpur village farm workers are subjected to social boycott. In Saharanpur town a Dhiman (carpenter) caste woman was stripped naked and forced to walk for three furlongs in this condition. Incidents of such atrocities have been increasing in recent years.

Despite all the talk of giving up discrimination and giving power to elected representatives of people, it is corrupt officials who are becoming more powerful. I am the pradhan of Devla village and Rs 1.5 lakh development fund has been allocated, but I can't use this to help my villagers because I am not willing to bribe the officials.

To improve the condition of farmers and Dalits they should be given land and more voluntary organisation should work with them and for them.

Chapter XI: Interview With Highly Experienced Farmer Shri Rehtulal

Shri Rehtulal is an elderly, highly experienced farmer of Saharanpur district. Here he speaks mainly in the context of the experiences of his native village – Danatpur village located in Sarsawa block, but many of his observations have a wider relevance.

Before the green revolution, we had a much wider diversity of crops and crop-varieties. There is absolutely no doubt that from the point of view of taste, aroma, cooking quality and health and nutrition the old cropping pattern and the old varieties were better. They also gave better and more fodder. These varieties grew with almost no irrigation, as at that time agriculture in our village was largely rain fed agriculture. Tubewells came later in the green revolution phase. The only area where the green revolution varieties perform better is in terms of yield, but even here we had some traditional varieties which gave almost equal yield and that too without any chemical fertilisers or pesticides.

In the case of rice, the best variety from the point of view of taste as well as aroma was basmati. At that time there were hardly any insect problem – these came later.

From the point of view of taste the number two variety was Ranjwan. It had absolutely no pest problem. The quality of fodder was good. Lalmati variety had very similar properties.

Lathmar variety also known as Gunthni variety was a traditional high-yielding variety. I gave a yield of four quintals per *bigha*. This was the average yield but if someone took really good care of the land then the yield could go up to 5 or 6 quintals. This was possible without any chemicals, but today after using so much chemicals the green revolution varieties cannot give the same yield. There is however one limitation about the Gunthni varieity – it grows well only in the lower land. Its cooking qualities are very good for making *kheer* (rice pudding) and *khichri* (a rice-pulse preparation). What is more, this variety is considered excellent for making chapattis as well – you just can't forget the taste of Gunthni or chapattis eaten with the *saag* (cooked green leafy vegetables) of *palak* (spinach) of *chana* (Bengal gram leaves). I am searching these days for Gunthni seeds. This is a heritage we've lost. If I can find these seeds, then I'll like to start growing them

again and again and I am sure that if I do so, then some other farmers will also follow.

Sathi variety was very good for making *kheer*. For healing fractures or broken bones, *kheer* of Sathi rice was considered very effective medicine.

Nakha and Nauri were old varieties which were not transplanted – these were grown.

Sanvah was also grown in our village. Sanvah is also a kind of paddy but not quite like the other varieties. It is quite similar to Jhangora grown in the hills. This can also be used to prepare very good *roti*. Its *kheer* is just superb.

Kangni was also grown widely in our village, often as a mixed crop with maize. This is also a kind of 'paddy', but somewhat different from the other varieties. It is very good for making *kheer*. *Kheer* made from Kangni has great medicinal values. If anyone had fever, then Kangni *kheer* was a very effective medicine. This was equally effective for anyone suffering from *khanti khasra* (a type of measles).

Indigenous wheat was much superior form the point of view of taste, nutrition and health – compared to the green revolution wheat.

The other major crop of our village has been sugarcane. The two most important varieties were Tholo and Baddi. The juice of sugarcane was known to be a very healthy drink. It was white like milk and very tasty. People drank it in huge quantities. Its *shakkar* (brown sugar) was also very tasty. Also very good sweets were made from these varieties of sugarcane. If you used these products of indigenous varieties, then you won't have any sugar related ailments.

These were the oldest varieties I remember but later we also had some other sugarcane varieties like Phulnia, Ponda, Mishri, etc.

Indigenous maize had very good cooking quality for making *rotis* and also yielded good quality fodder.

Mandwa (coarse cereal) was used to make *rotis*. This *roti* had medicinal properties for those suffering from pain in their knees. This was sometimes grown as a mixed crop with maize. The quality of its fodder was very good. This was a sturdy crop which could be grown on less fertile land in difficult conditions. Once my wheat crop was destroyed by adverse weather, so I grew Sanvah and Mandawa to make up the shortage of food. I could get 4 quintals of Sanvah in a *bigha* of land and 6 quintals of Mandawa on a little more land. So as a result of these sturdy crops we could avoid hunger and indebtedness that year. Mandawa is capable of giving high yield.

