Chapter X
Case Studies
Kangsabati Basin

Location Map of Five Villages

Fig. 10.1
10.1 Introduction:

The case studies are to cover all the aspects at micro-levels, dealt with in the previous chapters, reflecting core problems of the Kangsabati basin area. Five villages have been selected for the study. The selection of villages has been made with the help of the physiographic map, taking one village from each physiographic unit.

The villages taken into consideration for case studies are:
(i) Dumurbera, a village in the hilly region of Balarampur police station, Puruliya district,
(ii) Darbaria, a village in the moderate to strongly sloping land of Balarampur, Puruliya district,
(iii) Ambikanagar, a village in the undulating terrain of Ranibandh police station, Bankura district,
(iv) Nepura, a village in the almost level lands of Medinipur police station, and
(v) Madanmohanchak, a village in the lower flood plain of the river Kangsabati in Tamluk police station, Medinipur district (Fig. 10.1).

Varied types of landscape is observed over different parts of the Kangsabati basin and so is the character of the river. This varied physical condition has a profound influence on water resources and agriculture prevailing in the basin. Hence to know the economic condition of different parts of the basin, one village has been selected from each physiographic unit. These villages will reflect the total economic scene of the area.
Plate- 17
The steep slope near the entrance of the tola Machatanr of Dumurbera village, P.S.-Balarampur, Puruliya.

Plate- 18
A jhor bandh, the only source of water atop the hill tola Lukuichatani in the Dumurbera village, P.S.-Balarampur, Puruliya.
In each case study, an attempt has been made to study first its physical background and then the water resource conditions, general land use and its changes, infrastructure of agriculture and agricultural conditions. This has been done mainly with the help of questionnaire survey. At least, 10 per cent of the households of each village has been surveyed for the present purpose. Some literature collected from the Halka Camps (settlement camps) also helped to a great extent. The data for the old land use map before the implementation of the Kangsabati project has been collected from the land record offices of each village. The new land use map has been prepared by making a plot to plot field survey.

This study of villages provides the real picture of the economy prevailing over the basin. It also highlights the changes that have taken place really after the implementation of the Kangsabati project.

10.2 Dumurbera

10.2.1 Physical Set-up:

The village Dumurbera is situated on the hilly areas of Balarampur police station of Puruliya district. These highlands are actually the remnants of the spurs projecting from the Ranchi Plateau to the west and functioning as watersheds of the Subarnarekha-Kansai-Damodar group of rivers. There are several important peaks on the main highland mass of Baghmundi-Ajodhya. They are Gugui Pahar (580.5 m), Gonja Pahar (580.5 m) etc. On the southern face of the Baghmundi scarp is the Gorgaburu (677 m) which is the highest peak. The ridge encircling the high plateau of Baghmundi-Ajodhya has an average altitude of 600 metres. The slope is of a very steep nature. The village Dumurbera comprises four tolas of which Lukuichatani is situated at the top of the hill Gorgaburu and the other three, viz. Machatanr is situated on a sloping land, Dumurbera on further upslope and Kanitanr on comparatively flat land (Plate-17). The last three tolas are actually situated on the foothill zone.

Poraschist and gneisses are the predominant rocks of this part.
Plate- 19
A privately-owned perennial well supplies irrigation water to the vegetable fields in Machatanr tola of Dumurbera village, P.S.-Balarampur, Puruliya.

Plate- 20
A farm house atop the hill tola Lukuichatani in the village Dumurbera, P.S.-Balarampur.
A number of non-perennial streams descend from the Baghmundi hills. These small first order streams are severely gullied. The first hand tributaries of the non-perennial Rajabandh Nala, which is the tributary of Bandhu Nala, have their origin near the village.

Mostly clayey soil is observed in the village. Most of the land is of gora type (waste) and infertile.

Among the four tolas, Lukuichatani is densely forested, while the other three, situated on the foothill zone, are devoid of forest cover.

The village experiences extreme type of climate. Rainfall is negligible. Summer temperature is very high. Temperature is somewhat moderate in the hill-top village Lukuichatani because of its elevation. Drought is a common phenomenon in the village because of uncertain and unreliable rainfall.

10.2.2 Water Resources:

Scarcity of water is the main problem of this village. Four water bodies with or without banks are serving the three tolas situated on the foothill zone. A jhor bandh near the tola Lukuichatani is the only source of water (Plate-18). There are two jhor bandhs in the village constructed by the Lutheran World Service which can supply drinking water only. But these bandhs also dry up during the dry season. There are also eight wells in the village. But the wells and the above-mentioned bandhs are owned by the rich of the village and are not open to all (Plate-19). Three tube wells are there in the tolas of Machaton, Dumurbera and Kanitaun. But they are not functioning properly. The scarcity of water is so acute that there is no question of irrigation and the villagers have no alternative, but to depend solely on monsoon rainfall which is very uncertain. Only a few fields owned by the rich people get some amount of irrigation.
10.2.3 Economic Set-up:

Agriculture is the main occupation of the villagers. A large number of agricultural labours are there in the village as most of the villagers have very little land of their own. Selling of wood collected from the hills is another important occupation. Nearly 60 per cent to 65 per cent of the villagers collect wood for their livelihood. Lac cultivation is a common practice. Only a few families keep cattle, and some five of them sell milk. The village is a mixed caste one consisting of Santhals, Kamar (blacksmith), Bhumij, Mahato and Kurmi. An interesting feature is that in the village different castes have different occupations. Wood collection is mainly done by the Santhals. Most of the Bhumij people are agricultural labours as well as cultivators. By selling wood, Santhals get about Rs. 5 per 'Bojha'. The agricultural workers use to get rice of 3 kg and food for a day's labour. Milk sells Rs. 4 for each litre. Mahatos are the richest people in the village. They are basically cultivators. Some have their own business as well. Many a villager rear cows and hens in Machatanr tola. In Lukuchatani tola, some villagers also keep cows and goats and they sell milk at foothill villages.

'Mahul' is the only forest produce that is collected from the villagers' own trees to a little extent. Mahul sells Rs2 for a kg. There are no minerals in and around the village, nor any industry. So, the economic condition of the villagers is so poor that it hardly allow to develop any cottage industry.

