Chapter 6

IMPACT ON SIRAHA

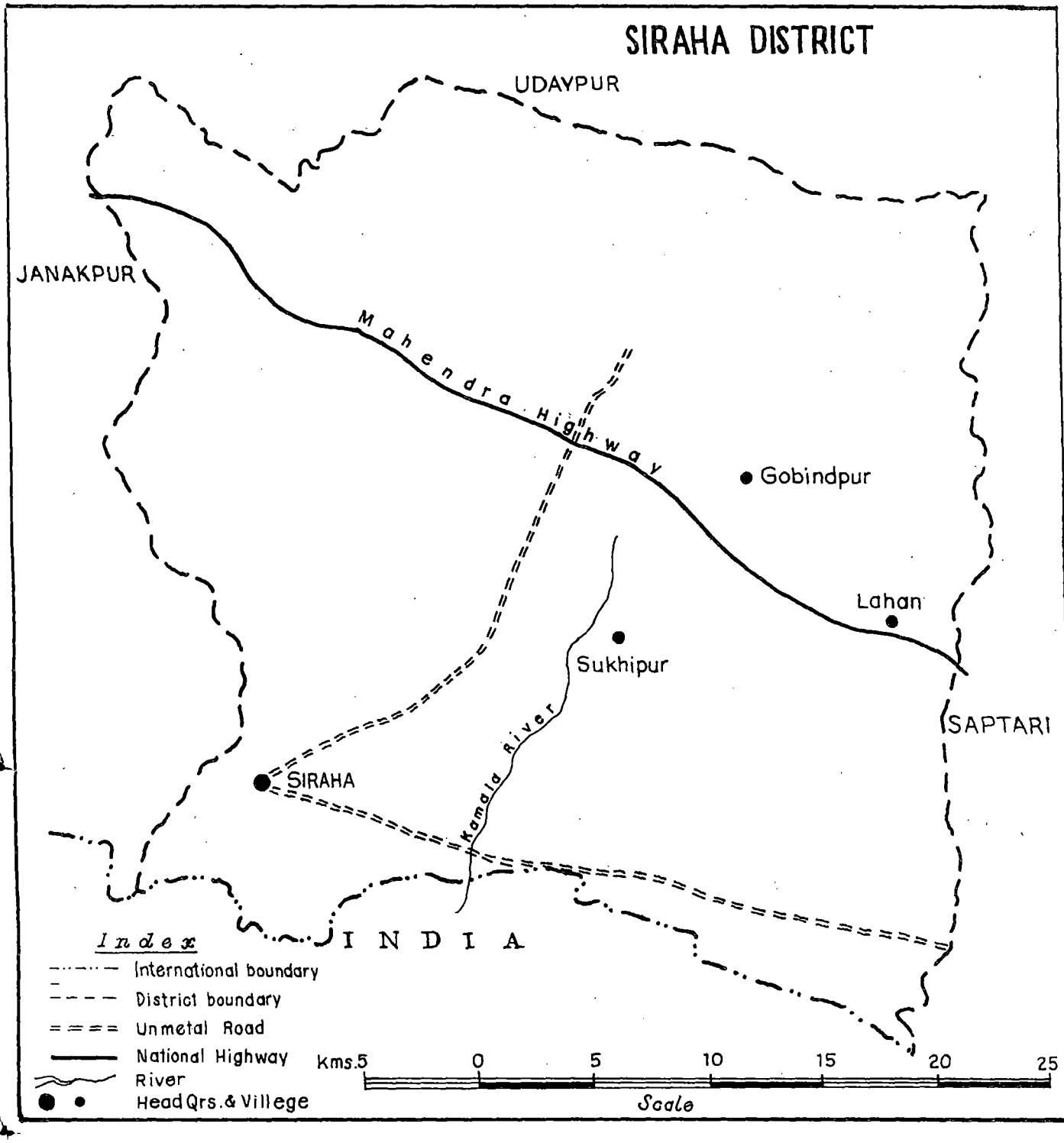
6.0 INTRODUCTION

6.0.0 A study is made in this chapter of the impact the Sagarmatha IRDP made on the use of the basic resource of labour in the Tarai district of Siraha of the Sagarmatha zone of Nepal.

6.1 REMARKS ON THE DESIGN

6.1.0 As we have explained in chapter 1 and in other subsequent chapters, the methodology of comparing the test population with the control population is being used by us for the purpose of measuring the impact. The test population comprises of a settlement where benefits as a result of the operation of the IRDP is maximum. On the other hand, control population is the population of the settlement where benefits coming from the working of the project is small or nil. Obviously this methodology is not free from difficulties. In the course of the study, therefore, we resorted to some methods to overcome the difficulty. However, we shall call the test population centre and the control population periphery. We must stress that it is hard to do the field work in inaccessible places of Nepal where it is exceedingly difficult to find accommodation to stay on for days.

6.1.1 Sukhipur is the central village of the Sukhipur village panchayat. Of the 96 households of the Sukhipur we selected 48


SIRAHA DISTRICT
UDAYPUR
JANAKPUR
Mahendra Highway
Gobindpur
Lahan
Sukhipur
SAPTARI
SIRAHA
Kamala River
INDIA
Index
International boundary
District boundary
Unmetal Road
National Highway
River
Head Qrs. & Villege
Kms. 5 0 5 10 15 20 25
Scale

households for our survey. The households were so selected that they were adjacent around the central point. We, therefore, selected 50 per cent of the households. As in the cases of other villages, the representative character of sample has been safely safeguarded by such a big percentage of the households being included in the sample. Similarly, Govindpur is the central village of the Govindpur village panchayat. In the same we took a sample of 50 households from a total of 80 households of Govindpur village. We thus took 62.5 per cent of the households of the parent population in our sample.

6.2 SEARCH FOR INDIRECT INDICATORS

6.2.0 The average family size in Sukhipur is 6.58 and the corresponding figure for Gobindpur is 7.16. There is a difference of 0.58 in the average family size of the two samples. The standard deviations of family size in Sukhipur and Gobindpur respectively are 2.39 and 3.15. It is found that difference in the size of family in the two samples is not statistically significant. As a matter we have seen that by the time of survey work of this study the project authorities could spend only about one third of the total expenditure, that was scheduled to be spent fully much before our time of survey. So a radical change in employment and consequently on the size of family through independence of employment is too much to expect (Sarkar 1985). However, we have the indirect proof that the place of relatively high activity of IRDP has not ushered in a radically high level

of employment.

6.2.1 The average number of couples in a household is 1.60 in Sukhipur and 1.64 in Gobindpur. This difference is lying at the difference in family size among these two samples. In calculating the number of couples in a household we have counted as one couple where a man has two wives. There is difference in respect of bigamous males in these two samples. The 48 households of Sukhipur have only two bigamous men, but the 50 households of Gobindpur have four. In terms of percentage among married men the difference in the incidence of bigamy narrows itself down to 3 and 6.

