

Chapter 3

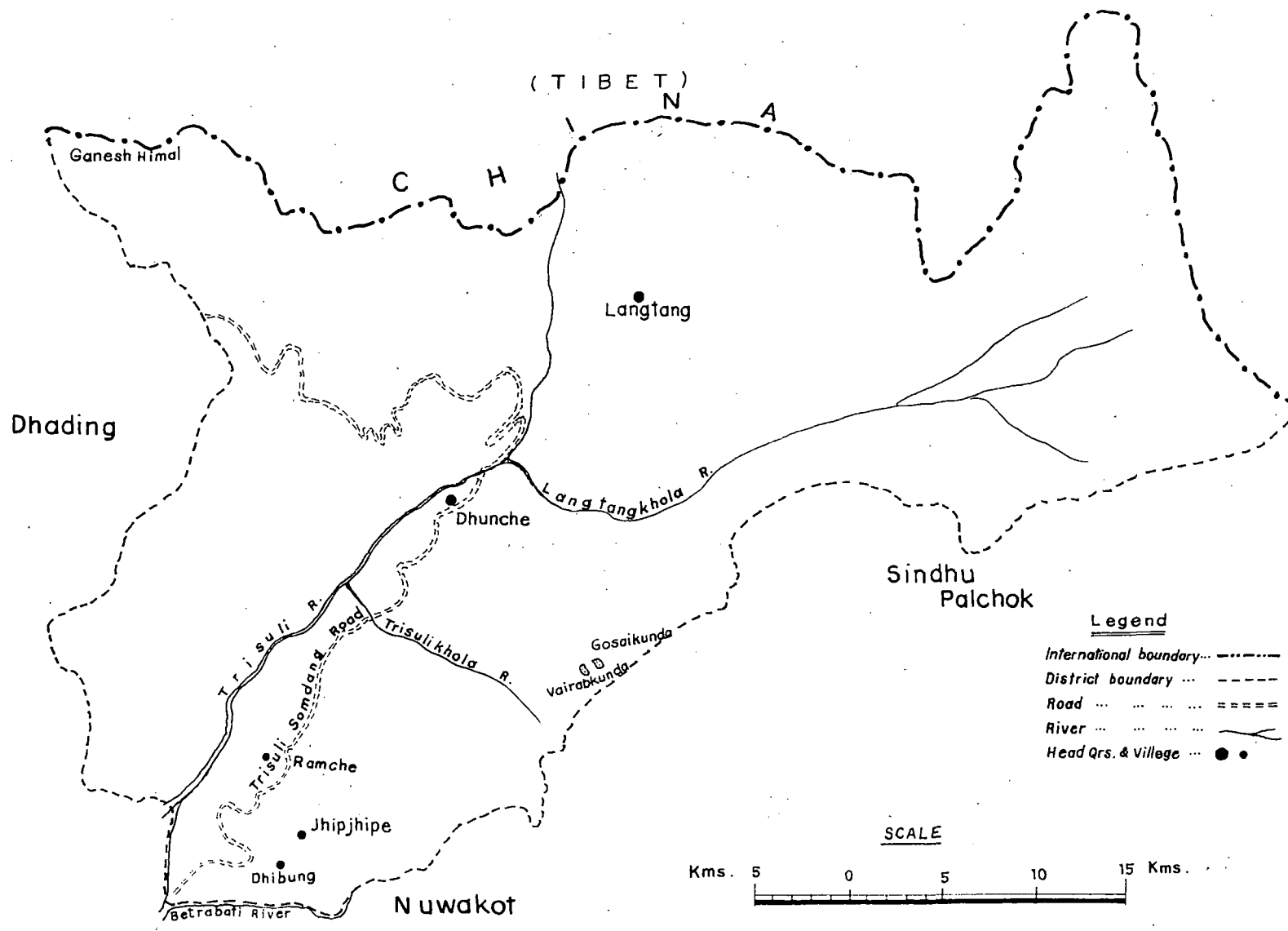
IMPACT ON THE HIGH HILLS OF RASUWA

3.0 INTRODUCTION

3.0.0 Rasuwa district comes under the mountainous region of Nepal. Its elevation rises from 905 metres to 7408 metres. The district area of 1544 sq.km. extends to the extreme north touching the Tibetan border. In the east it meets Sindhupalchok, in the west Dhading and in the south Nuwakot. Rasuwa is located between the latitude $27^{\circ}2'$ and $27^{\circ}23'$ North and between longitude $85^{\circ}1'$ and $85^{\circ}45'$ East. The climate is subtropical, temperate and alpine. The maximum average temperature is 22.6°c and minimum temperature is 11.5°c . And the average annual rainfall is 994.3 ml.

3.0.1 Much of the district's land is rugged and steep, broken with small valleys here and there. Nevertheless, paddy, wheat, millet and potato stand as the major crops of these areas. But farming is supported substantially by animal husbandry. The major rivers that drain this district are Bhote Koshi, Chillime, Trisule and Kintang. The district attracts tourists, trackers and pilgrims to places as Ganesh himal, Langtang himal, Gosai Kunda and Surya Kunda. The Langtang National Park with an area covering 1709.40 hec. is a wild life Sanctuary of rare animals such as Panda, Himalayan Deer, Snow Bear etc. and is also the Centre of attraction for the tourists. The district has only one motorable road of 114 k.m. running from Trisule to Dhunche known as the Trisule-Somdang road. Dhunche is the headquarter of the district.