The old land use survey data has been collected from the village Dumurbera. But no map of that time is available now. As the plot numbers have changed a lot, it is not possible to make a land use map with the help of a new map.

In times of field survey, it is observed that the whole northern part of the village is covered with dense forests, though in the extreme northwest agricultural lands are found. In the new map (Fig. 10.2), it is observed that the most of the agricultural fields are located in the southcentral and eastern part of the village.
Number of water bodies are very few. Only three water bodies or bondhs are found in the village, one near the forested and hilly areas and the other two amidst the agricultural fields. Due to non-availability of water and rugged and forested terrain, very few settlements are observed in the village, a good many of them being concentrated in the southeastern part of the village. A very few settlements are found in the central and western part of the village. 'Danga' (high land) is observed here and there. 'Gar layek patit' (wasteland) is also common.

10.2.4 Infrastructure of Agriculture:

Because of the poor economic condition of the villagers, infrastructural facilities are hardly available. Irrigation is not possible owing to acute scarcity of water. Some wells are dug during the winter when the depth of the underground table is nearer the surface. So, some amount of irrigation is possible during the winter. Some rich farmers have one or two pumpsets of their own and this is generally found in the Machatanr tola of Dumurbera village. No modern equipment or machineries of agriculture is available. The villagers use age-old plough, ordinary spade and cow for cultivation.

IRDP (integrated rural development programme) and ITDP (integrated tribal development programme) schemes are there in the village. There is a ration shop in Machatanr tola under the ITDP scheme. The IRDP scheme gives 50 per cent subsidy to tribes and castes through Panchayet Samity. Only for a day in a year, food is available for students of a night-school. It appears that the IRDP scheme has made little changes in the village. 'Mahajans' (money-lender) continues to exploit the poor of the village. Inquiries reveals that only three Santhal families have got cows for agricultural purposes on 50 per cent subsidy under the IRDP scheme. Fisherman's net was also given to about three persons under the scheme. Many a villagers have complained that they did not get any loan, nor irrigation facility from the IRDP scheme. As usual, the farmers get paddy loan at high rate of interest from mahajans of Endelbera and Machatanr.
Plate-21
Wheat has been introduced for the first time in the village Dumurbera, P.S.-Balarampur, Puruliya.

Plate-22
Typical house type along the side of a road in the village Dumurbera, P.S.-Balarampur.
The villagers use fertilizers like urea and phosphet which they usually buy from the Urma market. The well-to-do farmers use pesticides like Furadan and Miracula. Natural manures are used by most of the villagers. Nearby markets are Kantadih and Urma. There is a regulated market in Bagadih.

The average cultivated area is 4 bighas to 5 bighas per family. But, two or three rich families own cultivable land up to 45 bighas.

10.2.5 Agriculture:

Aman paddy is the chief crop cultivated in the village. Other kharif crops like kalai, arhar are also cultivated. Some amount of vegetables are grown on the fields where irrigation water is available. This include brinjal, tomato, onion, potato etc. Boro and wheat are also cultivated to a little extent near the bandhs (Plate-20, 21). Dry crops like kurthi, kodo, janar, bhutta and gunja are grown on gorm (cultivable waste) lands. Double cropping is possible only on 40 bighas of land which get some amount of irrigation water. Crop rotation or inter-culture is not practised. The yield rate of paddy is 8 maunds per bigha, potato 5 to 6 maunds per bigha, brinjal 5 to 6 maunds per bigha and pulses 2 to 3 maunds per bigha. The village is not self-sufficient in agriculture. Nearly 50 per cent of the villagers have to buy food crops for half of the year. Only 25 per cent of them produce necessary crops for their own consumption. Some of the villagers, however, sell their extra crops to other villages.

10.2.6 Conclusion:

To sum up, the economy of the village that solely depends on agriculture, is very much underdeveloped. A sizeable section of the villagers live in a cluster of thatched huts (Plate-22). Only three or four brick-built big houses, owned by Mahatos, exist. Communication is pathetically poor. A footpath connects Machatar with the hill top tola Lukuichatani. Literacy rate is very low. There exists only a night school which is run by a teacher in the village Lukuichatani atop the hill. The teacher comes from the
the village Endelbera.

Scarcity of water is a chronic problem. Many a villager feel that the problem could be solved to a certain extent by damming jhores (small mountain streams) and constructing bandus (water bodies). Tilai jhor bandh, constructed in 1987 near the village, has now been destroyed by the Jharkhandis. Social forestry programme, taken up by the Gram Panchayet on a plot of 3-acre land, is also frustrated by the villagers. Various development schemes have improved the economic condition of some people, but they are yet to reach to everyone in the village. It is believed that credit facility, if properly given, can help the farmers to some extent.

10.3 Darbaria

10.3.1 Physical Set-up:

The village Darbaria is situated on strongly sloping lands of Balarumpur police station in Puruliya district. This higher peneplain was sculptured in a previous cycle of erosion. The current sub-humid cycle of erosion has produced a youthful stage of landform on this uplifted peneplain. It is bordered by steep escarpments and heavily dissected headward eroding streams. Degradation of the previous cycle and dissection of the present cycle are the two common features of this area. Dissected badlands are observed near the village.

The river Kumari, a main tributary of the river Kangsabati, flows just by the side of the village. The river originates from the eastern face of the Baghmundi uplands covered with dense Sal forest. There is a reservoir on the river Kumari near the village.

The soil is fertile. The climate of the village is of extreme type. Summer temperatures are high and rainfall is meagre.

10.3.2 Water Resources:

Though situated near the Kumari reservoir, scarcity of water is acute in the village and the river Kumari has very little influence
Plate-23
An auto-flow creates a patch of green like an oasis amidst dry lands in the village Barbaria, P.S.-Balarampur, Purulia.

Plate-24
A tube well, the only source of drinking water, in the village Barbaria, P.S.-Balarampur, Purulia.
Plate- 25
A girl on her way home after collecting Mahul, an important source of country liquor in the village Darbaria, P.S.-Balarampur, Puruliya.