6.2.2 There is, however, a qualitative difference in the bigamies of Sukhipur and Gobindpur. Of the four bigamous males in Gobindpur three resorted to bigamy because they did not have any children from the first wife. The income status of these three males is rather low. The ages at the time of investigation are respectively 25, 40 and 50. At the time of investigation none of them had any children. The fourth bigamous male of Gobindpur is a literate farmer and has children from both wives. His first son from the first wife passed the school leaving certificate examination. On the other hand the bigamous males of Sukhipur are rather prosperous persons by village standards. Both of them are big farmers (holding of course less than the maximum permissible land under the law). One is a former Chairman of village panchayat and is also owner of a shop and is in the process of building a

distillery. The other bigamous male is a practitioner of homeopath and auyrbeda apart from being a big farmer. Both of them are bigamous for the fun of being bigamous. The ages are respectively 48 and 53. Since both of these males got their second wives before the launching of the Sagarmatha IRDP we can not hold this incidence of bigamy as any indicator of prosperity of these two families caused by the benefits of IRDP. The two samples merely show the difference of the bigamy between the small farmers or labourers on the one hand and large farmers on the other. Thus analysing in some way the difference in the types of bigamy we are in a position to notice cleanly that no small-owning or labouring male resorted to bigamy in Sukhipur. While our experience in interrogation reveals that large farmers would try to hide their bigamy, small-owning or labouring males never made any effort to hide their marriages. There is, therefore, a case for testing the hypothesis that IRDP may have removed some frustration in the minds of non-owning workers in the sense that four workers at least resorted to bigamy as a means to increase their earnings. The Sukhipur workers were induced not to take an additional earner in the form of a labouring wife. The fact that all the four bigamous males in Gobindpur married for the second time after the launching of the IRDP of Sagarmatha in the district goes in favour of this hypothesis.

6.2.3 Although Govindpur is taken ~~that~~ as control population or periphery, we shall later see that it has been exposed, on the one hand, to the IRDP activities of Lahan town panchayat and,

on the other hand, to an IRDP afforestation project outside the Govindpur village. So we cannot rule out that the prospect of employment of women in illegal trading of Khayer wood may be a valid reason for bigamy for landless workers. So here greater incidence of bigamy may provide an indirect evidence of better employment opportunities of certain kinds for unskilled women labourers.

6.2.4 We compare the proportion of unmarried boys as well as that of unmarried girls in the age-group 15-35 between Sukhipur and Govindpur. It can be seen from Tables 6.1 and 6.2 that the

Table 6.1

Proportion of Unmarried Boys in the Age Group 15-35

Sample	Number of boys in the age-group 15-35	Number of unmarried boys in the age-group 15-35	Proportion
Sukhipur	64	23	0.36
Gobindpur	72	36	0.36

Table 6.2

Proportion of Unmarried Girls in the Age-Group 15-35

Sample	Number of girls in the age-group 15-35	Number of unmarried girls in the age-group 15-35	Proportion
Sukhipur	63	5	0.08
Govindpur	86	14	0.16

difference in the proportion of unmarried boys in the age-group

15-35 between Sukhipur and Govindpur is not statistically significant. So that any secondary consequence of relative rise in income in Sukhipur is altogether absent.

6.2.5 As in the cases in this and the previous chapters, we estimate the number of the girls in the age group 15-35 before the married ones have been married off. On calculation it is found that the difference in the proportion of unmarried girls between the two samples, in the given age-group is statistically significant.

6.2.6 A question would naturally arise if this statistically significant greater percentage of unmarried girls in Govindpur is the result of ethnicity or of increased working opportunities for girls. As we shall see in the following pages that adult females of Govindpur enjoy significantly (statistically) higher days of employment than those of Sukhipur. It is possible, but we cannot be certain, that since the marriage of girls do not bring any wealth or dowry for the household that marries them off, the guardians of the girls wait for some time in order to add to their capital at least for sometime with the earnings of their daughters. In that case we have here a demographic confirmation of the economic impact of more employment for women. The employment prospects in Sukhipur for its menfolk on the other hand have not caused a decline in the proportion of unmarried boys in the given age-group for a possible reason that marrying a boy brings in the short range some wealth in the form of gifts or dowry.

6.2.7 According to returns we obtained on births and deaths, 69 persons were born in Sukhipur during the last five years. At the same time 38 persons died during the same period. If we may compute, though the amount of population in the sample is too small, the number of births per thousand is found to be 44. Similarly, the number of deaths per thousand per annum in this sample is 24.1. The numbers of deaths and births respectively in Govindpur sample are 20 and 57. So for this sample the number of deaths per thousand per annum is calculated at 12. Similarly the number of births per thousand per annum is 32. Demographically it might appear at first view that with a higher death rate and a higher birth rate Sukhipur exhibits an earlier demographic stage. But in actuality the higher incidence of deaths in Sukhipur is paradoxically a function of some uncoordinated system of expenditure of the concerned IRDP in Sukhipur. The new market complex built by IRDP money has become a crowded place. But the panchayat authorities have not been able to provide a service of cleaning the place regularly by removing the garbages that accumulate everyday. Our information is that Gasto-enteritis break out in the rainy season every year. During the period of our survey deaths were reported almost every day. That is to say, but for this new menace of garbages in the new market place the number of deaths in Sukhipur during the last five years might have been far less. The high number of deaths in Sukhipur is only indicative of a failure to abive by simple rule of the thumb that any complex must be given some minimum network of conservancy services. The difference in the demographic indicators may not,

therefore be read as a mark of difference in the demographic stages of these two samples. On the contrary, the unfortunate result of increase in mortality has come from a set of programmes which lacked complementarity.

6.2.8 Assume that half the number of deaths in each sample took plaee in the age group upto 5 years. Accordingly Sukhipur should have very roughly (69-19) or 50 persons in the age-group upto 5 years. But on tabulating the returns on our household schedules we find that the number of persons in the age-group upto 5 years is 66. This is to say if our assumption is tenable, the Sukhipur sample has 16 persons more in the age-group upto 5 years than expected on the basis of a rational use of births and deaths. Similarly, Govindpur should have (57-10) or 47 persons in the age-group upto 5 years. So here the sample of Govindpur shows an excess of 10 persons in the concerned age-group over the number expected.