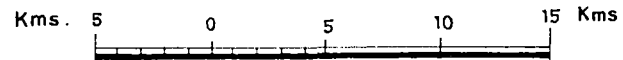
RASUWA DISTRICT



Legend

- International boundary ... - . - . - .
- District boundary ... - - - - -
- Road ... = = = = =
- River ... ~ ~ ~ ~ ~
- Head Qrs. & Villego ... ● ●

SCALE



3.1 DESIGN OF SAMPLING

3.1.0 Our method is to select a sample from the central village of a village panchayat which receives the benefits of IRDP. Thus we select the Dhaibung village. The people of the village is our test population. The Dhaibung village had 88 households at the time of our survey. In selecting our sample households we took a random spot in the centre of the village and surveyed 33 households around this spot. This made up 38 per cent of the parent population of 88 households. So as in the case of Chaughada we can say that when the sample constitutes such a great percentage of the parent population any possible objection of the sampling is ruled out.

3.1.1 The control population or the periphery is the Ranche village which is the central village of the four villages that make up the Ranche panchayat. We may add that in Rasuwa district it was difficult to find any village that was totally devoid of any benefits of R/N IRDP. All the 18 village panchayats received in one way or the other some benefit of this IRDP. We have already discussed the difficulty of getting a true control population i.e. a population with all the setting minus the benefits received. So we mention at the outset that the Ranche village did enjoy some benefits of IRDP investment. But what we stress is that the amount of benefits received by the people of Ranche village is decidedly smaller than that received in Dhaibung village. In selecting the sample of households we applied the same technique as for Dhaibung

village. Here there was 60 households at the time of our survey. So we took in the centre of the village a random spot and surveyed 33 households around this spot. This sample then represents 55 per cent of the total number of households. Here again the sample constitutes a high percentage of the parent population and is therefore free from limitations in sampling.

3.1.2 The village is on the side of mountain at the bottom of which the river ^{Betradak} Behawati flows. Its elevation is 1524 m. While Ramche lies on a high span overlooking Trisule valley, the height of the village is 1790 m. The demarcation between the two villages is the Trisule-Dhunchhe-Somdang road. ^{This road} / extends further upto Ganesh Himal where recently lead and zinc factory with private Indian collaboration has commenced. At the time of our survey there was only one minibus providing service to the daily commuters. The approximate distance of Dhaibung from the road to centre point of the village is 7 k.m. And of Ramche it is about 4 k.m. In Dhaibung the path from this road up ^{to} the village is fairly good. But there is no such path in Ramche village. If one goes from the nearest bus stoppage in Kalikasthan to the place of settlement of Ramche village, it takes about 4 to 5 hours journey. The path is dangerous in many places, because it is totally wiped out by erosion. In such cases persons not used to these parts, have to crawl to avoid falling down from ridges.

3.2 NATURE OF BENEFITS GIVEN

3.2.0 We have mentioned earlier in the preceeding section that the R/N IRDP has invested in both the village panchayats. But there was no records kept by the concerning panchayats, about the detailed investments of the project. However the District Panchayat office located in Dhunche, had supplied a list of the areas and the total amount spent, upto the period of our survey (1985). Accordingly in Dhaibung an amount of N Rs.529550, was invested in areas as (1) drinking water, (2) irrigation (3) road making (4) Panchayat maintenance and (5) Health Post Construction. But we find that this total amount did not include the establishment of the veterinary hospital, and educational investment. Further the amount of subsidised benefits flowing from the IRDP via the Agricultural bank, Agricultural Input Corporation (situated in the district headquarters of Rasuwa and Nuwakot) and Sajha (situated in the neighbouring Bhorlay panchayat) ^{were} ~~was~~ not recorded. According to the village panchayat Cottage Industry Emporium of Nuwakot came to the village with a mobile band of trainers and gave training in the making of woolen and cotton garments and rugs. This training was funded by the IRDP. So as a whole Dhaibung has had a good share of the project investment.

3.2.1 On the other hand the Ranche Panchayat presents a different picture. Here also the village panchayat had no records of the IRDP investments. The district panchayat says that the total amount spent was N Rs.1095245 until the time of our survey.

This amount, (higher than Dhaibung) was ~~expected~~ to be spent on only three items as drinking water, 6 wooden bridges and panchayat building (including a Guest House and meeting hall). But only drinking water work was reported as complete. Other items of work remained incomplete. So it appears that there was a big gap in allocation of money and completion of the respective works. Even the tap water facility that was complete and that was to benefit 75 households was not functioning well. Some taps were seen totally defunct. However, the district panchayat made a mistake in not mentioning the item of irrigation. This irrigation was carried through diversion of water from a mountain stream. Despite the high amount recorded in the district panchayat, the actual benefits received here are smaller than in Dhaibung.

3.3 IMPACT ON GENERAL INDICATORS

3.3.0 The average family size between the centre and its ^{A Periphery} counterpart does not differ significantly. They are 6.52 and 6.54 ⁱⁿ Dhaibung and Ramche respectively. Similarly the average number of couples also does not vary. Dhaibung has 1.76 and Ramche has 1.73 average number of couples.

3.3.1 There are two bigamous males in Dhaibung and one in Ramche. The Dhaibung village is inhabited by Brahmins, Chhetries and Tamangs; more or less in equal numbers. But in Ramche Tamangs ^{te/} predominant. In Ramche ^{everyone in the sample} all ~~33~~ samples belong to the Tamang caste.