Plate- 26
Lac cultivation on a 'kut' tree in the village Darbaria, P.S.-Balarampur, Puruliya.
Plate- 27
Rope making from Babui grass, an important occupation, in the village Darbaria, P.S.-Balarampur, Puruliya.

Plate- 28
A 'Sadhubari' with a well and vegetable garden in the village Darbaria, P.S.-Balarampur, Puruliya.
on agriculture. There are five small bandhs owned by the local people. There are three wells - one each in the tolas of Sardardih, Sasandih and Darbaria. There also exists two tube wells in the village. All these three wells and two tube wells have been constructed with the help of loans, taken from the Land Development Bank and are mainly for drinking water (Plate-23). At a place, there springs an auto-flow that irrigates the nearby fields creating green patches amidst the dry fields. Irrigation is practically absent. The villagers depend on monsoon rainfall for cultivation.

10.3.3 Economic Set-up:

Agriculture is the main occupation of the village. The other occupations are teaching, household industry and services, particularly in the railways.

Three castes dominate in the village, viz., Bhumi, Kurmi (cultivators) and Kulu (those who extract oil). A majority of the Bhumi people are agricultural labours. Mahatos are usually cultivators. Business is the occupation of the Garais. Agricultural labours earn Rs 10 in addition to 4 kg or 5 kg of rice for a day's work in times of reaping and Rs 15 during the harvesting. Collection of wood from the nearby forests and selling wood are another important occupation to many villagers. Except for 12 families - two Sardars and ten Mahatos, almost all the families of the village collect wood and sell them at Chota Urma weekly market. A wood-collector usually earn Rs 12 on an average a day.

Collecting forest produces is another occupation that helps many to eke out an existence. Many a villager collect mahul from the forests. Some have their own mahul trees (Plate-25). Cultivation of lac also engages many villages and it brings them good remuneration (Plate-26). To many, extraction of neem oil and kachra oil and selling the products is a supporting occupation. Mahul sells about Rs.8 for a kg. Making rope from Babui grass is a common occupation among the villagers. Many of the families also produce 'chira' from rice for their own consumption as well as to sell it to neighbouring markets. Cottage industries are found among some families.
LAND USE MAP 1987
VILLAGE DARBARIA JL NUMBER 32
POLICE STATION BALARAMPUR
DISTRICT PURULIYA

Legend:
- Agricultural land
- Culturable waste
- Khun
- Homestead
- Shubhak
- Pond
- Denga
- Burning ground
- Religious centre
Two land use maps have been prepared for the village - one surveyed during 1911 and the other in 1988 during the field work. This was done mainly to know the changes in the land use after the implementation of the Kangsabati and other small-scale irrigation projects in the upper reaches of the river Kangsabati.

From the old survey map (Fig. 10.3), it appears that the cultivated fields are mostly concentrated in the northern and southern parts of the village. A vast amount of land in the southeast and also in the west-central parts are mostly of gora type or culturable wastos and remain fallow. There is one main road which runs through the north-central part of the village from west to east. Settlements are mostly concentrated on both sides of the road. There is also a large piece of gora land (cultivable waste) just to the south of the road in the east. The size of the holdings are medium and large. A bandh is observed in the southeast.

The new land use map (Fig. 10.4) shows very much fragmentation of land. Agricultural land has been increased to a great extent. The 'Donga' or high and dry land decreases. But culturable wastes are found on either sides of the road along with settlements in a vast area. Agricultural fields are observed in the northern part of the village, but maximum concentration is in the southern part. The number of water bodies has also been increased. The previous study reveals that the agricultural land here has increased due to pressure of population on land and use of fertilizers etc. Water resources has very little effect on land use. Increasing education helps the villagers to use their land scientifically.

10.3.4 Infrastructure of Agriculture:

The village lacks most of the infrastructural facilities. This is because of the non-availability of irrigation water. Only a little amount of irrigation is possible from a bandh. Auto-flow is another source of irrigation in the water-starved area. Because of the little scope of irrigation, machineries of irrigation are totally absent.
Credit facility for agriculture is available from the Bara Urma Gram Panchayat Samabay Samity. It gives agricultural loan once in a year. The rate of interest is 10 per cent per annum. Farmers have to repay the loan after harvesting. Most of the villagers are members of LAMP or co-operative society. But they are not getting loan from it as they did not repay their previous loan taken from the co-operative.

The IRDP scheme has reached the village. But it hardly makes any changes in economy of the village. Only a few have availed of the credit facility and got bullocks under the scheme. To most villagers, the scheme is of no use. But, the IRDP scheme has opened a ration shop and offered loan to 20 women to set up business in the village. The women buy paddy from farmers, make rice from it and sell it to nearby markets.

Ordinary implements like ploughs are used for cultivation. Fertilizers like sufala, urea and natural manures, purchased mainly from Chota Urma market, are used. The use of fertilizers per bigha of land varies between 10 kg and 15 kg. Average land holding size is small. There is a regulated market in Ranibandh. The nearest market to the village is Chota Urma Hat that opens on every Friday.

10.3.5 Agriculture:

Mostly gora type of land is observed in the village. Aman is the chief crop. Double cropping is practised to a little extent. Vegetables like brinjal, potato, tomato etc. are grown on the lands which enjoy a little irrigation facility. Kitchen garden is found in a number of houses where vegetables are grown. Gunja, Kurthi and other inferior crops are cultivated on gora type of land. The yield of paddy is different in different types of land. The maximum yield rate is on Bahal type of land where it is 8 maunds to 12 maunds per acre, on Bhaid type of land, it is 3 maunds to 5 maunds per acre and on Kanali type of land, it is 7 maunds to 8 maunds per acre. The villagers are not self-sufficient in food. Mainly paddy is purchased from the neighbouring villages. The purchase depends on the economic condition of the villagers.
10.3.6 Conclusion:

A good many villagers are economically depressed and the impoverished economy of the village is reflected in its festivals that lack both pomp and colour. Scarcity of water is a common phenomenon. Mud cracking is a common feature during the summer. Most of the villagers are members of co-operative society. But it hardly deliver the good for them. Social forestry programme was taken up in the village and about 75,000 saplings were planted. If the social forestry programme is implemented properly, it may check the soil soil erosion which is a common feature in the village.

