EVALUATION
OF
SOCIO-ECONOMIC IMPACT OF THE WESTERN HILLS ROAD

Dhangarhi to Dadeldhura
Nepal
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by

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SUMMARY AND CONCLUSIONS

This evaluation study was conducted to determine the extent to which the Western Hills Road (WHR, from Dhangarhi in Terai to Dadeldhura in Hills) has made a social impact upon the lives of the people in its area of influence. USAID/N financed the construction of the 135 km road which was completed in 1979. Later in 1979, AID/Nepal provided financial assistance to HMG/N through the Landslide and Soil Stabilization Project (LSS) to stabilize the road and minimize the risk of future landslides on the road.

In the main, the impacts of the WHR are impressive. The price differentials of essential commodities not locally produced in the Hills like salt, kerosene and sugar have significantly narrowed with the advent of the road. On the other hand, the price received by the producer of exported goods, particularly ghee, has increased resulting from improved transportation. This contributes to the increased rural income.

Though there is much left to accomplish with regard to adoption of modern agricultural technology, the contribution of improved varieties of major foodgrain crops, paddy and wheat to increased total production is recognized. In the meantime, more forest and marginal lands, especially in the Terai, were brought under plow. The transportation of foodgrains and modern agricultural

inputs like seeds, fertilizers and pesticides has been facilitated by the road. During the past few years, traditional consumption habits have changed, especially by including a wider variety of vegetables in the diet.

There are now some 210 production industries (mostly agro-based) in Dhangarhi. Industries generating significant employment opportunities are non-existent in Dadeldhura. The turpentine factory under construction at Dhangarhi will probably generate some employment and will utilize pine pitch that comes from the Hills. The pine pitch exported to India in 1982/83 contributed about Rs.206,092 to government revenue.

There is increasing awareness, especially among younger and educated parents, to limit the size of a family. People using both contraceptives and surgical services were found, but the access of women to these methods was limited because of the lack of female motivators in the villages; female surgeons tend to be unwilling to visit these places. The responses by men for not practising family planning methods were lack of awareness, self control, few children, shaman, unwillingness and frustration.

People have learned to visit the hospital, but the treatment depends on the ability of a patient to buy medicines. Respondents sent their sons to school, some educated their daughters too. Available statistics shows greater enrollment

of both boys and girls in school. The forest degradation due to increasing population and heavy grazing has doubled the time needed for collecting fuelwood and fodder. On the other hand, time required for fetching drinking water has shortened with availability of polythene pipes. Some of these effects are more directly related to the road than others.

During and after the construction of the road, there have been opportunities for jobs locally. The construction of extension and feeder roads has employed unskilled laborers who otherwise went to the Terai or to India for seasonal employment.

The fiscal procedure developed and adopted in the LSS project proved effective in the smooth running of the project. Since 1982/83, a similar procedure has been adopted by AID and HMG/N for all bilaterally or multilaterally financed projects in the Kingdom.

Bus and truck traffic average 3.4 and 7.5 units per day to Dadeldhura. Monthly bus traffic is an estimated 550,000 passenger km. A monthly average of 1575 tons of freight is carried over the road. The traditional porterage system along the road corridor has collapsed and would probably be difficult to revive.

RECOMMENDATIONS

The following recommendations suggest ways to enhance the impact of this and other road projects:

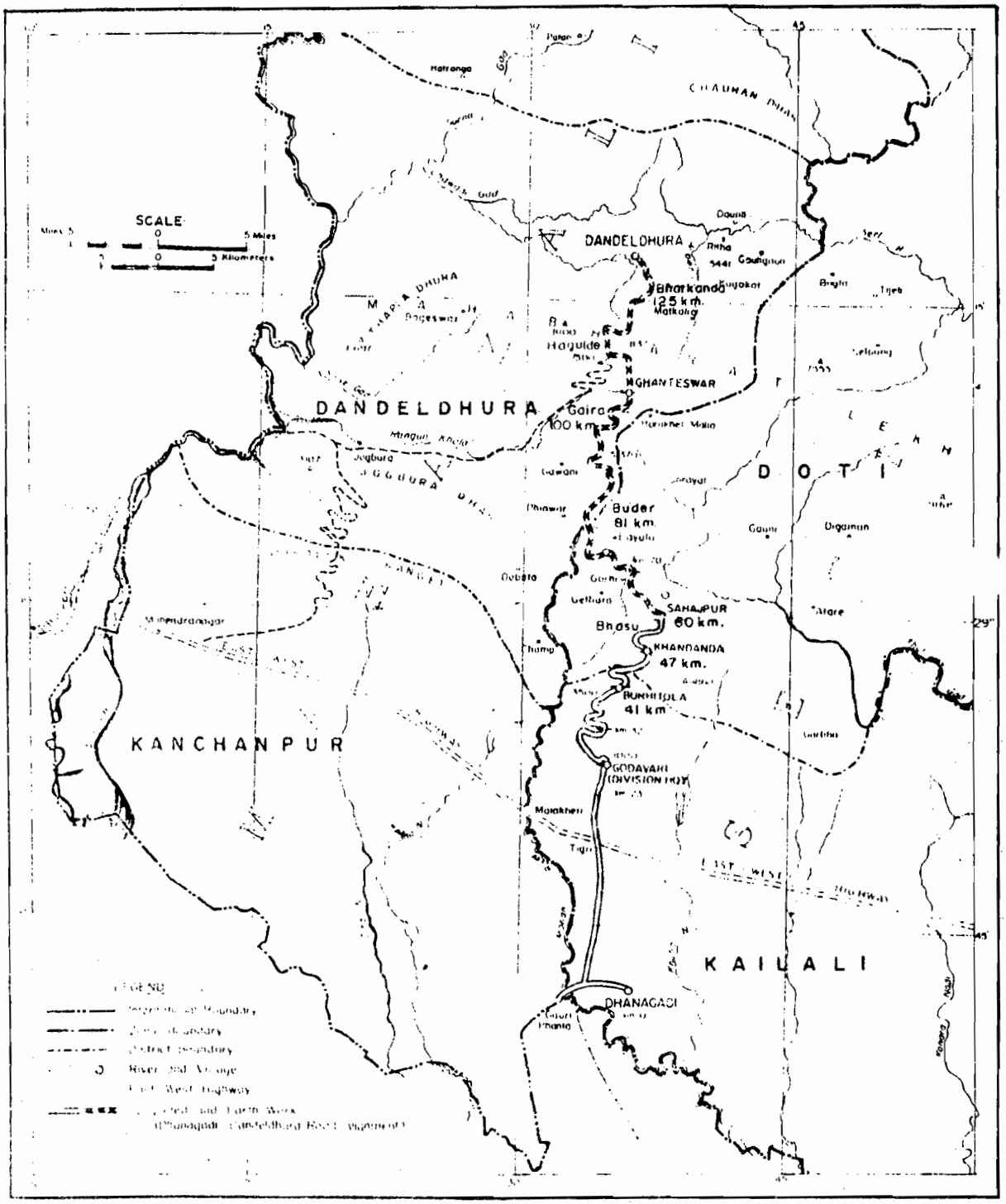
First, there has been an excessive time lag between completion of the road and development of other job opportunities in the Western Hills. Other government agencies (e.g., the Ministry of Agriculture and the Ministry of Industry) should give priority in program planning to areas opened up by roads to strengthen service delivery and support systems in these areas, and thus take maximum advantage of better transportation and the surplus labor available. As an additional benefit, the availability of south bound cargos will reduce haulage costs by assuring pay loads in both directions and promote the growth of the two ecozones (the Hills and the Terai).

Second, provision of basic transportation network gives access to incremental investments in the areas influenced by the road. The World Bank since 1980 has extended financial assistance in the development of Dadeldhura, Baitadi and Darchula through the Mahakali Integrated Rural Development Project which envisages agriculture, livestock, construction work and support services. Recently, the Asian Development Bank has extended loan to HMG/N to upgrade the WHR with an extension of a feeder road to Baitadi (Patan), and several other projects.