Bajra was good for making *roti* as well as *khichri*. It was considered very good food for winter. This plant which grew up to 10 feet tall provided very good fodder. Villagers dried this fodder and preserved it for scarcity months as well.

In our villagers *jowar* (sorghum) was grown not for grain but for fodder. We got good fodder from this plant which grew almost six feet high.

Our village had several pulse crops such as *urad*, *masoor*, *chana*, *moong* and moth. *Urad* was most liked for its taste and flavour. Its fodder was also geed. *Masoor* pulse was considered very good in the winter season and it also helped to cure cold and cough. *Moong* was considered an easy to digest food for ill persons and those having stomach upset. Its fodder was also good. Moth in our village was grown more as a fodder crop. *Tohar* was grown all around the sugarcane fields. It plane provided good

fuel. Its seeds were liked by farm animals. *Chana* was also intercropped with wheat and was an important part of staple food.

Among the oilseeds, *sarson* (mustard) was grown as a mixed crop with wheat. This oil was simply superb for cooking. You simply can't compare it with the sort of mustard oil you buy today in the market. It was also very good to massage the body. *Til* oil also had very good cooking qualities. It was also used to make seweets, especially *laddos*. *Alsi* oil was known to have great medicinal values. It had a great healing effect for anyone suffering from broken bones. Sweets made from *alsi* seeds were greatly in demand in winter, as they are known to provide protection from cold weather.

Saag or leafy vegetables of mustard, bathua (which grew with the wheat crops on its own). *Chana* and *methi* was much liked by the people. *Methi* was known not just for its taste but also for its aroma.

Teera was considered a very important medicinal crop for farm animals. Just as ghee (clarified butter) is considered very good for the health of people who do a lot of physical work, similarly *teera* is considered very good for the health of farm animals.

Out village also grew many vegetables particularly in kitchen gardens. The flavour of the vegetables was so good that you do not get that sort of vegetables now. We grew onions, tomatoes, *tauri*, *lauki*, *kaddu*, radish, turnips, *karela* and other vegetable.

We were obtaining all these crops (in the pre-green revolution) without any chemical fertilisers, chemical pesticides and chemical weedicides, without using any diesel or electricity for irrigation as most of this farming was rainfed farming. It is true that yields overall were lower compared to the yields we get today, but as stated earlier some varieties of rice and some coarse cereals/millets were capable of giving high yields comparable to green revolution cereals.

It is important that in those times although no chemical pesticides were used, there were hardly any pests, except sometimes a few pests n sugarcane crop.

The farmer's seeds were his own saved seeds, plus some seeds that he either purchased from or exchanged with his neighbouring farmers. The ploughing was done by bullocks, the pride of a farmer's family. Prosperous farmers even fed them ghee and milk. I was not so rich, yet I also gave them milk. Bullock chariots used to be the pride of marriage ceremonies. When tractors came bullocks lost this love and special place they had enjoyed for centuries. I also have a tractor, but I have retained my bullocks. I can't leave them.

The quality of milk was great at that time, you just cannot get that sort of milk anymore. How I miss the fragrance of that milk (and various milk products). The government says production of milk has gone up but I don't agree. Only the sale of milk for cities has gone up. The consumption of milk and milk products has decreased greatly in villages.

In the green revolution phase the biodiversity which existed in my village has declined greatly and the old varieties with their special tastes and fragrance have disappeared. Of the various rice varieties only basmati is grown now, and that too doesn't have the same taste and fragrance as before. Jaggery and juice of the new sugarcane varieties do not at all have the same flavour and taste as before. Sanvah, Kangni and Mandha have simply vanished. The old *urad* has been replaced with a short-duration variety, more profitable as it occupies land for much lesser time but also not having the same flavour as before. *Masoor* and *moong* have declined greatly while moth has vanished entirely. *Chana* has declined generally as a pulse crop

almost completely. It just could not grow on land as chemical fertilisers are used. *Alsi* and *til* oilseeds have also declined considerably. *Teera* still survives, but has declined.

In the early green revolution years farmers having once purchased seed from the market could then save their own seeds for three or four years, but now farmers are going almost every year to the market to buy seeds.

The sugarcane yield in the pre-green revolution years was also quite good. Actually none thought in terms of measuring accurately but I don't think that it was much less than the present yield.

In the case of wheat and rice in the green revolution phase yields went up to a peak and then declined. Paddy yield had gone from 5 quintals in 1980 to 4.5 quintals in 1990 to 3 quintals now (per *bigha* land) for coarse rice and 2.5 to 3 quintals for fine rice. Wheat yield has declined from 4 to 3 quintals in 1990 to 2 to 2.5 quintals now. On the other hand expenses are increasing. Per bigha chemical fertiliser expense is Rs 190, chemical pesticide and weedicide expense is Rs 90 while the per capita diesel expense is Rs 90 (for own tubewell) and Rs 200 for rented water.