6.2.9 We do not quarrel with the returns on the deaths and births during the last five years in both of these samples. Similarly the assumption that half of the number of deaths in these kinds of settlements occur in the age group upto 5 years, nearly makes the mark in seeking the truth in this respect. So the number of immigrants in the age group upto 5 years has been 16 persons in Sukhipur and 10 persons in Govindpur. Although none of the villages is completely free from impact of IRDP, there has been much less activity of IRDP within the

village of Govindpur. But Govindpur is only 4 kilometers away from Lahan the centre of Sagarmatha Zone IRDP and is very near an IRDP afforestation project near a big forest. Immigrants from far off hills and plateaus have arrived to stay in Govindpur and to seek work in these places. Immigrants keep their families in Govindpur and journey on foot during day time to these places and come back after doing some work there. The work available there attract these immigrants, while Govindpur provides the very cheap living space to the families of these migrants. On the other hand whoever has migrated to Sukhipur has migrated to work within the village. So the conclusion is irresistible that the IRDP activities have been causing immigration of poor people from plains, hills and plateaus further off.

6.2.10 It would be interesting to estimate the amount of immigration into Sukhipur village as a whole during the last five years. Assuming on the basis of our experience that the number of immigrants into the rest of population is the same as the number of immigrants in the age-group upto 5, the total number of immigrants in the Sukhipur sample is 32 and the Govindpur sample 20. Thus the percentage of immigrants into the Sukhipur sample is 11.26 per cent in 5 years. So the annual rate of immigration into Sukhipur stands at 2.25 per cent. Clearly, this is indicative of a sure expansion of employment opportunities in Sukhipur during the last five years. Whatever in-migration took place in Govindpur has been wholly occasioned by the increased activity in the town panchayat of Lahan which we have already described as the headquarter

of Sagarmatha IRDP and which has been a great centre of activity and in a neighbouring forest complex. However, the annual rate of immigration into Govindpur is calculated at 1.2. We must hasten to add that this rate of immigration covers the last five years from the date of survey. Immigrants poured into Govindpur village in the earlier period also because of the neighbouring forest complex. But since this immigration into Govindpur is not for work in Govindput village itself we have indirect indicators to support that more employment opportunities have been created in Sukhipur rather than in Govindpur.

6.2.11 The difference in the births and deaths in these two samples in the course of the last five years gives for us a rough measure of the net increase of population. The figures for the difference for Sukhipur and Govindpur are respectively 31 and 37. By dividing these figures by the respective present populations minus this increase and again by 5, one finds that the annual increase per annum stands at 2.1 and 2.9. If now the annual rate of immigration is added to each of these rates, the rates of increase of population of Sukhipur and Govindpur respectively are found to be 4.4 and 4.1.

6.2.12 A great paradox already commented upon has resulted from the launching of IRDP in Sukhipur. On the one hand we have an indirect evidence of an expansion of employment opportunities in Sukhipur. On the other hand, the improved market complex built with the funds of IRDP without the concomitant arrangements for

public sanitation has brought out an increase in death rate and a fall in the span of life of the people of Sukhipur.

6.3 IMPACT ON THE GENERAL RATE OF EMPLOYMENT

6.3.0 We have elsewhere distinguished between good and bad employment for the purpose of measuring the impact of IRDP on the use of the labour resource. Good employment has been defined as employment for more than 150 days and bad employment for less than 150 days. The rates of good employment for adults in Sukhipur and Govindpur are respectively 56.2 and 60. Apparently there is relatively higher percentage of good employment in the periphery than in the Centre. One reason might be that Govindpur has relatively more unskilled labourers' families of which both males and females remain engaged in some kind of activity either in Lahan or in nearby forest complex or in collecting sand and stones riverbeds. On the other hand, the people of the specific castes who dominate the people of Sukhipur have the habit of keeping their females indoors.

6.3.1 This ethnic restraint on the work of females in Sukhipur is demonstrated by the low percentage of good employment of women in Sukhipur. The percentage of female adults in good employment is 18.3 in Sukhipur and 34.2 in Govindpur. We can easily see that this difference in proportion of those in good employment among females in these two samples is statistically significant. Thus we can treat the number of females with good employment as

a binomial variable and the hypothesis to be tested is

$$H_o : p = 0.18$$

Under H_o $= np = 76 \times .18 = 13.68$

$$= \sqrt{nbq} = \sqrt{11.2176} = 3.35$$

The critical region, following normal curve approximation will consist of the two intervals

$$x - 2 = 13.68 - 6.70 = 6.98$$

$$x + 2 = 13.68 + 6.70 = 20.38$$

Out of 76 adult females 26 are having good employment. So the difference in the percentage is significant. The difference is due to increased opportunities of female work of a certain kind. We also find that the difference in the proportion of children of the age-group 10-15 employed in the two samples is significant. The incidence of employment of this age-group is higher in Govindpur than in Sukhipur.

6.3.2 As for the incidence of good employment among adult males, the percentages in Sukhipur and Govindpur are 86 and 81 respectively. Although the difference is not statistically significant at the usual 5 per cent level of significance, the difference is significant at 10 per cent level of significance.

6.3.3 What we have written above may also be corroborated in some way from the data summarised in Table 6.3. We may obtain

a measure of the total number of man-days of employment per

Table 6.3

Number of Days Employed in Sukhipur and Govindpur

Description	Number of days employed	
	Sukhipur	Govindpur
Mean of adults	181	186
Mean of adult males	246	228
Mean of adult females	98	135
S.D. of adults	102	87.74
S.D. of adult males	77.41	77.99
S.D. of adult females	59.21	70.25

year enjoyed by adults in the two samples, when we know that the number of adults employed in Sukhipur and Govindpur respectively is 162 and 170. The total number of adult man-days employed in Sukhipur and Govindpur are 29.322 and 31,620. We have already reported that immigrants settled in Govindpur coming from far off hills to work in Lahan a town panchayat being also the place of the office of the Coordinator of Sagarmata IRDP. But members of many poor families who are original settlers of Govindpur are also working in day time in Lahan. So there is indeed the possibility that the apparent additional employment of 2,302 man-days enjoyed by the adults of Govindpur may in fact be much less than the total of mandays enjoyed by the adults of Govindpur at the town of Lahan endowed with a great deal of benefits of

Sagarmata IDRP. In other words, but for the availability of work in Lahan the man-days of employment created in Govindpur is lower.

6.3.4 We have little hesitation to acknowledge that we experience here one of the difficulties we described in our section on the methodology of the study viz. that a comparison of the performance of a grass-root rural economy working under the benefits of IRDP with that of another is really hard to make if what we regard as control population is really hard to make if what we regard as control population is exposed to the benefit of a test being made elsewhere through this or other kind of project.

6.3.5 From actual experience of the daily journey of male and female workers from Sukhipur to Lahan, it stands rather credible to suggest that several thousands of mandays of employment were created at Lahan for the sample households of Govindpur. If we seek to compare the mean number of mandays of employment enjoyed by people within the limits of the borders of the villages concerned then the mean number of mandays of employment enjoyed by adults would be higher in Sukhipur than in Govindpur.