Hence caste factor does not have any influence in restricting males to be bigamous. Among the three bigamous males, two are Tamangs and one is a Brahmin. The Brahmin farmer of Dhaibung is a literate man, his age is 57 and that of his wives are 50 and 36. He has daughters as well as sons. His land holding is 3.82 bighas, which is considered high, in these mountain regions. The other bigamous male of Dhaibung is a Tamang. His age is 60 and the age of his two wives is 55 and 50. He is an illiterate farmer, with 0.60 bigha land holdings. He has only two daughters. The Ramche bigamous male is no doubt a Tamang. He is illiterate. His age is 33 and the age of the wives are 30 and 26. He has 2 sons and one daughter. He is owner of 3.00 bighas of land. He also does petty business of domestic animals. Thus ~~a strong case for marrying two wives is~~ the economic status of a male rather than caste status, ^{determines the bigamy of a male.} ~~So perhaps the investments of IRDP may have increased some income in these villages for males to support two wives.~~

3.3.2 In the age group of 15 to 35 the number of males in Dhaibung is 38 and in Ramche it is 40. The number of unmarried males is 20 and 16 in Dhaibung and Ramche respectively. The proportion of bachelors is 0.53 in Dhaibung and 0.40 in Ramche. In the same age group the number of females is 28 and 39 in Dhaibung and Ramche respectively, while the proportion of unmarried female is 0.20 in Dhaibung and 0.35 in Ramche. Summarising this tabulation we have tables 3.1 and 3.2. For computing the number of

females in the age group 15-35, we take the sex ratio in the age group 0-15; and ^{we apply the same} ~~make it equivalent to males of the same~~ age group. ¹⁵⁻³⁵ We apply this method since some married females of the concerned villages may have come from other villages. We then get the proportion of unmarried girls.

Table 3.1

Proportion of Unmarried Boys in the Age Group 15-35

Sample	Total no. of boys	No. of unmarried boys	Proportion of unmarried boys
Dhaibung	38	20	.53
Ranche	40	16	.40

Table 3.2

Proportion of Unmarried Girls in the Age Group 15-35

Sample	Total no. of girls	No. of unmarried girls	Proportion of unmarried girls
Dhaibung	40	8	.20
Ranche	31	11	.35

3.3.3 We can note two distinctive characteristics from these tables. One is the proportion of differences of bachelors which is higher in the test population of Dhaibung compared with the control population of Ranche. Secondly, the differences

between unmarried girls and unmarried boys within their respective population is also high. The difference in proportion of unmarried girls between Dhaibung and Ramche is also significant.

3.3.4 In the period of 5 years the recorded number of births in Dhaibung is 33 and deaths is 12. In the same period the number of births in Ramche is 42 and deaths 10. Computing per annum the number of births per thousand in Dhaibung comes upto 30.7. And deaths per thousand is 11.2. Computing similarly the birth rate per thousand in Ramche is 38.9 and death rate is 9.3. There is difference in the birth rate between the two villages. But no significant difference exists in the death rate.

3.3.5 The tabulation of births in Dhaibung show no excess population in the age group upto 5 years. Hence immigration in these villages from outside has not taken place.

3.3.6 The rough measurement of net increase of population shows a significant difference between the two villages. The variance of death and birth of Dhaibung is 11 and of Ramche 32. Taking the duration of 5 years, the annual increase of population then becomes 1.08 and 2.96 of Dhaibung and Ramche respectively.

3.3.7 The health post established in Dhaibung by the aid of IRDP has provided some facilities to control birth and death rate

in Dhaibung village. But has not been able to provide sufficient facilities to Ramche.

3.4 IMPACT ON EMPLOYMENT

3.4.0 Our definition of good employment, meaning employment of more than 150 days and bad employment for less than 150 days helps us to analyse employment situation in these villages. For our analysis we concentrate here the adults in the age group 15-65. When we consider the total number of employed adults, we find that the periphery is better off than the centre. That perhaps, more employment opportunities existed in Ramche than in Dhaibung. But actually reverse is the case when we apply our definition of good and bad employment. The total number of employed adults is 111 and 121 in Dhaibung and Ramche respectively. Adult male employment is 61 and female 50 in Dhaibung, while in Ramche employment is 61 and 60 male and female respectively. The succeeding tables show the proportion of good and bad employment in the three categories, namely, adults, adult males and adult females.

Table 3.3

Good Employment of Adult

Sample	Percentage of adults in Good Employment
Dhaibung	69
Ramche	64

Table 3.4
Good Employment of Adult Male

Samples	Percentage of Male in Good Employment
Dhaibung	82
Ranche	72

The rate of good employment for adults is 69 and 64 in Dhaibung and Ranche respectively. The difference is not significant.

Table 3.5
Good Employment of Adult Females

Sample	Percentage of Females in good Employment
Dhaibung	54
Ranche	57

The adult male percentage of good employment is higher in Dhaibung compared to Ranche. This difference is ^{not} statistically significant. While the adult female percentage is higher in Ranche than Dhaibung but this difference is ^{also} not significant.