Earthworms are of the greatest benefit for maintaining the fertility of land, but these have been killed on a large scale by the use of chemicals. Earthworms add to the fertility of land and also make it porous, allowing it to retain more water and allowing air and sunshine to circulate in land. But if chemicals are not used and compost is used then earthworms will still come back.

Apart from applying the dung of farm animals ploughing practices were also used to increase the fertility of land. In the case of wheat as many as 20 ploughings were done and in the case of sugarcane 30. It was said that you should bring a pitcher filled with water and throw this on the ploughed land. If the pitcher broke, this meant that the land has not yet softened adequately and so needs more ploughing. It is this sort of hard work and care of land that got neglected in the post green revolution phase with its emphasis on chemicals and machinery.

Chapter XII: Profile of Village Based on Door-to-Door Survey – Kot Kadar Village

Hazi Mohammadpur Kot Kadar village, generally known as Kot Kadar village is located in Kotwali Dehat block of Bijnor district. The panchayat's name is also Kot Kadar, which is also the post office name (the Pin Code number is 246763).

A voluntary organisation active in this village – the Pragatisheel Bal Vikas Sansthan (Progressive Child Development Organisation) recently (in November 1999) carried out a detailed socio-economic survey of this village. The results of this survey are summarised in Tables 1 and 2.

These tables reveal that in this big village with a population of 8,161 people (1,149 families) as many as 26 different castes belonging to Hindu and Muslim religions are represented. The leading castes among the Muslims are Ansaris (287 families), Kasais (71 families) and Sheikhs (170 families) while the leading castes among the Hindus are Sainis (122 families), Jats (33 families) and Harijans (116 families) (Table 1).

Land is the most precious resource base and those families which have more than four acres of land (20 *bighas* of land) may be said to have a reasonably adequate resource base so the families which own more than 4 acres of land have been classified as medium and big farmers in this survey. The number of such families in

this village is 162. In other words only 162 out of 1,149 families can be said to have an adequate resource base (Table 1).

More than 37 per cent of these families are labour families, families which depend mainly on farm labour for their employment, supplemented by no-farm labour such as sand-quarrying, construction work, etc. The community of Balmiki does not record a single landowner bit or small. They all depend on scavenging (including carrying night soil, a work which is done entirely be women). On the other hand, 57 per cent of the Jat families are big and medium peasants.

It is clear from several caste names that this village has a diverse occupational base. At one time this village was also a good base of hand spinning/charkha work. Khadi centre people used to come here regularly and several families used to spin yarn. Now this work is confined to just a family or two. Among the Ansaris there were several weavers, while among the Chippis there were several cloth-printers. This artisan work has been almost lost. The number of oil-millers (Telis), basket-weavers (Dhimars), clay potters (Kumhars), etc., has also declined. The result is that there is increasing pressure on agriculture as a means of livelihood.

Some farming castes are still associated with specialised forms of farming. For example, the Sainis are known to have special skills in cultivating vegetables while the Sigariyas are known to have special skills in cultivating melons, water melons and singharas near river banks. The Pals have special skills in sheep breeding.

On the side of diversification there are all types of shops selling new products or offering new services – such as PCO/STD booths, photography shops, fertiliser shops, tractor and farm machinery repair shops, petrol/diesel outlets, shops selling ready-made clothes and ladies items. In addition a number of youths have obtained jobs in Mumbai based bakeries or even started their own units. More prosperous are those youths of Muslim Nai caste who have taken up work as barbers in Saudi Arabia.

Agriculture is the predominant source of livelihood in Kot Kadar village. In the suvey to record the agriculture related status of village families, statistics have been obtained from 1,028 families out of the total of 1,149 families. It is presumed that other families are either not related to agricultural work, or else their earning members have gone out for a considerable period.

Among the families for which statistics are available (see Table 1) about 16 per cent are medium and big farmers (above 4 acres), about 23 per cent are small farmers (2 to 4 acres), 20 per cent are marginal farmers (below 2 acres) and about 40 per cent are farm labour families which are almost entirely landless or else have very small plots of negligible land. There are 48 tractors in the village. The ownership of tractors is not confined to higher caste groups.