6.3.6 Since it is clear that both the Centre and the periphery here are exposed differently to the direct or indirect benefits of the Sagarmata IRDP, it would be worthwhile to compare the mean mandays of employment enjoyed by the adults of the Sukhipur sample

with the mean mandays of employment enjoyed by the adults of an Indian Tarai village when the latter was not exposed to the benefits of any organised project. The data of Indian Tarai relate to 1979-80. We have adjusted the table by making the

Table 6.4

Mandays Employed in a Tarai Village of West Bengal
[Adjusted by making the total number of persons 162]

No. of days employed	No. of persons
Upto 150	68
Above 150 (Upto 300)	94
Total	162

total the same as the number of adults having employment in the Sukhipur sample. The mean mandays of employment of adults computed from this table is found to be 162. The difference in the two means are statistically significant. So it is clear that the IRDP project has clearly enhanced the mean number of mandays of employment in Sukhipur. When we consider that we have estimated that 8 adults are immigrants into the Sukhipur sample, the mean number of mandays of employment enjoyed by adults might have been even higher, if immigrants did not share employment opportunities in the village. Similarly, investment activity in Lahan as a result of the implementation of IRDP in that town has enhanced the mean level of mandays of employment in Govindpur when we make a comparison with the base-line data of the Tarai village of West

Bengal. A decisive enhancement of employment has, therefore, occurred in the district economy of Siraha as a result of the work of Sagarmata IRDP.

6.4 DISGUISED UNEMPLOYMENT

6.4.0 We define, it may be recalled, the word 'employed' in such a way that one who finds work even for a day during the year preceding the date of survey is regarded as employed . Out of 97 male adults of Sukhipur, 2 persons are unable to accept work owing to age or sickness. Another four are full-time students. Hence the number of male adults available for work is 91. According to our definition, no one is unemployed. One is either with good employment or in bad employment.

6.4.1 In the preceding paragraphs we compared the incidence of good and bad employment. Here we seek to make use of a simple method to compare the incidence of disguised unemployment in the two samples. We have already explained the method earlier in this chapter as well as in earlier chapter. To repeat, we

Table 6.5

Disguised Unemployment of Adults
(With Unit of Full Employment as 300 Days)

Sample	Number of adults employed	Number of adults fully employed	Number of disguisedly unemployed
Sukhipur	162	98	64
Govindpur	170	105	65

Table 6.6

Disguised Unemployment of Adults
[With Unit of Full Employment as 250 Days]

Sample	Number of adults employed	Number of adults fully employed	Number of disguisedly unemployed
Sukhipur	162	117	45
Govindpur	170	126	44

Table 6.7

Disguised Unemployment of Adults
[With Unit of Full Employment as 200 Days]

Sample	Number of adults employed	Number of adults fully employed	Number of disguisedly unemployed
Sukhipur	162	147	15
Govindpur	170	158	12

Divide the total number of mandays of employment enjoyed by the number of persons in each category [We have in all three categories : adults, adult males, adult females] by the unit (or standard) of full employment in question. The quotient becomes the number of adults fully employed according to the unit of full employment in question. The remainder of the number of persons in the category is the number of disguisedly unemployed.

6.4.2 As in the case of the number of days of employment per adult in the two samples, the table 6.5 also shows that the employment position of adults is better in Govindpur. While 39.5 per cent of Sukhipur adults are disguisedly unemployed, the percentage for Govindpur is 38.2. The difference, however, is not statistically significant. The conclusion is valid for tables 6.6 and 6.7 also. At any rate we have pointed out in the preceding section that if we consider only employment found within the villages, employment position of adults would be better in Sukhipur.

Table 6.8

Disguised Unemployment of Adult Males

[With Unit of Full Employment as 300 Days]

Sample	Number of males employed	Number of males fully employed	Number of disguisedly unemployed
Sukhipur	91	75	16
Govindpur	94	69	25

6.4.3 From table 6.8 we can see that the percentage of disguisedly unemployed among the adult males is 17.5 per cent in Sukhipur and as 26.6 per cent in Govindpur. The difference in the incidence of disguisedly unemployed between the two samples is statistically significant. Thus viewed in the way we viewed through table 6.8. Sukhipur's employment opportunities for men improved as a result

of the benefits of the foreign-aided IRDP. Disguised unemployment has consequently reduced itself.

Table 6.9

Disguised Unemployment of Adult Males
[With Unit of Full Employment as 250 Days]

Sample	Number of Male adults employed	Number of male adults fully employed	Number of disguisedly unemployed
Sukhipur	91	89	2
Govindpur	94	86	8

Table 6.10

Disguised Unemployment of Adult Males
[With Unit of Full Employment as 200 Days]

Sample	Number of male adults employed	Number of male adults fully employed	Number of disguisedly unemployed
Sukhipur	91	91	-21
Govindpur	94	94	-11

6.4.4 With every change in our standard of full employment the difference in the incidence of disguisedly unemployed in the two samples remain statistically significant at the 5% level of significance. We see from table 6.10 that with 200 days as the standard of full employment there is surplus employment opportunities in both samples. But the incidence of surplus opportunities of employment for the male adults is higher in

Sukhipur than in Govindpur. The difference is highly statistically significant.

Table 6.11

Disguised Unemployment of Adult Females
[With Unit of Full Employment as 300 Days]

Sample	Number of adult females employed	Number of fully employed adult females	Number of disguisedly unemployed
Sukhipur	71	23	48
Govindpur	76	34	42

6.4.5 We find in table 6.11 that with standard of full employment as 300 days of employment in a year the percentage of the number of fully employed female adult labour force is 32 in Sukhipur female adult labour force is 32 in Sukhipur and 45 in Govindpur. Similarly the percentage of disguisedly unemployed in the female adult labour force is 68 in Sukhipur and 55 in Govindpur. Both these differences are statistically significant.

Table 6.12

Disguised Unemployment of Adult Females
[With Unit of Full Employment as 250 Days]

Sample	Number of adult females employed	Number of fully employed adult females	Number of disguisedly unemployed
Sukhipur	71	28	43
Govindpur	76	41	35

Table 6.13

Disguised Unemployment of Adult Females
[With Unit of Full Employment as 200 Days]

Sample	Number of adult females employed	Number of fully employed adult females	Number of disguisedly unemployed
Sukhipur	71	35	36
Govindpur	76	51	25

6.4.6 By changing the unit of full-employment to 250 days in a year the finding is that the percentage of adult female labour force fully employed is 39 in Sukhipur and 54 in Govindpur. The percentage of disguisedly unemployed in the adult female labour force is 61 in Sukhipur and 46 in Govindpur. These differences are statistically significant at 5% level of significance.