An interesting feature is that literacy rate is increasing in the village. Villagers are now using their land more scientifically. If supplied with irrigation water, the fields are likely to give good returns. It is observed that the fields dry up and crack during February–March. Though the Kumari reservoir is situated off the village, irrigation water is not available from it. The villagers feel that improvement of local bandhas and lift irrigation from the river Kumari and Nanumata dam could ease the problem of water scarcity to a certain extent.

10.4 Ambikanagar:

Situated just at the confluence of two rivers, the Kumari and the Kangsabati, in the block of Ranibandh of Bankura district, the village Ambikanagar has a long history. A pargana extending over 391 km² and formerly the headquarters of an ancient family of zamindars has been named after the village. O' Malley in his Gazetteer has written about this family as "according to tradition, this tract was originally ruled over by a Raja of the washermen caste, called Chintamani Dhoba". Legend has it that Dhalbhum was wrested from him by one Jagannath Deb of Dholpur in Rajputana. He came to Supur, attacked and finally defeated Chintamani Dhoba and became Raja of Supur and enjoyed the title of Shahzada bestowed on him by the Nawab. Later, Tek Chandra, the eldest son of the Raja, settled at Ambikanagar, about 13 km from Supur. This zamindar
Plate - 29
An old temple inside the Rajbari of Ambikanagar village, P.S.-Ranibandh, Bankura.

Plate - 30
Close view of the marshy tracts as developed in the Kangsabati valley beyond the Kangsabati reservoir down-stream at Ambikanagar with severe bank erosion.
family was actively associated with the freedom movement of the country. Raicharan Dhabaldev of this family is said to have been in close touch with the great revolutionary, Khudiram Basu. Two temples of some antiquity stand in the village (Plate-29).

Because of the riverside location of the village Ambikanagar, the river itself and the Kangsabati project which was launched in 1956, have great influence on its economy.

10.4.1 Physical Set-up:

The topography of the village is undulating. Mostly loamy type of soil is observed. Gully erosion is common on river banks (Plate-30).

The village experiences tropical climate. Rainfall is controlled by the southwest monsoon. Average rainfall is 1350 mm. Periodic fluctuation during monsoon causes drought. The village is devoid of forest cover.

The river Kangsabati near the village is now completely dry due to the construction of the Kangsabati reservoir nearby. Now paddy is cultivated on the dry river bed (Plate-31).

10.4.2 Water Resources:

The village is under the command area of the Kangsabati project. The project has a profound influence on the water resources and also on the economy of the village. In the pre-project stage, the village used to be flooded every year causing great distress to its people. But, owing to fertilisation of land by the flood water every year, productivity of the soil was high. The village was agriculturally prosperous. As the river flowed near the village, fishing was an important occupation. There were other occupations also, but agriculture always played a vital role.

In 1956, the Kangsabati project was launched with irrigation as its main objective and flood control etc. as secondary one. As an immediate effect, flood was checked in the village relieving
people of great distress. But, it has an indirect effect on the economy of the village. The fertility of soil has decreased to a great extent and it now needs artificial fertilizers for better yield. The damming of the river has also caused acute scarcity of water in the village. The village is situated on a higher ground than the surroundings. As a result, it is deprived of water though a canal of the Kangsabati project runs off the village.

Another telling effect of the Kangsabati project on the village is that its fishing community is switching over to other occupations. As the river near the village has now completely dried up and the river bed is used for paddy cultivation, the fishermen have to depend on two or three bandhs (water bodies) of the village.

As the agricultural production has decreased due to infertility of the soil and as farmers cannot cultivate their fields during the rabi season for want of water, many have to migrate to the nearby blocks in search of jobs.

But, the project has a number of good effects on the village as well. Due to checking of flood, now the villagers do not have to migrate every year.

Among the indirect effects, the most important one is the increase in the literacy rate. The Kangsabati reservoir is situated just by the side of the village. The villagers have got the opportunity to come into direct contact of the outsiders and become conscious and realistic. It has resulted in diversification in their occupational structure. Now, many of the villagers are service-holders. As the village is situated off Mukutmanipur, communication facility has also improved to a large extent. Now, there are a number of bus services between Ambikanagar and neighbouring villages and towns. Moreover, the villager is getting more attention after launching of the project.

The Kangsabati canal supplies very little water to the village. The water of the canal is, however, lifted with the help of sini or topca (water lifting devices). A sub-canal, cut down by the Gram Panchayat, supplies water of the Kangsabati canal to two or three bandhs.
Plate- 31
Paddy cultivation on the dry bed of the river Kangsabati just beyond the Kangsabati reservoir at Ambikanagar.

Plate- 32
Making of ornaments with 'shola'—primary occupation of a Malakar family in the village Ambikanagar, P.S.-Nanibandh, Bankura.
When the water stored in the bandhs overflows, only then fields are irrigated. Other sources of irrigation are temporary jhor bandhs and dug-wells. Ten deep tube wells are there to supply drinking water. Irrigation is possible only on 10 per cent of the total land.

10.4.3 Economic Set-up:

From the study of the working population structure, it appears that most of the villagers are either cultivators or agricultural labours. A multi-caste system prevails in the village. The castes include Swarnakar, Dom, Rajak, Dule, Modak, Dania, Kumar, Bagal, Brahmin, Baidya etc. Almost every caste has its 'tola' or 'paras' in respective areas of the village. This variety of castes and occupations is the result of an inter-woven culture.

A Malakar family in the village eke out a living by making ornaments and other things of shola (Plate-32) which is a traditional occupation of the family. The family collects the raw materials from Calcutta and sell their products to nearby villages. A number of potter families are there in the village. They collect raw material for their products from the banks of the river Kangsabati. Their products find market in the village and its neighbouring areas.

Making comb with horns of buffalos and a type of wood, known as 'chakolta' is the chief occupation of a group of people. The price of a chakolta tree ranges between Rs 800 and Rs 1,000. The main market of the products is Bankura town. A craftsman earns about Rs 10 on an average daily by selling his products.