As many as 195 families have leased out land, or almost one third of the nearly 598 land owning families have leased out land. The caste-groups which have leased out more land include one of the poorest groups of Harijans. Out of the 48 landowner Harijan families, 23 or nearly half of them lease out their land. As far as the most prosperous landowners Jats are concerned, only 9 per cent lease out land. So the general impression that it is mainly the rich who lease out their excess land to the poor is not correct. As the poor small and marginal cultivators feel the pressure of expensive technology and rising cost of inputs and machinery, many of them opt out of cultivation altogether and lease out their land to the more resourceful landowners. On the other hand the caste-group in which there is a high percentage of people having jobs (for example Bishnois and Brahmins) also lease out land, as also migrants such as Muslim Nais. Some of the poorest households of Harijan and

Balmiki labourers told us that they would like to lease out land but land owners are not willing to lease out land to them.

Table 2 provides some additional demographic data on this village by informing us about the number of males and females in the village. The number of females per 1,000 population is 969. Gender discrimination is also evident from the fact that female literacy rate is only 22 per cent compared to 55 per cent for males. Literacy in the age group over 6 years will be slightly higher as we do not have the complete age-related data on this village.

It may appear that this is a low literacy village particularly female literacy, but in some of the neighbouring villages with high proportion of Muslim and Harijan population, the rate of literacy is in fact much lower (see Table 3).

Coming back to Kot Kadar village here also we see that the literacy rate among women belonging to the Muslim and Harijan families is particularly low.

The experience of most of the farmers has been that the productivity of agriculture increased in the initial green revolution years when relatively low quantities of chemical fertilisers were used. Then for some years this increase of fertilisers led to increase in productivity. This appears to have peaked about five years back. By this time the excessive use of chemicals reduced the natural fertility of land to such an extent that more and more chemical fertilisers were required to just maintain the yield. But even this could not be achieved and some farmers reported declining yield with rising quantities of chemical fertilisers. This is brought out effectively in the interview with Dr Abdul Samad, a farmer and a doctor (see Tables 4A and 4B). The increasing economic difficulties of farmers can be understood in this context – as they have to spend more and more on chemicals without succeeding in even maintaining the yield, let alone increasing it. It is clear from Table 4 that during the last two decades the use of chemical fertilisers has increased by about seven times, and yet yield is almost the same.

Most of the farmers grow sugarcane on a little more than one half of their land, while the remaining land is devoted to a rotation of wheat and paddy. This is a very water-intensive use of land, but due to the water abundance in this village water shortage has not yet emerged as a significant constraint. However, with decline in water tables, already the costs of groundwater irrigation has started increasing.

There appears to be almost complete agreement among farmers that there has been a significant decline in the natural fertility of land. Each and every farmer with whom we raised this issue agreed that this is a serious problem. Most of them agreed that earthworms and other organisms which live in soil are killed by excessive use of chemicals and this leads to a loss of fertility as these organisms play a significant role in increasing the fertility of land.

Several farmers are deeply troubled by this phenomenon and agree that if the present trends continue, then the fertility of land can be almost destroyed by the next generation. One solution that some of them (including some leading persons of the village like Subash Chandra and Abdul Samad) give is to increase green manuring of these crops by growing crops like *sanai*, *dhaincha* and *matra* and then ploughing these green crops into fields, while gradually decreasing chemical fertilisers. Part of the *barseem* fodder crop can also be used in this way. These farmers recognise the importance of increasing cattle/buffalo dung/manure in fields but they feel that the prospects of this are not bright. The number of such domesticated animals – cows, bullocks, buffaloes, sheep, goats, etc., has been declining due to the shortage of grasslands and fodder as well as mechanisation of agricultural work. Most farmers now use tractors to plough their fields. Threshing and

irrigation are also mechanised. On the other hand the reliance on dung as a source of fuel has increased due to reduction of trees and shrubland.

Farmers also complain that several new diseases and pests now cause a lot of damage to their crops. Their expenditure on chemical pesticides has increased greatly, but many of these pesticides are not proving very effective. Even when officials are approached directly, their advice has not proved very useful in fighting the menace of pests.

As farmers come under economic pressure, they are driven more and more by short term consideration of maximising returns, which can cause greater harm to soil. Due to increasing costs of modern agriculture (apart from other reasons) some farmers cannot cultivate the land themselves and leave it to others. Some land is leased on *bataidari* terms – sharing of costs and yield on fifty-fifty basis, sometimes also sharing of fodder. Sometimes land is leased on *theka* basis, which means that the lesser will pay the owner anything between Rs 1,000 and Rs 1,300 per *bigha* of land leased in for one crop season. Generally this is a very short-term contract. The lesser knows he will not get this land next year. So to maximise his returns he tries to extract as much as possible from this land. Sometimes salt is added to urea so that all the nutrients can be sucked in just one season. This is very harmful for land fertility.