3.4.1 Considering the gainful engagement of children in the age group of 5 to 15, the employed children is higher in Ranche than in Dhaibung. The proportion being .66 and .79 in Dhaibung

and Ramche respectively. In these mountain regions cultivable land is scarce, animal husbandry is a major supplement to family income. Hence one finds small children more engaged in looking after domestic herds. The higher proportion of children engaged in Ramche is thus due to less participation of children in education and more in employment.

3.4.2 We have seen that the percentage of adult males good employment is higher in Dhaibung than in Ramche as can be seen from table 3.4. To see if this difference is statistically significant we make a significance test. Here we can treat the number of adult males with good employment as a binomial variable and the hypothesis to be tested is

$$\text{Under } H_0 : P = .72$$

$$np = .72 \times 61$$

$$= 43.92$$

$$npq = 43.92 \times .28 = 12.30$$

$$npq = 3.51$$

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

$$x - 2 = 43.92 - 7.02 = 36.90$$

$$x + 2 = 43.92 + 7.02 = 50.94$$

The difference in the percentage of male adults in good employment is not statistically significant as the number of adults in good employment in Dhaibung falls between, and not outside, these limits.

3.4.3 These^{2/} analysis is substantially supported by the summarised table 3.6 below.

Table 3.6
Number of Days Employed

Description	Samples	
	Dhaibung	Ranche
Adult Mean	197	180
Male Mean	221	191
Female Mean	168	168
Adult S.D.	79.32	64.28
Male S.D.	74.27	65.11
Female S.D.	75.59	61.12

3.4.4 The number of adult males in Dhaibung is 62. Only one adult male abstains himself from the labour force. He is a full time student. So the adult male labour force is fully engaged for one day or more in Dhaibung. In Ranche, the adult male labour force is 61, all of these males are employed. Our definition of employment finds cent per cent employment of adult males in both villages.

3.5 IMPACT ON DISGUISED^{LY/} UNEMPLOYED

3.5.0 Although there is full employment^{1 (just definitionally)} of all adult males we find a noticeable difference in under employment. In a village

economy it may be an unusual case for a person to restrain from gainful employment even for a day. Hence with the help of our definition of good and bad employment we may be able to locate the extent of underemployment in the two villages. These persons can also be termed as ~~functionless or surplus~~ labour force.

3.5.1 The employed adults in Dhaibung is 111. And the total number of mandays enjoyed by them is 21867. When we consider that at least each adult should be employed for 300 days in a year, then we find 38 adults are in fact underemployed. If we lower this measurement to 250 days the ^{disguisedly unemployed} surplus labour adults will be 24. When we take the full employment yardstick as 200 days, only 2 adults ^{disguisedly} remain unemployed.

3.5.2 In the similar way we find the underemployed of Ranche village. For the measurement of 300 days the underemployed adults stand as 43. The lower unit of measurement of 250 days finds ^{underemployed} surplus adults as 34. Finally in the measurement of 200 days the underemployed adult comes to 12.

3.5.3 We then consider the employed adult males and adult females with the three level of full employment yardstick. In Dhaibung for 300 days of full employment the disguised employment is 16 male adults. For the measurement of 259 days the unemployed males came to 7 only. And for 200 days 6 extra adult male can be employed in order to have full-employment.

3.5.4 In Ramche with 300 days of measurement 22 adult males are underemployed. With 250 days as unit of full-employment the number lowers to 14. But if 200 days are taken as measurement then only 3 male adults remain outside the benefit of ^{full} employment.

Table 3.7
by
Disguised/Unemployed of Adults
(with unit full employment as 300 days)

Sample	Number of employed adults	Number of disguised unemployed
Dhaibung	111	38
Ramche	121	43

Table 3.8
by
Disguised/Unemployed of Adults
(with unit full employment as 250 days)

Sample	Number of employed adults	Number of disguised unemployed
Dhaibung	111	24
Ramche	121	34

Table 3.9
by
Disguised Unemployed of Adults
(with unit full employment as 200 days)

Sample	Number of employed Adults	Number of disguised unemployed
Dhaibung	111	2
Ranche	121	12

Table 3.10
by
Disguised Unemployed of Adult Males
(with unit full employment as 300 days)

Sample	Number of employed Males	Number of disguised unemployed
Dhaibung	61	16
Ranche	61	22

Table 3.11
by
Disguised Unemployed of Adult Males
(with full employment as 250 days)

Sample	Number of employed adult Males	Number of disguised unemployed
Dhaibung	61	7
Ranche	61	14

Table 3.12
Disguised/Unemployed of Adult Males
(with unit full employment as 200 days)

Sample	Number of employed Males	Number of disguised unemployed
Dhaibung	61	6
Ranche	61	3

The three tables 3.7, 3.8, 3.9 reflect that the disguised unemployed is high in Ranche compared to Dhaibung. The table 3.10 shows that although in both villages the number of employed male adults is equal, Dhaibung enjoys more gainful employment than Ranche. Since the unemployed in Dhaibung is 16 and 22 in Ranche. The difference is statistically significant. In the measure of 250 days, the difference of unemployed does exist between the two. But it is low. For 200 days 6 more males are employed in Dhaibung, while 3 remain unemployed in Ranche.