Swarnakars are the richest community in the village. Now, their primary occupation is cultivation and making of ornaments is their secondary occupation.

Rajak, Dom, Napit, Baidya etc. are the other communities who mostly depend on agriculture to make ends meet and very few of them follow their traditional occupation.
The fishermen community of the village is a depressed lot. The construction of the Kangsabati reservoir has put them in great trouble. The river bed near the village is dry and catching of fish from the reservoir is strictly prohibited. They have to depend mostly on two or three large bandhus owned by other people. They usually go outside the village to catch fish.

The only mineral found in the village is lime extracted from Ghusing stone.

Animals like cow, goat, lamb etc. are reared by the villagers. They keep the animals for their difficult times.

From the old land use survey map (Fig.10.5), surveyed in 1924, it appears that most of the agricultural fields exist in the middle portion of the village. Settlements are mostly concentrated just to the south of the river Kangsabati along the both sides of a road. Only a big forest is observed in the northwestern part, just beside the river Kumari. A vast amount of land remains as wasteland or Gar layek pafcit land along with the settlements in the north-northeast and also in the south. Water of the river Kangsabati is still observed in a number of plots just to the south of the river indicating the occurrence of floods at that time.

In the new map (Fig.10.6), the most interesting feature is that the lands which were submerged under water during the survey of 1924, are now without the water and most of them, except for a large plot by the side of the river, remain as agricultural lands. A vast stretch of wastelands in the north-central part has transformed into homesteads. There is a remarkable decrease in the wastelands. The number of settlements increases to a great extent. Some wastelands have been transformed into agricultural fields on the southern side of the village. The forest has been destroyed and the land transformed into wasteland. The number of perennial water bodies has also increased.

10.4.4 Infrastructure of Agriculture:

Infrastructural facilities are very much limited. Fertilizers
are available in the local market. But, a sizeable section of the farmers are so poor that they cannot afford to buy necessary fertilizers. The rich farmers use urea, sufala, DAP, gagan (organic) and other fertilizers. Generally, 15 kg of urea is applied for a plot of one-acre land. Pesticides like Democre, Thaimate etc. are also available in the market. Among the irrigation machineries, some pump sets are available. The Gram Panchayet has installed four pump sets. Rich farmers also own a few pump sets. Another seven-horse power pump set exists in the village. During the winter, irrigation water is drawn from the bandhs with the help of these pump sets.

Farmers use traditional ploughs for tilling the soil. Only two or three paddle threshers are available in the entire village. No other machineries are found in the village.

Agricultural loan is available from the Punjab National Bank. The loan is disbursed through the Gram Panchayet whenever it is needed. The bank charges interests at the rate of 5 per cent from the Pattudars and 2 per cent from Bargadars against the loans. But many of the villagers are unhappy over the manner in which loan is disbursed. Some complain that the bank does not sanction the loan unless one enjoys political clout. Only once Rs200 was granted as agricultural loan to a handful of farmers. There is ample scope for development of cottage industry. But dearth of funds has posed problem to it. No loan has been granted to the industry as yet. The nearest market to the village is at Khatra. The village is well-connected with its neighbouring areas and the district headquarters Bankura. There are a number of bus services between the village and headquarters.

The IRDP scheme is there. Bullock cart, animals for husbandry, agricultural machineries as well as loan etc. are available under the scheme. The scheme also provides special facility to the schedule castes. They get 50 per cent subsidy under the scheme. Sewing machine has also been given to some villager under the scheme.

10.4.5 Agriculture:

Aman is the most important crop though cultivation of Aus is also a common feature in the village. Boro cultivation is negligible and
it is possible in the years of good rainfall. Double cropping is practised only on 5 per cent of the land. Share cropping is also practised in some areas. Crop rotation and interculture have been a system to retain the fertility of the soil. Villagers usually cultivate potato, onion etc. along with wheat. Mustard, tisi etc. are other important secondary crops. The yield rate of ordinary paddy is 36 maunds per acre while that of HYV (high yielding variety) paddy is 60-65 maunds per acre. The productivity of soil is high. The village is not self-sufficient in agriculture.

10.4.6 Conclusion:

The village underwent changes after implementation of the Kangsabati project. Before the implementation of the project, occurrence of flood was an annual feature and the flood drove the people of the village leaving a trail of destruction. A case in point is a family at Gonsaipara in the village. The family had to shift to the village Baddi, a few km from Ambikanagar, following the threat of floods. But now, the village Baddi is under the Kangsabati reservoir and the family again came to Ambikanagar and settled there.

The Kangsabati project has solved the problem of flood, but it created acute scarcity of water affecting its economy badly. As the village is situated on a higher ground, the canal water does not reach the village. Villagers think that lift irrigation from the river, construction of permanent jhor bandhs and electrification of deep tube well can ease the problem of irrigation to a certain extent.

The economy of the village is heading for a crisis. The Kangsabati project has affected life of the villagers in many ways. Many have left their traditional occupation. But things do not stand the same as it was before the implementation of the project. The project has thrown many people out of their jobs.

However, the literacy rate is high in the village. Over 50 per cent of the villagers are literate. There is a high school and three primary schools in the village. A majority of the villagers live in mud houses thatched with straw. According to many villagers, the Gram Panchayat.
Plate- 33
A potter with earthen wares in the village Ambikunagar, P.S.- Ranibandh, Bankura.

Plate- 34
The river Kangsabati progresses engulfing the village Nepura, P.S.- Medinipur, through bank erosion.
Deep tube well irrigation, one of the most popular means of irrigation in the lower part of the basin in the village Nepura, P.S. Medinipur.

A brick klin providing employment to a number of people exists in the village Nepura, P.S.-Medinipur.
is keen on the development of the village. Among its development activities, improvement of a pond, construction of canal to use the water of the Kangsabati river are important ones. Social forestry scheme is there in the village. Many saplings have been planted on either sides of the road and in the school compounds. Animal husbandry is practised in the village. The villagers sell the animals to meet the hard times.