6.4.7 When unit of full employment of women is changed to 200 days of a year, the percentage of adult female labour force fully employed is 49 in Sukhipur and 67 in Govindpur. The percentage of disguisedly unemployed in the adult female labour force is 51 in Sukhipur and 33 in Govindpur. These differences are statistically significant at 5% level of significance.

6.4.8 On the basis of external evidence we already concluded in the previous section that a significant part of adult employment (covering both males and females) of Govindpur takes place

outside the village. Women mostly engaged in illegal felling and selling of trees, going upto Lahan, are also not fully employed even taking 200 days as the unit of full employment of a year. The fact remains the even the environment killing activity have not fully employed the adult female labour in the Govindpur village. The new spurt in tree felling arose because there is a new project of afforestation outside the Govindpur habitation under the IRDP in the district of Siraha in the Sagarmatha zone.

6.5 CONCLUSION ON GENERAL EMPLOYMENT

6.5.0 Since the people covered by our sample of Sukhipur were victims of high mortality as a result of the new problems of public sanitation that emerged from the newly created market complex, it is advisable to take both the samples together for the purpose estimating backwards the labour force of the two samples. The rate of natural growth of population for the last five years is calculated as 2 per cent per annum. We assume that the annual rate of increase of population for the last seven years has remained the same for these people. Using the formula $M=PR^n$ and 403 as M, 1.02 as R and 7 as n, we find P to be 337. There can again be little doubt that employment opportunities increased substantially as a result of the Sagarmatha IRDP being implemented in some measure.

6.5.1 The preceding discussions in this section give us a number of results. In the first place, a comparison of the test

population or the centre with the control population or the periphery shows that apparently the mean level of employment of adult males in Sukhipur is higher than that in Govindpur. Although this difference is not significant at 5 per cent level of significance, the difference is significant at 10 per cent level of significance (counting two tails). In the second place we have found that significantly more women and children sought employment in the sample of the periphery. This difference may be caused by the opening of work to unskilled female labourers. Finally both these places have attracted immigrants. The point about a difference in these immigrants of the two sample is at Govindpur which was selected as a periphery attracted poorer families from far-off hills, while the sample of the Centre attracted other kinds of immigrants.

6.5.2 Above all, we found in the course of analysis that in the district economy of Siraha it was not easy to find a settlement which was rather away from a Centre of Project Activity and at the same time not near any other Centre of activity. Govindpur was found reasonably away from Sukhipur, but it was within a walking distance, for labouring families, of Lahan a town panchayat and a great centre of activity and headquarter of Sagarmatha IRDP.

6.5.3 Resorting, therefore, to two base-line studies for comparison it was found that the Sagarmatha IRDP succeeded to expand employment opportunities decisively. At the same time a reduction in the span of life occurred in Sukhipur in the course

of the last few years as a result of the setting up of a new market complex without simultaneous arrangement for public sanitation. In fact, if the implementers of the project did not make the mistake we might have noticed an unprecedented upsurge of population as we noticed in a Centre of activity under the Rasua-Nuwakot IRDP in an earlier chapter.

6.6 IMPACT ON THE INTENSIVE USE OF LABOUR POWER

6.6.0 The tables 3-8 enable us to compare the intensity of the use of labour power in the Centre with that of the periphery. We leave out the children and the old for the purpose of this comparison. As in the preceding section we define adults as being those who are just more than 15 years but not beyond 65 years of age.

Table 6.14

Labour Use Index of Employed Adults in Sukhipur

Percentage of employed adults	Intensity of use (less than)
11	0.15
27	0.30
44	0.45
57	0.60
69	0.76
81	0.91
100	1.00

Table 6.15

Labour Use Index of Employed Adult Males in Sukhipur

Percentage of employed male adults	Intensity of use (less than)
1	0.15
6	0.30
14	0.45
25	0.60
45	0.76
67	0.91
100	1.00

Table 6.16

Labour Use Index of Employed Adult Females in Sukhipur

Percentage of employed adult females	Intensity of use (less than)
24	0.15
55	0.30
82	0.45
97	0.60
98.5	0.76
98.5	0.91
100	1.00

Table 6.17

Labour Use Index of Employed Adults in Govindpur

Percentage of employed adults	Intensity of use (less than)
Nil	0.15
26	0.30
40	0.45
53	0.60
71	0.76
88	0.91
100	1.00

Table 6.18

Labour Use Index of Adult Males in Govindpur

Percentage of employed adult meles	Intensity of use (less than)
Nil	0.15
10	0.30
19	0.45
31	0.60
57	0.76
79	0.91
200	1.00

Table 6.19

Labour Use Index of Adult Females in Govindpur

Percentage of employed adult females	Intensity of Use (less than)
Nil	0.15
46	0.30
66	0.45
79.5	0.60
90	0.76
99	0.91
100	1.00

Although we have found that apparently adults are on average more employed in Govindpur than in Sukhispur, on the basis of table 6.16 and table 6.19 we derive tables 6.20, 6.21 and 6.22. We then find that apparently Sukhipur's percentage of employed

Table 6.20

Percentage of Employed Adults Using More than 60 per cent of Labour power in Sukhipur and Govindpur.

Sample	Percentage of employed adults using more than 60 per cent of labour power
Sukhipur	43
Govindpur	47

Table 6.21

Percentage of Employed Adults Using More than 76 per cent of Labourpower

Sample	Percentage of employed adults using more than 76 per cent of labour power	
Sukhipur	31	50
Govindput	29	49

Table 6.22

Percentage of Employed Adults Using More than 91 Per Cent of Labour Power

Sample	Percentage of employed adults using more than 91 per cent of labour power	
Sukhipur	19	31
Govindpur	12	20

adults using more than 76 per cent of their labour power is greater than that of Govindpur. Similarly the percentage of employed adults using more than 91 per cent of their labour power is higher in Sukhipur than in Govindpur. Although the first of this differences is not statistically significant, the second of this differences is statistically significant at a significance. level higher than .05 level.

This relatively more intensive employment of labour power of the upper section of the population of Sukhipur sample is in some measure caused by the launching of the IRD project in

Sukhipur panchayat. It is not merely the availability of inputs like irrigation water, fertilizers and credit but also the setting up of the link road to Mahendra Raj Marg and of some marketing infrastructure that worked to expand the productivity and employment of this section of people.

To make a similar comparison in respect of employment of labour power of employed adult males between Sukhipur and Govindpur we derive tables 6.24 and 6.25.