Almost all the farmers agree that the old varieties of wheat and paddy were more tasty and more nutritious. Some elderly villagers get very nostalgic when they recall how the fragrance of traditional varieties of rice and *methi* could be enjoyed a long distance away from where it was being cooked. A speciality of this region is that rice is ground and its flour is used to cook *rotis* in the winter season – while some green revolution varieties are also being used for this purpose, people say, that nothing can match the rice *rotis* cooked from traditional varieties of paddy.

Due to increasing economic pressure, many small and marginal farmers are under pressure to sell their crops to trader from whom they borrow money. They sell cheap and buy dear. Small and marginal farmers feel discrimination in getting *parchi* (slips of papers) allocations to supply sugarcane to sugar mills. Their payment is also delayed and they are forced to pay bribes. So they have to sell a bigger share to crushers (instead of mills) where they get a lower rate.

Male farm workers get Rs 50 to 60 for a day's work. On non-farm work in and around the village they manage roughly similar earnings. Female farm workers get only Rs 30 to 40 per day while child farm workers get around Rs 30 per day. Some works are also given on contract basis.

Workers face increasing occupational hazards in the form of accidents relating to farm machinery and chemicals. Sometimes they fall ill or suffer nausea/headache due to impact of chemicals.

The poorest Harijan families should get land *pattas* according to government policy, but some of them say that even after trying very hard they did not get *pattas*. In the process they also had to incur a lot of expenses and pay bribes. The poorest Harijan families fail to get land on barter or *theka* basis. Balmiki workers say that they generally don't get or get very little farm work. So they depend to a large extent on the scavenging work done by the women of their families. The women have to carry night soil in baskets on their heads for one km or more. Their condition is the worst.

As a result of the use of tractors, threshers, chemical weedicides, etc., workers feel that their economic opportunities have declined. One year the biggest threat

appeared in the form of combine harvesters. But fortunately this was not repeated again.

The majority of the village population consisting of landless workers, marginal and small peasant is under economic pressure and the longer-term prospects of agriculture judging from the decline in land fertility appear to be worrisome.

Table 1
Land Ownership and Leasing Patterns by Caste Status in Kot Kadar Village

Sl. No.	Name of Caste	Total Families	Medium and Big Farmers Over 20 Bighas	Small Farmer 10-20 Bighas	Marginal Farmers 1-10 Bighas	Landless Workers	Families Which Lease Out Land	Families Which Own Tractors
1.	Ansari (M)	287	57	86	42	84	40	18
2.	Kasai (M)	71	2	2	15	38	9	–
3.	Sheikh (M)	170	24	34	25	73	34	10
4.	Saini (H)	122	18	31	27	44	16	6
5.	Jat (H)	33	19	10	1	–	3	5
6.	Harijan (H)	98	7	11	30	43	23	3
7.	Balmiki (H)	18	–	–	–	15	–	–
8.	Nai (H)	21	–	6	11	–	7	–
9.	Pal (H)	26	7	4	4	10	2	2
10.	Sigariya (H)	7	–	–	–	7	–	–
11.	Dhimar (H)	10	–	4	1	5	1	–
12.	Barhai (H)	16	–	8	3	2	6	–
13.	Bishnoi (H)	15	4	7	3	–	8	4
14.	Brahmin (H)	21	9	2	5	1	8	–
15.	Chippi (H)	25	3	3	1	–	6	–
16.	Kumhar (H)	25	4	2	5	11	6	–
17.	Baniya (H)	12	–	4	–	–	2	–
18.	Nai (M)	46	–	2	10	29	10	–
19.	Darii (M)	23	–	1	1	15	2	–
20.	Dhobi (M)	42	3	10	9	20	7	–
21.	Teli (M)	31	4	4	7	11	2	–

22.	Dhune (M)	11	1	4	–	6	–	–
23.	Pathan (M)	7	–	1	–	1	2	–
24.	Lohar (M)	2	–	–	–	–	–	–
25.	Sheikh (M)	8	–	–	1	6	1	–
26.	Fakir (M)	2	–	–	–	2	–	–
	Total	**1149**	**162**	**236**	**200**	**423**	**195**	**48**