The village has a long history and culture. If provided with credit facility, the cottage industries of the village can be improved. Availability of irrigation and credit facilities can also develop the agricultural condition of the village.

10.5 Nepura:

The village Nepura is situated by the river Kangsabati in the Medinipur police station, Medinipur district. It is well-connected with Medinipur town. The village is 2 km from the bus stop.

10.5.1 Physical Set-up:

The village is situated on almost flat land. Some undulations are observed near the river. The bank of the river is high on the village side. Every year, the river used to be flooded in the rainy season causing great distress to the people of the village. But, in the dry season, there is very little water in the river and braiding in the channel is a common phenomenon. The river bed is wide in the part. Soil erosion is a common feature. A large amount of land is eaten up by the river as it shifts its course frequently (Plate-34). The river has already engulfed a large number of plots of the village. The soil of the village is mostly of clayey and loamy type. Sandy soil is observed near the river. The fertility of soil is very high. Bamboo is the chief vegetation in the village.

10.5.2 Water Resources:

So far as the water resource condition is concerned, the village
is in a favourable condition. About 75 per cent of the total agricultural land get supply of irrigation water. Depth of ground water table is very high and as a result, there are a number of shallow and deep tube wells in the village (Plate-35). The village is situated within the command area of the Kangsabati project, but it does not get any irrigation facility from the river. Very little water is available from the river through pump irrigation. Most of the villagers have their own pump sets.

10.5.3 Economic Set-up:

The total population of the village is nearly 1,000. It consists of four 'para', viz., Paschimpara, Purbapara, Bagalpara and Majhipara. The population is composed of several castes like Majhi, Bagal and Bhumij. Agriculture is their main occupation. Other secondary occupations include service and business. Nearly 90 per cent of the villagers are engaged in agriculture. Diversification of crops is practised.

There is a brick-klin in the village, owned by the resident of a neighbouring village. The landless people of the village work in the brick-klin for six months. A labour earns Rs 20 on an average for a day (Plate-36).

Bagals are mainly agricultural labours. They also work as daily labours in the houses of the rich people in the village. As an agricultural labour, one uses to get Rs. 20 per day and as a household labour Rs. 12 per day. The Majhis are the economically most depressed class. Many of them have no land of their own and they live on the lands of some rich people and work for them. It is better to describe them as 'bonded labours'. Diversification in the working population structure is very little.

The old survey land use map (Fig. 10.7), surveyed in 1924, shows that the agricultural fields are mostly concentrated on the northern and western portion of the village. Settlements are mostly observed in the south-southeast along the sides of a road. A road runs across the village from west to east in the northern side. Some settlements
are also observed on the southern side of the road. Very few plots remained fallow at that time. Only a big plot was left fallow by the side of the river on the southwest. The river Kangambati flows through the southern side of the village. 'Sikasti Bhumi' which is actually the sand banks of the river are found in the only three or four plots. Bamboo garden is observed in the western part of the village. Paddy lands are mostly concentrated in the northeastern and northwestern parts. Numerous roads run through the village. Perennial water bodies are found here and there.

In the new land use map (Fig. 10.8), surveyed in 1987, it is observed that paddy fields are concentrated on the entire northern, eastern and western portions of the village. The most important change that have occurred is the transformation of vegetable fields into paddy fields. A large number of plots are now covered with sands on the southern portion of the village indicating the shifting of the river towards the village. The amount of Sikasti Bhumi has also increased. Here also very little fallow lands are observed.

10.5.4 Infrastructure of Agriculture:

Infrastructural facilities of agriculture are available in abundance in the village. As a large number of plots have the irrigation facility, the number of irrigation installation is high. Most of the farmers have their own pump set. Those who cannot afford to buy hire it from others. There are 20 pump sets, 15 shallow tube wells and 10 wells in the village. Other agricultural machineries like sprayer, duster, thresher etc. are also available. Tractors, though few in number, are there in the village. Credit facility is available from the Mallabhum Gramin Bank. The bank charges interest between 10 per cent and 12 per cent against agricultural loan and 15 per cent against business loan up to Rs 5,000. The interest increases to 17 per cent when the amount of loan is above Rs 5,000. Credit is also available from the Bank of India, Land Mortgage Bank etc. But, some villagers complain that the credit facility is restricted to a few persons who enjoy the political clout. IRDP, NRDP, DHPA etc. schemes are there in the village. But the schemes are of little use to the villagers.
Plate 37
Chilli cultivation in the village Nepura, P.S.- Medinipur.

Plate 38
Transplantation of paddy during the rainy season in the village Nepura, P.S.- Medinipur.
Plate- 39
A meander of the river Kangsabati with salt encrustations on both banks in the lower course of the river just before its confluence with Kaliaghai in the village Madanmohanchak, P.S.-Tamluk, Medinipur.

Plate- 40
A defunct river lift irrigation device on the river Kangsabati in the village Madanmohanchak, P.S.-Tamluk, Medinipur.
Though the fertility of the soil is high, use of fertilizers like sufala, potash, urea etc. are common. Farmers purchase the fertilizers from the village shop and also from the Medinipur town. For Aman paddy, 15 kg of urea is used per bigha and for Boro paddy and vegetable, 10 kg per bigha. Pesticides like Dythinum, Thymate etc. are used. Crops and vegetables are brought to the market by cycles and bullock carts. Bus route connects the village with the district headquarters in Medinipur town. The villagers also get the facility of a regulated market in Medinipur town.

10.5.5 Agriculture:

The village is well-known for producing vegetables. The vegetables which are profitably cultivated, include potato, chillies, onion, cauliflower, palang, cabbage, brinjal, cucumber, etc. The village supplies vegetables to Medinipur town and nearby areas.

Three types of paddy – Aus, Aman and Boro – are cultivated, though Aman is the most important one. About 15 maunds of paddy are produced per bigha of land (Plate –38).

Pulses and oilseeds are also grown in the village. The pulses are moong, musur, gram etc. and the important oilseed is mustard.