Table 6.23

Percentage of Employed Adult Males Using More than 60 per cent of Labourpower

Sample	Percentage of adult males using more than 60 p.c. of labour power	
Sukhipur	75	68 / 91
Govindpur	69	65 / 94

Table 6.24

Percentage of Employed Adult Males Using More Than 76 Per Cent of Labourpower

Sample	Percentage of employed adult males using more than 76 per cent of labourpower	
Sukhipur	55	50 / 91
Govindpur	43	41 / 94

Table 6.25

Percentage of Employed Adult Males Using More Than 91 Per Cent of Labour Power

Sample	Percentage of adult males using more than 91 per cent of labour power	
Sukhipur	33	30 / 91
Govindpur	21	20 / 94

Although the difference in the percentage of employed adult males using more than 60 per cent of labourpower between Sukhipur and Govindpur is visible in table 6.22, this difference is not statistically significant. But the differences in the percentages shown in tables 2.24 and 2.25 are statistically significant. Thus it is possible to reach the general conclusion that the percentage of employed adult males using more than 76 per cent of labourpower is higher in Sukhipur than in Govindpur. This conclusion also applies to the percentage of employed adult males using more than 91 per cent of labourpower. Thus this finding reinforces what we said on the significant difference in the percentage of employed adults using more than 91 per cent of labour power between Sukhipur and Govindpur in a preceding paragraph. The higher average of mandays employed in Govindpur is mainly due to a large amount of mandays employed in Lahan of migrant labourers of a different ethnic group coming from far-off hills. The relatively higher outlay on credit and input markets and better marketing facilities ushered in in Sukhipur have caused

decisively more intensive employment of adult male producers and productive workers in Sukhipur. A good deal of employment enjoyed by Govindpur people actually took place outside Govindpur, namely, the panchayat town of Lahan which, as we have told before, is a scene of activity as a result of its being the headquarters of the whole of the Sagarmatha IRDP.

Tables 6.26, 6.27 and 6.28 enable us to make a comparison of the use of labour power by relatively more employed adult females of the two panchayats. We can see from table 6.26 that there is no apparent difference in the percentage, among the two

Table 6.26

Percentage of Employed Adult Females Using More Than 60 Per Cent of Labourpower

Sample	Percentage of employed adult females using more than 60 per cent	
Sukhipur	3	(2/71)
Govindpur	20	(15/76)

Table 6.27

Percentage of Employed Adult Females Using More Than 76 Per Cent of Labourpower

Sample	Percentage of employed adult female using more than 76 per cent	
Sukhipur	1.5	(1/71)
Govindpur	10.5	(8/76)

Table 6.28

Percentage of Employed Adult Females Using More Than 91 Per Cent of Labourpower

Sample	Percentage of employed adult Females Using More Than 91 Per Cent of Labourpower
Sukhipur	1.5
Govindpur	1.4

panchayats, of employed adult females using more than 91 per cent of their labourpower. But in tables 6.26 and 6.27 the apparent difference is quite good. The percentage in both cases is higher in the case of Govindpur. The differences in both cases are statistically significant. We have already known that Lahan being within walking distance from Govindpur poorer people from far-off hills have anchored themselves in Govindpur to do work at Lahan during daytime. An aspect of women of poorer families remains to be described. The female members of the poor migrant families are engaged in illegal collecting of wood from government forests and selling them in Lahan. The wood they collect from Lahan is of two varieties. One kind is firewood. The more important kind is the "Khayer" wood. The illegan trade in 'khayer' wood fetches for the poor women more money than does the firewood. All these activities of collecting and carrying both kinds of wood may in no way be regarded as an impact of the Sagarmatha IRDP. The work menfolk and some women of the poor families residing in Govindpur get in Lahan are connected with the project

work in the project capital of Lahan. But a good deal of the poor women residing in Govindpur are exposed to the illegal benefits of the proximity of government forests.

6.7 IMPACT ON AGRICULTURAL OUTPUT

We report now on the difference in output caused by the launching of the project. The results here are, however, more open to non-sampling errors than the data on the use of labour. The difference in table 6.29 in the mean output value is highly significant.

Table 6.29

Differences in Output (in Rs.)

Sample	Mean Output value	S.D.	No. of units
Sukhipur	11431	5452	37
Govindpur	5384	1945	40

6.8 IMPACT ON LITERACY

We have seen in the preceding section that the difference in the mean agricultural output in the two samples are significant. It is, therefore, interesting to know whether a secondary consequence of this increase in income is manifest in terms of increase in the incidence of education or literacy. As

Table 6.30

Persons with Six Years or More of Education in the Age-Group 11-15

Sample	Number of persons in the Age-Group 11-15	Number of persons with six year or more of education
Sukhipur	25	8
Govindpur	34	8

Table 6.31

Persons with One Year or More of Education in the Age-Group 6-15

Sample	Number of persons in the age-group 6-15	Number of persons with one year or more of education
Sukhipur	69	35
Govindpur	88	36

in the case of other pairs of villages we have compared, we cannot expect that the difference in the number of persons with six years or more of education in the age-group 11-15 is significant. Thus on the basis of the data presented in table 6.30 the difference in the number of persons with six years or more of education in the age-group 11-15 is not statistically significant.

Table 6.32

Literacy (definition No.1) by Age and Sex

Sukhipur

Age Group	Male			Female			Total		
	Literate	Illiterate	Total	Literate	Illiterate	Total	Literate	Illiterate	Total
6-15	24	16	40	11	18	29	35	34	69
15-35	34	30	64	7	48	55	41	78	119
35-65	12	21	33	4	19	23	16	40	56
Above 65	-	4	4	-	2	2	-	6	6
	70	71	141	22	87	109	92	158	250

Table 6.33

Literacy (Definition No.1) Govindpur

Age Group	Male			Female			Total		
	Literate	Illiterate	Total	Literate	Illiterate	Total	Literate	Illiterate	Total
6-15	20	14	34	16	38	54	36	52	88
15-35	50	22	72	10	61	71	60	83	183
35-65	21	15	36	2	27	29	23	42	65
Above 65	2	1	3	1	1	2	3	2	5
	93	52	145	29	127	156	122	179	301

Table 6.34

Literacy (definition No.2) by Age and Sex (Sukhipur)

Age Group	Male			Female			Total		
	Literate	Illiterate	Total	Literate	Illiterate	Total	Literate	Illiterate	Total
11-15	5	10	15	3	7	10	8	17	25
15-35	26	38	64	-	55	55	26	93	119
35-65	2	31	33	-	23	23	2	54	56
Above 65	-	4	4	-	2	2	-	6	6
	33	83	116	3	87	90	36	170	206

Table 6.35

Literacy (Definition No.2) (Govindpur)

Age Group	Male			Female			Total		
	Literate	Illiterate	Total	Literate	Illiterate	Total	Literate	Illiterate	Total
11-15	4	12	16	4	14	18	8	26	34
15-35	45	27	72	7	64	71	52	91	143
35-65	11	25	36	2	27	29	13	52	65
Above 65	1	2	3	-	2	2	1	4	5
	61	66	127	13	107	120	74	173	247

6.8.1 On viewing the data of table 6.31 we may easily find that 50.7 per cent of the people in the age-group 6-15 in Sukhipur sample have had one year or more of education. The corresponding figure for the Govindpur sample is 40.9 per cent. The difference is significant at 6.4 per cent (two-tailed test) level of significance. The data, therefore, lend some support of to the hypothesis that in the last few years some growth of income in the centre has induced more people to send children to schools.