Table 3.13
Disguised/Unemployed of Adult Females
(with unit of full employment as 300 days)

Sample	Number of adult Females employed	Number of disguised unemployed
Dhaibung	50	22
Ranche	61	27

Table 3.14

Disguised ^{by} unemployed of adult females
(with unit of full employment as 250 days)

Sample	Number of adult females employed	Number of disguised unemployed
Dhaibung	50	8 16
Ranche	61	12 20

Table 3.15

Disguised ^{by} unemployed of Adult females
(with unit of full employment as 200 days)

Sample	Number of adult females employed	Number of disguised unemployed
Dhaibung	50	8
Ranche	61	12 10

Considering the disguised unemployment among the adult females in the three unit of measurement, the difference is not significant. Although the unemployed females is higher in Ranche than Dhaibung.

3.6 IMPACT ON THE INTENSIVE USE OF LABOUR POWER

3.6.0 We now produce in Tables 3.16 to 3.21 the intensity of the use of labour power between the Centre and periphery.

Table 3.16
Labour Use Index of Adults Working Force
Dhaibung Sample

Percentage of adult working force	Intensity of use (less than)
4	0.15
22	0.30
31	0.45
48	0.60
70	0.76
93	0.91
100	1.00

Table 3.17
Labour Use Index of Employed Male Adults
Dhaibung

Percentage of male adult working force	Intensity of use (less than)
1.6	0.15
8.2	0.30
18.0	0.45
32.8	0.60
62.3	0.76
85.2	0.91
100	1.00

Table 3.18

Labour Use Index of Employed Female
adults (15-65) Dhaibung

Percentage of Female adult working force	Intensity of Use (less than)
6	0.15
18	0.30
46	0.45
66	0.60
78	0.76
100	1.00

Table 3.19

Labour Use Index of Employed
Adults (15-65) Ranche

Percentage of Employed adults	Intensity of Use (less than)
1.65	0.15
6.61	0.30
35.54	0.45
67.77	0.60
83.47	0.76
95.87	0.91
100.0	1.00

Table 3.20

Labour Use Index of Employed Male adults

Ranche

Percentage of Employed adults	Intensity of Use (less than)
1.6	0.15
3.3	0.30
27.9	0.45
62.3	0.60
78.7	0.76
93.4	0.91
100.0	1.00

Table 3.21

Labour Use Index of Employed Female adults

Ranche

Percentage of Employed adults	Intensity of Use (less than)
1.6	0.15
10.0	0.30
43.4	0.45
73.4	0.60
88.4	0.76
98.4	0.91
100.0	1.00

From our tabulations on the intensity of use of labour power, we can differentiate the employment difference in the two villages.

Table 3.22

Percentage of Employed Adults using more than 60 per cent of labour power

Sample	Percentage	Numbers
Dhaibung	52	58/111
Ranche	32	39/121

Table 3.23

Percentage of Employed Adults using more than 76 p.c. of labour power

Sample	Percentage	Numbers
Dhaibung	31	34/111
Ranche	17	20/121

Table 3.24

Percentage of Employed Adults using more than 91 per cent of labour power

Sample	Percentage	Number
Dhaibung	8	9/111
Ranche	4	5/121

In all the three categories in the intensity use of labour power, show a higher level of employed adults in Dhaibung compared to Ranche. This is reflected in tables 3.22 to 3.24.

3.6.1 On similar basis we can calculate the use of labour power for adult males and adult females.

Table 3.25

Percentage of Employed Adult Males using more than 60 per cent of labour power

Sample	Percentage	Number
Dhaibung	67	41/61
Ranche	38	23/61

Table 3.26

Percentage of Male Adults using more than 76 per cent of labour power

Sample	Percentage	Number
Dhaibung	38	23/61
Ranche	21	13/61

Table 3.27

Percentage of Male Adults using more than 91 per cent of labour power

Sample	Percentage	Number
Dhaibung	15	9/61
Ranche	7	4/61

Table 3.28

Percentage of Female Adults using more than 60 per cent of labour power

Sample	Percentage	Number
Dhaibung	34	17/50
Ranche	27	16/60

Table 3.29

Percentage of Female Adults using more than 75 per cent of labour power

Sample	Percentage	Number
Dhaibung	22	11/50
Ranche	12	7/60

Table 3.30

Percentage of Female Adults using more than 91 per cent of labour power

Sample	Percentage	Number
Dhaibung	24	-
Ranche	2	1/60

Tables 3.25 to 3.30 indicate statistically significant difference between the two samples. In the three categories of adult male and females the use of intensity of labour power is higher in

Dhaibung than in Ranche. ~~In the use of more than 60 p.c. of labour power the difference between the male is highest, and decline when we consider the use of more than 76 p.c. and more than 91 p.c. of labour power. But for the female samples the comparative difference is greatest for more than 76 p.c. use of labour power.~~

3.6.2 The two concerning villages can be reached from the only motorable road known as Trisule/Somdang road. The road connects Raswa and Nuwakat districts. Hence both villages are exposed to enjoy the benefits of IRDP concentrated more in Bidur the district headquarter of Nuwakat and Dhunche the district headquarter of Rasuwa. However in a mountainous terrain, even if places are close it is troublesome ^{^) or} and labourous to commute daily to the centre of economic activities. ~~As is the case for Ranche villege.~~ In Dhaibung the centre of IRDP investment, has therefore provided more employment opportunities. Since benefits of Sajha, Veterinary services, health post, education facilities, and mobile cottage industry training programmes all aided by IRDP, has greater impact on Dhaibung's labour force. The Somdang road has no doubt helped both the village households for commuting to the headquarters of the 2 districts for job opportunity, as well as for purchase and sale of farm and non-farm products. But it has also affected the employment opportunities that flourished in the form of porterage. Both villages are affected. But

Ramche is more seriously hit. Because tourist pilgrims ~~tracking~~ ^{tracking} route to Langtang himal, Genesh himal, Gosaikund and Dugh Kund is via Ramche.