As the soil is fertile and irrigation water is available all the year round, most of the fields produce two to three crops in a year. Multiple cropping is done on 40 per cent of the agricultural lands. Crop rotation and interculture are practised. Usually, chilly, onion, cauliflower, potato etc. are cultivated along with other crops. Sharecropping is also practised. Sharecroppers usually get half of the crops produced. The village is self-sufficient in agriculture. Agriculture has brought prosperity to the economy of the village delivering good returns to its farmers.
10.5.6 Conclusion:

The economy of the village is well-off. It is because of its fertile land and availability of irrigation water. Though it is situated within the command area of the Kangsabati project, there is no canal nearby to supply the irrigation water. Most of its water resources are underground. But, constant use of the underground water is causing depletion of the groundwater level. Unscientific pumping of the water has added to the problem. The situation becomes worse when the water table recedes during the summer. Villagers suggest that construction of more shallow tube wells and dugwells will help to mitigate the crisis to a great extent in the summer when the river also dries up. But, if it is possible to use the water of the river through lift irrigation, it may save the rapid depletion of the groundwater.

The two main problems being faced by the village are:
(i) A large amount of land is being eaten up by the river every year and the river is progressing towards the village and
(ii) the river overflows and submerges the village during the rainy season every year. The floods destroy mud houses, crops and properties. To face the situation, the villagers have built their houses on higher lands. There is a proposal to construct a dyke, made of stones on the side of the river to control flood. This dyke, if constructed properly, can solve both the problems. The construction of 'bheri-bandha' can also solve the problem to a certain extent.

Nearly, 30 per cent of the villagers are literate. The literacy rate is increasing. There are two primary schools in the village. A majority of the villagers live in mud houses. But, houses made of bricks are also common. The social forestry scheme is there in the village.
10.6 Madanmohanchak:

The village Madanmohanchak is situated on the left bank of the river Kongsabati in the level lands of Tamluk-I block of Medinipur East district. The river in this part is sluggish in nature and meets the river Haldi, a few km from the village near Mahisadal.

10.6.1 Physical Set-up:

Flood is a serious problem in the village of Madanmohanchak. The Kongsabati reservoir, constructed in the upper reaches of the river, is mainly responsible for recurring floods in the village. Rainfall is very high. During the rainy season when the storage capacity of the reservoir becomes filled up, extra water is released through the canals. This water carries a large amount of silt which is deposited on the river bed reducing the depth of the river in its lower reaches. Come monsoon and the river gets easily flooded, breaches its banks and inundates the village. The right bank of the river in the block of Moyna breaches frequently.

It is a paradox that the village suffers from acute scarcity of water in the summer and gets flooded in the rains. During the dry season, no water runs through the canals as the storage capacity of the reservoir is not sufficient. The problem has been aggravated by the salt-laden water of the river. The villagers can not use the water of river for drinking, nor do they pump it for irrigation purpose. Salt encrustations are found along the banks of the river (Plate-30). The salt-laden water is very harmful to most crops.

The soil of the village is very fertile. Mainly two types of soil—sandy near the side of the river and clayey on the other side are observed. According to villagers, if water is available, this soil can produce any type of crop.
10.6.2 Water Resources:

Water resources of the village are in a poor state. Though situated within the command area of the Kangsabati project, the village does not get water from the project. There is a river lift irrigation system. But it is not functioning as the villagers are not paying the tax. The system is also believed to be defunct (Plate-40).

The depth of the groundwater is very high below 12 m - 15 m at some places. So, it is not economically viable to construct shallow, or even deep tube wells. Some deep tube wells are already there, but they have gone out of order sometime ago. The villagers fetch drinking water from ponds and tube wells of the far-off villages. The scarcity of water has been somewhat minimized after the construction of the Rupnarayan canal which runs through the village (Plate-41).

10.6.3 Economic Set-up:

Mainly two castes are found in the village. They are Mahisya and Schedule Caste. But, there is no distinct difference in the occupational structure, or economic condition between the castes. A lot of people in the village live below the poverty line, some of them being the schedule caste.

Agriculture is the primary occupation of the villagers. The secondary occupations are teaching, service etc. Only cottage industry of the village is cotton weaving. Nearly 80 per cent of the villagers are engaged in agriculture and 25 families in cotton weaving. The weavers collect cotton threads as well as sell their products at Radhanagar 'hat'. Some villagers work in a tiles factory in a neighbouring village. The daily wage of a worker in the factory is Rs. 15. An agricultural labourer get Rs 14 in addition to food and Rs 15 without food for a day's work. A family sells coconut to make ends meet. The family collect coconuts from Nikasi and sell them at Rajtala,
Plate- 41
Rupnarayan canal supplying irrigation water to the village Madanmohan Chak, P.S.-Tamluk, Medinipur.

Plate- 42
Metal vines, a profitable business in the lower part of the Kangsabati basin in the village Madanmohan Chak, P.S.-Tamluk, Medinipur.
or Dobandi 'hat'. Collection of betel leaf is a profitable business. Usually, 48 leaves are available from a betel plant in a year. Betel leaf growers do brisk business as it has wide market.

From the study of the land use data, collected for the years 1954 and 1989, it appears that very little changes have taken place from that time. The only changes that have occurred are decreasing jute and vegetable cultivation. For this reason, only the new land use map, surveyed by the author, is given.

From the new land use map, surveyed in 1989 (Fig. 10.9), it appears that agricultural fields cover a large part of the village. Water bodies and settlements are on the either sides of the village. Only a small number of plots are under current fallow and they are situated mostly in the northern part of the village. Perennial water bodies are numerous in the northern part of the village. Bamboo gardens are situated in the extreme south near the river. Settlements are also concentrated in that part and also in the extreme north. In the south, numerous dobas (water body) are scattered here and there.

10.6.4 Infrastructure of Agriculture

In the village, the infrastructural facilities for agriculture is very much limited. As only 15 per cent of the agricultural land enjoys some amount of the irrigation facility, irrigation machineries are very few in number. There are a hundred pump sets and most of these are owned by the rich. A river lift irrigation device is lying defunct. Among the agricultural machineries, only sprayer and duster are available. Farmers hire tiller, thresher from outside the village.