6.8.2 Nevertheless the fact remains that 40.9 per cent of literacy, according to the definition that person is with one year or more of education, is not a low figure. Besides the null hypothesis has not been rejected at the conventional level of significance. So the indirect evidence surges up to suggest that perhaps there has taken place in Govindpur, the periphery simultaneously some growth in income. We have already indicated that some people of the Govindpur village sought work, while staying in Govindpur, in Lahan the district headquarter of IRDP in the forest complex near Govindpur and in collecting sand and stones in the riverbeds near the village. But another point of importance is, although no IRDP agencies have been set up in the panchayat to which the Govindpur village belongs, that the farmers of Govindpur received during the year preceding the period of survey benefits of inputs at subsidised prices from Sajha and loans from Sajha and the Agricultural Development Bank. We have the evidence that the farmers of Sukhipur have

mostly bought good quality seeds and chemical fertilisers from both Lahan and India. The road link from Sukhipur to India is quite good. Govindpur's exposure to better seeds and fertilisers is just a little more recent than Sukhipurs. Sukhipur's motivation to make use of these items of reproducible capital is stronger than Govindpur's. It now appears that non-sampling errors that entered into the returns on output made by farms are more in Govindpur than in Sukhipur. Thus in table 6.29 there might be more non-sampling errors in mean output of Govindpur. In chapter 5 non-sampling errors have been smaller both in the centre and in the periphery. The basic tables of literacy of the two samples also are being presented.

6.9 INPUTS ON FARMS

6.9.0 As in the other chapters, we present the data of inputs used on the farms of the centre and the periphery in table 6.36 and 6.37. We have already made some comments on the use of inputs in the section on impact on literacy. What we have to add here is that Sukhipur uses more of fixed capital, seeds and organic manure. All farmers of Sukhipur also get the benefits of free tubewells given to them about two years from the date of survey. For this reason the reproducible capital used on the farms in Sukhipur is still higher than the figures on table 6.36 show. Much of irrigation has been free. Cost on disel for irrigation has been recorded as an item.

The table cannot give the whole picture of irrigation

costs simply because farmers have been unable to give the returns. However it seems clear to us that level of irrigation has been much higher in Sukhipur than in Govindpur. So mainly because of good groundwater irrigation, better fixed capital, seeds and organic manures Sukhipur has a level of agricultural production much higher than Govindpur.

6.9.1 We must stress again on the basis of what we write in the preceding paragraph a great deal of fixed capital used for irrigation like tube-wells and pumps unfortunately were not included in the costs of fixed capital as farmers elaborated the items of fixed capital they kept in their farm houses. A revisit to the fields for inclusion of such items after the analysis of the data was not found to be feasible.

6.9.2 The village Govindpur has been a later beneficiary of the IRDP activities undertaken through various government agencies like the SAJHA and the Agricultural Development bank. For the reference period of the various accounts we took from households, Govindpur which was taken for study only as a village away from Sukhipur the centre of activities received formally loans from Sajha and the Agricultural development bank. An account of received and subsidised purchases made from official agencies is available in table 6.38 and 6.39. But despite the sameness, the point about Sukhipur is that it has been receiving these benefits from the beginning. It received large amounts of capital assistance for such capital goods as tube-wells, pumps attached

Table 6.36

Cost and Agricultural Output Sukhipur

Farm Size in (Nepali Bigha)	Number of Farms	Amount of Land (Nepali Bigha)	Output per (Nepali Bigha) Rs.	Cost per Bigha on (Nepalese Rs.)									
				Depreciation	Hired Plough days	Fixed capital	Seeds	Diesel for irrigation	Organic manure	Chemical fertilizers	Insecticides	Mandays Home	Mandays Hired
Upto .50	4	1.25	9012	174	104	278	240	-	120	128	-	960	-
.50-1.00	9	8.01	8627	177	312	539	176	81	323	153	-	1386	713
1.00-1.50	7	9.81	8390	297	153	450	223	41	815	151	-	1250	663
1.50-3.50	11	27.13	9170	220	14	234	184	122	571	95	-	812	741
3.50-7.50	5	22.80	8931	270	164	434	290	18	828	171	-	397	592
7.50 +	1	14.00	7748	145	-	145	143	107	500	214	-	184	429
	37	82.80	9381	261	98	359	202	76	875	162	-	707	687

Table 6.37

Cost and Agricultural Output Govindpur

Farm Size in(Nepali Bigha)	Number of Farms	Amount of Land (Nepali Bigha)	Output per (Nepali Bigha) Rs.	Cost per Bigha on (Nepalese Rs.)								Mandays	
				Depre-cia-tion	Hired Plough days	Fixed capital	Seeds	Diesel for irri-gation	Orga-nic manu-re	Chemi-cal ferti-lizers	Insec-tici-des	Home	Hired
Upto .50	4	1.50	6628	131	280	411	120	-	60	108	-	1433	67
.50-1.00	5	4.02	5803	112	239	351	144	-	147	61	-	1444	388
1.00-1.50	3	3.85	5568	151	-	151	200	156	44	34	-	688	827
1.50-3.50	16	40.68	5144	90	34	124	188	57	131	132	1	849	603
3.50-7.50	9	44.56	7473	125	30	155	144	65	151	146	3	689	804
.750+	3	46.07	5833	81	-	81	178	39	89	288	-	261	1688
	40	140.68	6151	101	29	130	135	54	121	163	1	625	1016

to tubewells, tractors, in the years preceding the reference year. This higher investment on the farms induced them to obtain quality current inputs like seeds and organic manure from the neighbouring market towns within Indian borders. Thus in respect of technology Sukhipur is decidedly superior to Govindpur. This high technology of Sukhipur ushered in by IRDP still reduces Govindpur to the status of a periphery.