3.7 IMPACT ON LITERACY

A sure impact on literacy may be treated as an indirect evidence of increased income and employment.

3.7.0 ~~The Raswa/Nuwakat IRDP period had already ended~~

~~during our survey year. Much cannot be expected in a country where many constrains persist in the implementation of development programmes like IRDP. Yet whatever efforts that has been directed to develop these areas has had some positive impact on socio/ecc front. So it will be worthwhile to compare the impact of the programme on the literacy of the test population and the control population. We have resorted to two definition of literacy. For definition number 1 we include those individuals who have education for one full year or more. Definition number 2 defines literate individuals as those who have education for six years or more. On this basis the tables 3.31 and 3.32 show the literacy distribution according to definition 1. And the tables 3.33 and 3.34 present the literacy position according to definition 2.~~

3.7.1 On the basis of these four tables we derive tables 3.35 and 3.36 by applying definition number 2. These two tables substantiate the view that employment opportunities has perhaps increased the income of households in Dhibung, so that they have

Table 3.31

Literate (Definition No.1) by Age and Sex in Dhaibung

Age Group	M A L E			F E M A L E			T O T A L		
	Literate	Illiterate	Total	Literate	Illiterate	Total	Literate	Illiterate	Total
6 - 15	21	8	29	5	25	30	26	33	59
15 - 35	22	16	38	1	27	28	23	43	66
35 - 65	7	17	24	1	25	26	8	42	50
Above 65 yrs.	-	4	4	-	5	5	-	9	9
Total	50	45	95	7	82	90	57	127	184

Table 3.32

Literacy (Definition No.1) by Age and Sex in Ranche

Age Group	M A L E			F E M A L E			T O T A L		
	Literate	Illiterate	Total	Literate	Illiterate	Total	Literate	Illiterate	Total
6 - 15	13	16	29	1	17	18	14	33	47
15 - 35	4	36	40	2	37	39	6	73	79
35 - 65	3	18	21	-	21	21	3	39	42
Above 65 yrs.	-	4	4	-	2	2	-	6	6
Total	20	74	94	3	77	80	23	151	174

Table 3.33

Literate (Definition No.2) by Sex and Age in Dhaibung

Age Group	M A L E			F E M A L E			T O T A L		
	Literate	Illiterate	Total	Literate	Illiterate	Total	Literate	Illiterate	Total
11-15	4	7	11	-	19	19	4	26	30
15-35	10	28	38	1	27	28	11	55	56
35-65	1	23	24	-	26	26	1	49	50
Above 65 yrs.	1	3	4	-	5	5	1	8	9
Total	16	62	77	1	67	78	17	138	155

Table 3.34

Literacy (Definition no.2) by Age and Sex in Ranche

Age Group	M A L E			F E M A L E			T O T A L		
	Literate	Illiterate	Total	Literate	Illiterate	Total	Literate	Illiterate	Total
11-15	1	7	8	-	6	6	1	13	14
15-35	1	39	40	-	39	39	1	78	79
35-65	-	21	21	-	21	21	-	42	42
Above 65	-	4	4	-	2	2	-	6	6
Total	2	71	73	-	68	68	2	139	141

been able to send their children to local schools. The table 3.35 shows that in the age group 11-15 the difference between the two villages is not high, whereas the table 3.36 demonstrates a higher difference in literacy between the two samples. It shows that in Dhaibung the literacy in the age group 6-15 is 44 per cent and 30 per cent in Ranche. This difference is statistically significant.

Table 3.35

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

Sample	Total number of persons	Number of Literates
Dhaibung	30	4
Ranche	14	1

Table 3.36

Literate with one year or more of Education in the Age Group 6-15

Sample	Total number of persons	Number of Literates
Dhaibung	59	26
Ranche	47	14

3.8 IMPACT ON AGRICULTURAL OUTPUT

3.8.0 The agricultural output in Dhaibung is much higher than in Ranche. This is reflected in the table 3.37. The difference is statistically significant. Here the mean agricultural output per Nepali bigha has been tabulated differently from that shown in tables 3.39 and table 3.40. This has been done so as to suit the requirement of statistical testing.

Table 3.37

Agricultural Output Per Nepali Bigha

Sample	Agricultural output (in Nepali Rs.)		Size of Sample
	Mean	Standard deviation	
Dhaibung	7257	2837	33
Ranche	4043	1732	33

The increase in output in Dhaibung is mainly due to irrigation, high yielding variety seeds and fertilizers provided by IRDP fund. Perhaps the agricultural production would have been higher in Ranche, if the cropping pattern or the seed variety could be so adopted as to sustain the severe cold climate that prevail in these areas. Further, much of the crops are reported to have been damaged by the protected wild bores coming from the Langtang National Park. However the wild bores may damage crops and however the farmers in Ranche may complain against them, the

agricultural output in Ranche is lesser because less inputs have been used as a result of receipt of smaller benefits from the relevant IRDP.

3.8.1 A feature of terrace farming on the high mountains of Reguwa is that in both the villages the smaller farms give higher output.