No proper credit facility is available to the villagers. There is a Krishi Samaboy Samity from which some farmers have got agricultural loan at a time. But they have failed to repay the loan and are deprived of the facility. Under the IRUF scheme two or three farmers have received loan for their betel vines.
Fertilizers like urea, potash, lime etc. and pesticides like demical, metacid etc. are used by the villagers. These are available in the village market. Nearby market is Tamluk and Panskura. There are also a number of 'hats' in and around the village. The villagers sell their agricultural products to wholesalers. The prices of agricultural commodities have been fixed by the State Government at a market in Panskura.

The village is well-connected with Tamluk and Panskura. The State PWD (public works department) road connects the village with national highway.

10.6.5 Agriculture:

Double cropping is practised in those plots which get some amount of irrigation water from the Rupnarayan. Usually, Aman, H.Y.V. (high yielding variety) Boro and jute are cultivated. Interculture is common in the village and vegetables like cabbage, potato etc. are cultivated on the same field. Jute cultivation is decreasing because it is facing stiff competition from artificial fibres. Jute cultivation 'is no more a profitable business. Til, Tisi, mustard etc. are grown in the sandy soil during the dry season. Cultivation of betel leaf has now become a very remunerative business (Plate-42). Potato is another important crop and yield rate is very high. Pulses like 'moong' and 'kalai' are cultivated on dange lands. Aman is the chief crop cultivated on lower lands.

Yield rate of H.Y.V. paddy is 30 maunds per bigha while that of ordinary Aman is 16 maunds per bigha on fertile lands. But, in general, the yield rate of Aman varies between 8 maunds and 10 maunds per bigha. The village is not self-sufficient in agriculture and the villagers have to procure food crops from the Moyna market. Rich farmers sell their surplus crops to Dobandih and Sikantha 'hats'.
Conclusion:

The economy of the village solely depends on agriculture. Betel leaf cultivation has of late become profitable and it can improve the economy of the village to a certain extent. For the present, jute cultivation has suffered a setback following a stiff competition from the artificial fibres. In many areas, vegetables have replaced the jute cultivation. Most of the villagers have no alternative but to follow their traditional occupations. Literacy rate is as high as 50 per cent. Only a primary school exists. All these factors indicate that the village has a retarded economy.

Under the social forestry scheme, Acasmani, Eucalyptus etc. are planted in the village. But the saplings do not thrive well owing to acute scarcity of water. Animal husbandry is common in the village. Villagers usually rear cows, goats etc. to meet their hard days.

During the dry season, the scarcity of water assumes an alarming proportion. In times of field survey, it was observed that all ponds of the village dried up and bed of the ponds cracked. According to villagers, deep tube wells can solve the problem to a certain extent. Construction of the Kangsabati canal near the village will be of no use. Instead, it will aggravate the problem. But, the water of the Bupnarayan canal has become very useful as the salt-laden water passes off through Farakka.

The evergrowing threat of flood has been a serious problem to the village. Siltation in the river bed mainly accentuates flood. Straightening of the river course and desiltation of the river bed can reduce the problem of flood. Unless the flood is controlled, the economy of the village will stand where it is now.
10.7 Conclusion:

After studying the geographical condition, e.g., mainly the water resources, economic set-up and agriculture of the five villages, it can be summed up that the agricultural and economic conditions correspond with the overall picture of the Kangsabati basin, studied in previous chapters. The water resource condition, in general, corresponds with the overall picture of the basin, but one important feature is that though the villages in the lower reaches are situated within the command area of the Kangsabati project, they are deprived of any benefit from the project. Instead, the evil effects of the project spell disaster on the villages crippling their economy. A case in point is the village Madanmohanchak.

From the study of the previous chapters, it is observed that the upper part of the basin is in a poor state so far as the water resources and agriculture are concerned. The study of the two villages in the upper part of the basin shows this clearly. It is also observed that the condition is much worse than it appears from the study of cropping intensity, crop combination etc., which have been calculated on the basis of data. The percentage of irrigated area to net sown area is also much less than the calculated figures. The small irrigation projects on the tributaries of the Kangsabati are of no use. Scarcity of water is so acute that the villages cannot think of about double or multiple cropping. Construction of jhor baudhis in the hilly part and improvement of the irrigation projects and construction of many other storage sites can solve the problem to a certain extent. Dry crops like Kurthi, Kodo etc. can thrive well in that part. Infrastructural facilities of agriculture as is observed in the previous study is very much limited in reality. Though most blocks of Puruliya are under the Drought Prone Area Programme, IRDP and other schemes, very little improvement is observed. The situation remains more or less unchanged. This part of the basin is deprived of infrastructural facilities of agriculture. Cottage industries, which have ample scopes for prosperity, are neglected. Hence the economic condition is no better and,
more realistically, the economy of the area is heading for a crisis. This part needs immediate attention of various Government schemes.

Compared with the upper part, the middle part of the basin has better water resource condition. But water from the Kangsabati reservoir is not available to all the villages. The village Ambikanagar is deprived of the water of the river Kangsabati which was available to the village in plenty before construction of the project. The project has both good as well as evil effects on the village. But, the evil effects are much more prominent.

The economic condition of the village is moderate. If the proper attention is given to cottage industries, the village will prosper as agriculture is limited owing to scarcity of water.

The lower part of the basin enjoys a better economic status compared to the other parts as is observed in the previous studies. Infrastructural facilities of agriculture are in abundance. Fertility of the soil is high. Agriculture has every possibility to prosper. But, the problem of recurring floods pose a serious threat to its development. As the irrigation water is not available from the Kangsabati project, the people of village Nepura depend mainly on the groundwater and as a result, the depletion of the groundwater level is taking place. Unscientific use of groundwater must be checked immediately to save the village from chronic scarcity of water.

The extreme southeastern part is faced with the problem of salt-laden water. Here the depth of the groundwater table is also very high. Consequently, this part suffers from acute scarcity of water as is observed in the case of Madanmohanchak. The problem hinders the agricultural development. But betel leaf cultivation is thriving and it has brought about a change in the economy of the village to a great extent.