Table 2
Demographic Details

Sl. No.	Caste	Males	Females	Total	Literate Females	Literate Males	Total Literates
1.	Ansari (M)	1086	1025	2111	130	795	925
2.	Kasai (M)	289	241	530	28	113	141
3.	Sheikh (M)	696	602	1298	80	302	382
4.	Saini (H)	464	384	848	55	210	265
5.	Jat (H)	109	84	193	60	80	140
6.	Harijan (H)	326	265	591	32	178	210
7.	Balmiki (H)	86	78	166	17	50	67
8.	Nai (H)	63	48	111	22	36	58
9.	Pal (H)	98	91	189	26	52	78
10.	Sigariya (H)	35	31	66	13	20	33
11.	Dhimar (H)	41	25	66	16	26	42
12.	Barhai (H)	63	52	115	22	42	66
13.	Bishnoi (H)	44	45	89	30	32	62
14.	Brahmin (H)	67	57	124	38	52	90
15.	Chippi (H)	65	60	125	48	52	100
16.	Kumhar (H)	99	81	180	30	60	90
17.	Baniya (H)	31	29	60	18	22	40
18.	Nai (M)	147	150	297	40	52	92
19.	Darii (M)	117	90	207	30	62	92
20.	Dhobi (M)	172	143	315	34	49	84
21.	Teli (M)	146	115	261	30	66	96
22.	Dhune (M)	30	25	55	8	17	25
23.	Pathan (M)	21	16	37	8	14	22
24.	Lohar (M)	5	9	14	3	3	6
25.	Sheikh (M)	31	28	59	10	11	21
26.	Fakir (M)	5	9	14	2	2	4
	Total	**4338**	**3783**	**8121**	**830**	**2398**	**3228**

Table 3
Literacy Rate in Certain Villages

Sl. No.	Village	No. of Families	Muslims	Harijans	Illiteracy (Per Cent)	Population
1.	Kamruddin Nagar	160	160	–	80	1800
2.	Khobda	270	30	190	70	2900
3.	Chilkiya	205	205	–	85	2600
4.	Manshaa	71	65	6	80	470
5.	Seepah	60	60	–	80	340
6.	Sherfuddin Nagar	514	212	302	60	3600

7.	Sujapur	190	11	201	60	1200
8.	Garri	300	110	190	60	2200
9.	Kovala	140	110	30	80	1000
10.	Tanda Bhaidass	340	190	150	70	4200

Table 4A
Rise of Farm Expenditure Per Bigha of Land in Kot Kadar Village (in Rs)

	1980	**1990**	**1999**
1. Chemical fertilisers	35 (8 kg)	140 (30 kg)	360 (60 kg)
2. Chemical pesticides, weedicides	5	20	100
3. Diesel	5	20	50
Total of three costs	**45**	**180**	**510**

Source: Interview given by a doctor-cum-farmer of Kot Kadar village, Dr Abdul Samad

Table 4B
Change in Farm Yield Per Bigha of Land in Kot Kadar Village (in Quintals Per Bigha)

	1980	**1990**	**1999**
1. Wheat	3	4	3
2. Paddy	4	6	4

Chapter XIII: Profile of a Sugarcane Village in Meerut District

In 1988 at the height of a farmer's movement in western UP Bharat Dogra visited a village in Meerut and wrote about the livelihood conditions in villages. This profile also enables us to compare the conditions now and then in 1988.

Baafar village is located in Jaani block of Meerut district in UP at a distance of about 15 km from the city of Meerut. According to figures provided by Jaipal Singh, a former pradhan and a very well informed person on this village, about 15 per cent of the families in this village are landless. Among those who own land, nearly 5 per cent are big landowners owning over 10 acres of land, about 13 per cent are medium farmers owning between 5 to 10 acres, about 32 per cent are small farmers owning between 2.5 to 5 acres and 50 per cent are marginal farmers owning less than 2.5 acres land. At the caste level about 50 per cent are Jats, 15 per cent Jatav Harijans, 5 per cent Balmiki Harijans and 15 per cent a sprinkling of other castes including Brahmins, Kumhars, Dhimars, Nais and Baniyas. In addition to these Hindu families there are some Muslim families numbering about 15 per cent of the total number of households. The total population of the village is around 2,800. Sugarcane is the most important crop of this village. Even though some of the poorest Harijan cultivators are unable to grow this crop, still for the village as a whole the largest chunk of cultivated land is devoted to this crop. The next most important crop is wheat. Potato cultivation has been recently started.

Three important agricultural and agro-processing assets in the village are – tractors, tubewells (or diesel pump, etc.) and crushers. On a rough estimate there are 10 tractors, 18 electric tubewells, eight diesel pump sets and 10 crushers in the village (of whom about seven are functioning). All of these are owned generally by the relatively well-to-do farmers. Some not so well off farmers who nevertheless purchased tractors find themselves saddled with huge debt. At least one of them has been forced to sell his land.

Nearly half of the village also receives canal irrigation, although it does not provide satisfactory irrigation and may have to be supplemented by groundwater irrigation. Those who do not have tubewells or diesel pump sets of their own generally purchase, or try to purchase, water from fortunate ones who own this source of irrigation. The water is sold at Rs 4 to Rs 5 per hour. Tractor is also hired from better-off farmers.