Table 6.38

Receipt of Loans From SAJHA and Agricultural Development Bank in Sukhipur & Govindpur

Lender	Amount of loans	Number of families
SAJHA	30105	14
Agricultural Development Bank	143000	19

Table 6.39

Subsidised Purchases of Inputs from Sajha in Sukhipur & Govindpur

Inputs purchased	Number of families who purchased	Value of purchases
Seeds	7	2691
Inorganic fertilisers	52	32213
Insecticides	1	21

6.9.3 It might seem that relatively greater use of machines explains relatively lower use of labour per Nepali bigha on an average farm in Sukhipur. Thus on average a Sukhipur farm uses 1394 days of labour per Nepali bigha, while on average Govindpur farms use 247 more mandays per Nepali bigha. As Govindpur farms use on average 329 more hired mandays per Nepali bigha they use 82 home mandays less per bigha than the Sukhipur farms. But this appears from a calculation on average. The basic point on the average plane is that the size of farm is higher in Govindpur than in Sukhipur. The average size of farm is 2.24 Nepali bigha in Sukhipur and 3.52 Nepali Bigha in Govindpur. The difference in average farm size between these two villages is 1.28 Nepali bigha. This is equivalent to 2.15 acres. The large farms are concentrated in the highest two farm sizes of Govindpur. These two groups account for more use of labour and of hired labour. On the whole barring the lowest group all the farms groups upto the size group 1.50 to 3.50 use more labour in Sukhipur than in Govindpur. There is a possibility, therefore, that some increased use of inputs have increased use of labour on these size groups of farms or inspite of some mechanisation on them they have resorted to raising of crops in seasons where they previously did not use their lands. At the same time some traclorisation on the higher size farms in Sukhipur may have reduced the employment of labour. We thus tend towards the view that this initial loss of employment has not been sought to be compensated for through more use of seasonally unused land in other seasons. That is to say, the question of using all cultivable lands throughout the year is to be attempted through

intensive and meticulous planning at the grass-roots.

6.10 INTENSITY OF USE OF LAND

6.10.0 An evidence has been found in the preceding paragraph that great use has not been made of seasonally unused land for other crops or that most lands have not been used throughout the year for productive purposes. We explain the two measures

Table 6.40

Measurement of the Intensity of Use of Land

Type of intensity of use of land	Sukhipur	Govindpur
Definition 1	1.87	1.65
Definition 2	0.53	0.47

of the intensity of land in previous chapters. On the whole Sukhipur has resorted to more intensive use of land. In Sukhipur again greater intensity is found in general in the lower size farms. But although there has not been any remarkable increase in the intensity of use of land, the IRDP has thrown out remarkable portents for the future. Apart from the planning of the input and output markets as well of the various infrastructures, the attitudes of the farmers need to be overcome through constant refreshing by expert agriculturists.

6.10.1 Although some idea is available about the influence of education on agricultural output in table 6.41, regular training by mobile band of experts and simultaneous planning of the gross-root rural area economics are imperative for the continuous rise of the productive efficiency of agriculture. Yet education has helped, as can be seen from table 6.41, better use being made of IRDP benefits including the setting provided.

Table 6.41

Influence of Education on Agricultural Output

Education in years	Output (in Nepali Rs.) per bigha (Nepali)	
	Sukhipur	Govindpur
Upto 5	8,740	6,019
Above 5	10,069	6,250

Table 6.42

Average Farm Size of Education Groups of Farms

Education in years	Average farm size in Bigha (Nepali)	
	Sukhipur	Govindpur
Upto 5	1.70	2.36
Above 5	5.00	5.07

YYY

6.11 IMPACT ON INCOME

6.11.0 Of the two income distributions obtained from the two samples of Sukhipur and Govindpur, the average income of Sukhipur is higher than in Govindpur. At the same time the dispersion in the distribution also is higher. The difference in income between the two samples is significant, at 6 per cent level of significance.

Table 6.43

Per Capita Annual Income in Two Samples

Sample	Number of households	Per capita annual income in the household	
		Arithmetic mean	Standard deviation
Sukhipur	48	3354	2300
Govindpur	50	2580	1765

6.11.1 Although the control population of the Govindpur sample has been exposed to the benefits given by Sajha and the Agricultural development bank during the reference year, the people of the Sukhipur sample, as we indicated before, received more benefits during the last few years. These relative higher benefits have contributed to the relative high income in Sukhipur. There is, therefore, hardly any doubt that the Sagarmatha IRDP activities have helped people of Sukhipur to raise their incomes.

6.11.2 As in the case of Kalyanpur, we saw in the last chapter, we see here also that an increase in inequality resulting from increase in income is truly accompanied by a fall in the number of people living in absolute poverty. So clearly there has

Table 6.44

Absolute Poverty in the Two Samples

Per Capita annual income in the household (Rs.)	Households			
	Sukhipur		Govindpur	
	Number	P.C.	Number	P.C.
Below 1,000	-	-	5	10
1000-3000	15	31.25	20	40

Table 6.45

Income Among Occupations in Two Samples

Occupations	Percentage share of village income	
	Sukhipur	Govindpur
Farming	66.9	65.4
Agricultural labour	8.8	13.9
Non-agricultural labour	3.2	9.2
Salary earners	2.7	5.8
Business	18.5	5.7
Total	100.0	100.0

Table 6.46

Occupationwise Annual Income per Earner

Occupations	Income per earner	
	Sukhipur	Gobindapur
Farming	4734	3903
Agricultural labour	1739	1777
Non-Agricultural labour	2192	2638
Salaryearners	4583	4800
Business	21,167	7833
Total	4356	3331

been a decisive decline in absolute poverty. Since the village in the periphery received some benefits, though the accumulated benefits are relatively more marked in the centre the decline in absolute poverty might have been still more impressive if we succeeded to find a periphery village that received no benefits whatsoever from the IRDP activities. Precisely for the same reason the ratio of income of the poorest man to the income of the richest man is not as low in Sukhipur, compared to Govindpur, as it might have been if the periphery village again did not receive any corresponding benefits whatsoever from IRDP or any alternative project activities. So as in Kalyanpur so in Sukhipur the relative poverty of poor in fact increased while the absolute poverty declined.

6.11.3 A careful interpretation is warranted in respect of tables 6.45 and 6.46. Labourers and service holders have done better in Govindpur the periphery than in Sukhipur. Some of the reasons have been elaborated in previous sections. But the data in these tables clearly reveal that agriculture and agriculture based business have been the main sources of rise in incomes in the centre, namely, in Sukhipur.

6.12 CONCLUSION ON SUKHIPUR

6.12.0 Of the five centres we have studied Sukhipur is one of the two for which it has not been possible for us to select a periphery village which is not exposed in any way to the benefits of the same IRDP or any other projects. As Sukhipur received the benefits of the Sagarmatha IRDP in a concentrated form compared to Govindpur we have found decisively that male adults are fully employed in Sukhipur than in Govindpur. We also find that agricultural output has surged up through more use of inputs as well as some more intensive use of land. We also notice that not only agricultural incomes have risen, but also incomes earned from business in agricultural commodities also expanded. We stress that such decisive increase in agricultural output could occur in such a short time only as a result of exploitation of ground-water for irrigation by diesel pumps.