Table 3.38

Output per Nepali bigha According to Farm Size

Farm size (in bighas)	O U T P U T	
	Dhaibung	Ranche
0.50 - 1.00	7226	4047
3.50 - 7.50	5770	3630

3.9 INPUT ON THE FARMS

3.9.0 The low use of reproducible capital resulted in low productivity in the periphery. The results can be visualized from the two tables 3.39 and 3.40 of Dhaibung and Ranche respectively. The use per bigha of seeds, chemical fertilizers and organic manure in Dhaibung is double that in Ranche. The use of the fixed capital in Dhaibung is three times that in Ranche. In respect of mandays, there is distinct difference between the two. Since no payment were made for irrigation the cost is not recorded here. But in both villages households

Table 3.39

Cost of Agricultural Output Dhaibung

Farm Size (in Nepali Bigha)	Number of farms	Amount of Land (Nepali Bigha)	Output per (Nepali Bigha)	Cost per bigha on (in Nepalese Rs.)								Mandays	
				Depre- cia- tion	Hired plough	Fixed capital	Seeds	Irriga- tion	Orga- nic manu- re	Chemi- cal ferti- lizers	Insect- icides	Home	Hired
Upto .50	7	2.09	10238	110	553	663	186	-	242	110	-	120.0	144
.50-1.00	11	8.46	7226	91	210	301	119	-	129	109	-	1855	130
1.00-1.50	5	6.22	4869	83	129	212	99	-	135	136	-	1262	209
1.50-3.50	9	19.33	5525	85	171	256	110	-	192	58	1	1109	269
3.50-7.50	1	3.82	5770	334	65	399	94	-	223	92	-	992	785
7.50 +	-	-	-	-	-	-	-	-	-	-	-	-	-
	33	39.92	6053	94	140	234	113	-	175	87	.03	1260	273

Table 3.40

Cost of Agricultural Output Ranche

Farm Size (in Nepali Bigha)	Number of farms	Amount of Land (Nepali Bigha)	Output per (Nepali Bigha)	Cost per bigha on (in Nepalese Rs.)								Mandays	
				Depre- cia- tion	Hired plough	Fixed capital	Seeds	Irriga- tion	Orga- nic manu- re	Chemi- cal ferti- lizers	Insecti- cides	Home	Hired
Upto .50	-	-	-	-	-	-	-	-	-	-	-	-	-
.50-1.00	7	4.79	4047	28	20	28	94	-	26	26	-	1316	-
1.00-1.50	10	13.30	4507	85	8	93	65	-	45	49	-	1563	-
1.50-3.50	12	29.42	3554	70	29	99	41	-	30	53	-	1045	44
3.50-7.50	4	16.50	3630	68	6	74	43	-	52	44	-	864	19
7.50+	-	-	-	-	-	-	-	-	-	-	-	-	-
	33	64.01	3809	70	177	387	51	-	38	48	-	1126	25

have benefited from the IRDP hill irrigation scheme. In Dhaibung 18 households had received the irrigation benefit out of 33 households. In Ramche only 8 households out of 33 benefited from IRDP irrigation investment.

3.9.1 The households of both villages have received the benefits of subsidised inputs, from the Sajha, Agricultural Development bank, and Agricultural Input Corporation located outside their villages. Sajha is located in a neighbouring village. But households in Ramche have to go outside the village to enjoy the benefits of Sajha. Hence the periphery is more disadvantaged than the centre. The four tables 3.41, 3.42, 3.43 and 3.44 reflect the nature and amount of benefits received by the two samples. From table 3.44 we find that though Ramche received

Table 3.41

Receipt of Aid from Sajha

Items	Dhaibung		Ramche	
	No. of households	Total Amount in (Nepalese Rs.)	No. of households	Total Amount in (Nepalese Rs.)
Loans	-	-	10	9450
Inorganic fertilizers	25	4174	27	2862
Insecticides	1	20	-	-

Table 3.42

Receipt of Aid from Agricultural Development Bank (Nepal)

Sample	Total Amount (in N Rs.)	No. of households	Purpose of Credit
Dhaibung	17700	8	Buffalo, Ox, Goats
Ranche	8900	6	Buffalo, Horticulture, Ox

Table 3.43

Purchase of Subsidised Seeds from
Agricultural Input Corporation

Sample	No. of households	Total Amount (in N. Rs.)
Dhaibung	14	2583
Ranche	8	918

Table 3.44

Total of Loans and Subsidised Purchases

Village	Total amount of loans (in N Rs.)	Total amount of subsi- dised purchases of inputs
Dhaibung	17700	6777
Ranche	18350	3780

more loans the difference is not much. But in respect of purchase of subsidised inputs the difference is proportionally very high. All this account for the increase of agricultural output in Dhaibung village.

3.10 INTENSITY OF USE OF LAND

3.10.0 To measure the intensity of use of land, we apply two definitions. According to the first definition, we take the ratio of the gross cultivated land to the net cultivated land. The second definition is non-conventional. We logically assume that if a plot of land is cultivated for the whole year, then the total gross cultivable land becomes 3.5 times the net cultivable land. Then the measurement is ratio of gross cultivated land to the gross cultivable land. The table 3.45 reflects that according to the first definition the difference is 33 points higher in Dhaibung. According to the second definition the intensity is also high in Dhaibung. The conclusion that can be drawn is that the use of more ^{A YEAR'S USE OF} land has been due to better and more use of inputs aided by the relevant IRDP.