Those who have been able to invest on private sources of irrigation and on tractors are able to benefit in two ways in their agricultural work. Firstly, their working expenses of ploughing and irrigation are considerably reduced. Secondly, what is even more important is the fact that they can carry out all their agricultural operations at the proper time with certainty, whereas the farmer who is dependent on the tubewells and tractors of others has to wait till these can be spared for his use. For the later farmer, inability to carry out the various agricultural operations in time may lead to lower germination and lower yields.

The cost breakdown of a well-to-do farmer per acre of sugarcane cultivation, assuming that he has his own electric tubewell and tractor, was given by one well-to-do farmer himself in the table shown in the following way:

Seeds	Rs 540
Ploughing	Rs 50
Fertilisers	Rs 730
Irrigation	Rs 120
Pesticides	Rs 35
Labour	Rs 300
Miscellaneous	Rs 100
Total	Rs 2,075

On an average a farmer's yield in this village may be estimated at 225 quintals per acre.

A part of this crop and only a part is sold to the mill at Rs 27 per quintal, most of the cane has to be sold to the crusher or sulphur plants at price ranging between Rs 16 to Rs 20 per quintal. Assuming an average price of Rs 21 per quintal, and also assuming a certain wastage in the total harvest of cane, we can say that the cash receipts per acre of sugarcane amount to Rs 3,990 (190 x Rs 21). Thus the net return for a well to do farmer who owns a tubewell and tractor is Rs 1,915 per acre plus the fodder available from cane fields which can support some milk production.

The small farmer who does not own his own tractor and tubewell has to purchase tractor power and irrigation power. His expenses on ploughing and irrigation are therefore likely to be much heavier – around Rs 245 per acre for ploughing and Rs 240 per acre for irrigation. Assuming all other expenses to be the same, he incurs expenses of Rs 2,390. The small farmer average selling price per quintal of cane is also likely to be lower as due to his lower influence, contacts, etc. So assuming for him an average price of Rs 18 he may be able to sell cane worth Rs 3,420 (190 x Rs 18). His net return per acre of course is likely to be around Rs 1,030 (Rs 3,420 – Rs 2,390) plus some fodder, compared to Rs 1,915 per acre for big farmer.

Some of the well-to-do farmers can further increase their earnings by setting up crushers where jaggery is made from cane juice. Recently cane has been purchased at these crushers at rates as low as Rs 15 or 16. It costs about Rs 10,000 to install a crusher. These are generally operated not by the farmers themselves by contracted out by them to others at the rate of about Rs 3,000 to Rs 4,000 per season.

Sometimes the small farmers may not even by in a position to sell even his allotted quota (which is already at a low level) to the mills as due to his pressing economic needs, loans, etc., he is in a hurry to dispose off his cane as soon as the crop is ready for sale. This way he can clear his land in time for wheat sowing as well. Hence he may be forced to sell even his allotted quota to the crusher or the sulphur mill.

Thus the question of how much percentage of cane a farmer can sell to the mill assumes importance, as this is a significant determinant of his net income per acre of land. Farmers are organised into a sugarcane cooperative – Sathari Ganna Samiti, Maliyana – to organise the supply of cane to the government managed sugarcane factory in Maliyana. Every farmer gets a certain number of *parchis* – each of which entitles him to supply around 15 quintals of cane to the mill. It is a very common complaint among farmers, specially small farmers, the *parchis* given to them are very less – that even the turn of these *parchis* is delayed in the crushing season so that they have to sell even this cane to the crushers and even when they supply some cane t the mill the payment is sometimes delayed. Some complain that their cane is under weighed in the mill. Those who make fixed deposits and those who bring sterilisation cases get more *parchis*. Generally only the rich farmers can afford to do so. No interest is paid on delayed payments while the farmers have to pay a high interest rate on the fertiliser they get through the cane society.

Pandit Ram Kripal is a marginal farmer of Baafar village. He owns a little in excess of one acre. He follows the crop rotation of sugarcane and wheat on this land. This year he obtained 100 quintals of cane on half of his land out of which he sold 40 quintals to the mill at Rs 27 per quintal and the remaining to a crusher at Rs 19 per quintal. He hired tractor from another farmer and also purchased wheat in the market, at a much higher price than at which he sold the grain to meet his pressing requirements of cash. The saving grace of Ram Kripal's family is that one of his sons brings in Rs 400 per month from his job at a nearby shop. His second son cycles 15 km up and down every day to a village in Meerut – how can a kisan's son afford money for bus, he asks?