Table 3.45
Measurement of Intensity of Use of Land

Type of intensity of use of land	Dhaibung	Ranche
Intensity of use of land according to definition no.1	1.89	1.56
Intensity of use of land according to definition no.2	.54	.45

3.10.1 It will be interesting to see and compare the efficiency in management of the farm operators in the two samples. We here

repeat that in both places the land is rugged, and terrace farming is the practice. Therefore a farm operator has to adjust skillfully in the use of inputs so as to gain maximum result. Here by rate of return we mean the value of output per one rupee spent on inputs. This study would have been more interesting if we could correlate education with the rate of return. But this is not possible, because in both samples the farm operator's education is nil. Only 11 operators in Dhaibung and 2 in Ranche can read and write, but have not participated in school education even for a year. Dhaibung has a higher rate of return, which is reflected in table 3.46.

Table 3.46

Distribution of Rate of Return

Sample	Rate of return (in N Rs.)	Output (in N Rs.) per Nepali Bigha
Dhaibung	2.81	6053
Ranche	2.58	3809

3.10.2 Let us see, what the rate of return will be when we consider different farm size. For this we take the same farm holding as in Table 3.38. The outcome can be seen in table 3.47. In both samples it is the small farm holding that gives higher rate of return. The small farm operators ^{^ here} are decidedly more efficient in getting maximum results.

Table 3.47

Distribution of Rate of Return according to Fam Size

Fam Size	Rate of Return		Output in N Rs. per Nepali Bigha	
	Dhaibung	Ranche	Dhaibung	Ranche
0.50 - 1.00	3.05	3.16	7226	4047
3.50 - 7.50	2.40	2.63	5770	3630

3.11 IMPACT ON INCOME

[^] in the test village

3.11.0 The impact of the Raswa/Nuwakot project on the per capita annual income is seen in table 3.48. The difference between the two villages is not [^]high. [^]The spread of income distribution is higher in Dhaibung, than in Ranche. This means that with some increase in income there has been an increase in inequality of income distribution. If we compare the people in absolute poverty in the two village taking, in the first place, Nepali Rs. 3,000 of per capita income in the family as the poverty line ~~with~~ we notice in table 3.49 that 91 per cent of the people Dhaibung live in absolute poverty, whereas cent per cent people of Ranche are in absolute poverty. But if we take Nepali Rs. 1,000 of per capita income in the household as the poverty line, the percentage of people under poverty line is the same in both villages.

Table 3.48

Per Capita Annual Income in the Household

Sample	No. of Households	Per Capita annual income	
		Arithmetic mean	Standard deviation
Dhaibung	33	1762	793
Ranche	33	1536	516

Table 3.49

Persons in Absolute poverty in Dhaibung and Ranche Households

Per capita Annual income (in N Rs.)	Households			
	Dhaibung		Ranche	
	Number	P.C.	Number	P.C.
Uptil Rs.1000	3	9	3	9
1000-3000	27	82	30	91

3.11.1 In Table 3.50 we deal with income of earners. Here we include the non-adults as well as the adults above age 65. It can be seen that ^{the percentage of} income from farm is highest in both villages. We have already seen that agricultural output per Nepali Bigha is higher in Dhaibung. In other sectors as agricultural labour non-agricultural labour and trade the income earned per earner as can be seen in table 3.52 is lower in Dhaibung.

Table 3.50

Distribution of Income Among Occupation

Occupations	Percentage of Village income earned	
	Dhaibung	Ranche
Farming	73.36	56.10
Agricultural labour	7.20	21.38
Non-agricultural labour	7.44	18.67
Salary earners	1.36	-
Cottage industry	5.20	1.88
Business	5.44	1.98
Total	100	100

3.11.2 The annual income earned per earner in Dhaibung, in farm and non-agricultural sector is superficially higher than in Ranche. While in agricultural labour and cottage industry and trade the income per earner is higher in Ranche. But this does not mean that the prospects are greater in Ranche or that more employment is available here. Because it is actually in Dhaibung that more employment is provided. In Ranche only one household is engaged in trade and one in cottage industry. While in Dhaibung 7 persons are engaged in cottage industry and 5 in trade.

Table 3.51

Distribution of Working Force Among Occupations

Occupations	Percentage of Village Working Force	
	Dhaibung	Ranche
Farming	70	58
Agricultural labour	14	23
Non-agricultural labour	7	17
Salary earners	1	-
Cottage industry	5	1
Business	3	1
Total	100	100

Table 3.52

Annual Income Per Earner (in N Rs.)

Occupations	Annual income per earner	
	Dhaibung	Ranche
Farming	2143	1431
Agricultural labour	1023	1385
Business	3400	4750
Cottage industry	2321	4500
Non-Agricultural labour	2114	1657
Salary earners	4250	-
Total	2923	1497

3.12 CONCLUSION

There is little doubt that the income is superficially higher in Dhaibung, the centre. The labour is also more intensively utilised. The amount of disguised unemployment is also less. The land also is more intensively used.

Both of the mountain villages are small. The Rasuwa-Nuwakot IRDP has not been able to exploit all the endowments of these mountain villages to ^{let} them specialise in special crops. Betravati water could have been used through hand pumps either ^{or} spun pipes or tubes or even ~~en~~-ripe bamboos. The scheme can be so made as to suit the needs of terrace farms.