Naipal, a Jay by caste, owns nearly 4 acres of land in Baafar village on which he grows sugarcane, fodder and wheat. He has seven *parchis* but although the crushing season is abut to draw to a close his cane against only two *parchis* has been procured so far. In other words, against his total production of 480 quintals of cane he has been able to sell only 40 quintals to the mill, the remaining cane has to be sold to the crushers at much lower rates ranging between Rs 15 to Rs 19 per quintal. What is more, he has to purchase water at a very high rate from another farmer owning a diesel-run pump set. Describing the problems of small farmers like himself, Naipal says that lack of money to incur essential expenses jeopardises the crop prospects of small farmers.

Dharam Pal is a marginal farmer owning about one acre of land. He does not have access to any irrigation from wells, even the wells of others. He has been able to grow only 50 to 60 quintals of cane but as he does not have a *parchi* he cannot sell even a part of this meagre production to the mill at a reasonable rate, he has to sell all of it at a cheap rate to the crushers. He grows some wheat but it is not adequate for his family and he has to purchase wheat from the market also.

These small and marginal farmers are aware that the government has special schemes for their welfare, but their benefit is cornered by influential farmers having access to officials, they say.

Among these farmers Pandit Ram Kripal had gone to the recent massive dharna (sit-in) of farmers in Meerut with food from his village. He feels that if the demand for lower electricity charges had been conceded then the big farmers too may have

reduced their water charges when dealing with small farmers – such assurance had not been given but Ram Kripal believes that this would have happened. Dharam Pal, however, felt that the demand to raise food prices will be actually harmful for marginal farmers like him as they are dependent on purchased grain from the market for their food needs.

In the *basti* of Jatavs (Harijan), however, there is little difference of opinion regarding the movements of farmers demanding higher price for their produce. The youth and few elders who were present there when I visited their *basti* (settlement) said with one voice that this will worsen their plight by making food – for which they are dependent on the market – more expensive.

These Harijans are almost landless but not entirely so, for under the government's land distribution programme many of them have been given plots of land measuring between half to one acre. Most of this land is low-productivity Kallar land, and some of the land has not yet been released to them, being occupied by others, they complain. Still most of the allotees are cultivating their plots and growing mainly wheat and rice on them. Canal irrigation is available to only a few of them. They do not have their own irrigation so they have to purchase water from other farmers. They are able to grow grain to last them for only one or two months. They say a high rental charge has to be given for ploughing with tractors.

Some housing sites have also been distributed among them but again the Harijans complain that proper distribution has not been done and they've been deprived of the due share.

Traditionally they have worked as farm labourers. The present wage rate is Rs 10 for a roughly 12 hours working day, they say. During the wheat harvesting season they get 4 *pulees* of grain for every 100 harvested by them.

As very little employment is generated in the cultivation of sugarcane they regularly go to Meerut city in search of work. Most of the employment they get there is in construction work. When a worker gets work he is able to earn Rs 20 to Rs 25 in a day in the city. Less than half a dozen youths among them have been able to get regular work in factories earning around Rs 40 per month, while almost an equal number of youths have been able get government job.

Opportunities for income generation through dairying activities have increased with the organisation of cooperatives and the setting up of a dairy plant based on this at Partapur, but being poor several of them have to take an advance from *dudhiyas* (private milk traders) and some even purchased buffaloes using loans given by *dudhiyas*, so that they remain tied to supplying milk to *dudhiyas*. Due to this reason the Harijans have not been able to take full advantage of the setting up of the dairy but still they feel happy that the dairy has been set up as the milk rate is not likely to drop too low now even if they've to sell to the *dudhiyas*.

A common complaint of all villagers, specially the weaker sections, was the high unemployment rate among the educated village youth which they said was causing a lot of frustration and concern. Jobs are available mainly to those who can afford to pay bribes for these jobs – this is a widely held belief.

In this reason known as green revolution area of relative prosperity, in the words of a small farmer, Naipal, almost three fourth of the people are facing economic tensions. These are small and marginal farmers and landless people. Their low agricultural base cannot provide them adequate sustenance and opportunities outside agriculture are not becoming available despite the efforts to educate their children.

However, the social trends set by the relatively small number of well-to-do farmers have led to a big hike in social expenditures such as the expenses on marriages and dowry. If a middle level farmer has to marry his daughter he has to spend around Rs 30,000 or so. If the bridegroom has a secure job the dowry demanded may increase much more. This leads to prolonged, intense tension in several families.

Introduction of new varieties of sugarcane, with promises of heavier yield with heave use of fertilisers, have not brought the promised relief to farmers. Instead the expenses have been increasing so fast that the farmers begin to wonder whether they are really any better off despite the increase in yield. In many ways Baafar is a typical green revolution village where the false promise of western technology having been exposed, the overwhelming majority of small and marginal peasants are now groping for a way out for their accumulated problems.

(This chapter describes the situation in the village in 1988 to facilitate a comparision with the present situation.)

Back