Third, the lack of an efficient marketing system has hindered expansion of agriculture into high value crops especially in the Far Western Terai. This development will accelerate with the connection of the East-West Highway to the remainder of the system which should be given a high priority.

Finally, the WHR must be kept operational substantially year round to protect consumers from shortages, sustain rural income at the present level and permit the orderly operation of industrial enterprises.

WESTERN HILLS ROAD ALIGNMENT



I. INTRODUCTION

Basic infrastructures are pre-requisites to any developmental activities. In countries like Nepal which are characterised by rugged terrain an improved transportation network plays a vital role in economic development. In developing the roads system in Nepal, prime consideration has been given to highways that directly contribute to social and economic development of the country. An economic survey (HMG, 1983) states that ... "with a view to provide facilities for the rural sector and especially to those people residing in remote areas of the Hills ..., due priority has been accorded to the construction of ... motorable roads." The Western Hills Road (Dhangarhi to Dadeldhura) was completed in 1979 with USAID/N assistance to connect the two ecozones with the purpose of alleviating rural poverty. Latter in 1979, AID increased the assistance by financing the LSS Project to stabilize the soil and landslides so that the road might be open all year round. This evaluation addresses the socio-economic impacts of the road provision in general and the following questions is particular:

a. "How and to what extent have the lives of the people living in the area been influenced by this road?" and

b. "Did the fiscal procedures developed during the course of this project (LSS) contribute to the smooth running

of the project? What specific recommendations can be made regarding procedures to be used in future project?"

II. FINDINGS AND ANALYSIS

A. Economic Impacts

a. Agriculture

In 1981, out of the total of 637,135 economically active population in the Far Western Development Region, 96% (612,078) were engaged in agricultural occupation.[1/] Thus in any effort to uplift the quality of life of the people in this part of the Kingdom, agriculture receives the top priority. After the Hills districts of this region were connected to the food surplus area in the south by WHR, this remote area is now subject to new economic and social forces. However, the pressure of ever increasing population on the already closed land frontier has raised the question of survival for the people in the area. The role of the WHR in relieving this aggravating problem is vital.

The improvement in agriculture largely depends on the farmer's potential for responding to the new economic relationships related to the advent of the road. There is an impressive increase in the area grown to major foodgrain crops in the region, except on maize (Table 1). The cropping pattern

1/ Population Census - 1981, National Planning Commission Secretariat, Central Bureau of Statistics, Kathmandu.

Table 1.

Area Under Major Crops in Selected Districts of Far Western Development Region, Nepal 1967/68-1982/83

District	Paddy		Maize		Wheat		Millet & Potato	
	1967/68	1982/83	1967/68	1982/83	1967/68	1982/83	1967/68	1982/83
Kailali	39,000	42,800	12,000	11,500	1,800	13,910	175	1,880
Kanchanpur	12,000	27,480	5,000	8,610	800	9,240	75	730
Doti	3,900	6,920	4,400	4,200	4,200	10,510	250	2,250
Dadeldhura	2,900	5,380	3,100	2,540	4,500	8,900	150	3,120
Bajhang	2,500	2,940	3,600	900	3,900	2,350	175	1,170
Achham	2,700	1,930	3,050	2,850	3,700	3,200	150	1,120
Baitadi	2,825	3,300	2,700	2,900	3,275	3,300	175	1,280
Bajura	2,800	1,470	2,800	780	3,100	2,000	75	900
Total	68,625	92,220	36,650	34,280	25,275	53,410	1,225	12,450
% Change	34.4		-6.5		111.3		916.3	

Source: (1) For 1967/68; Rana, Ratna S.J.B., "An Economic Study of the Area around the Alignment of the Dhangarhi-Dadeldhura Road, Nepal," Kathmandu CEDA, Tribhuvan University, 1971.

(2) For 1982/83; Department of Food and Agricultural Marketing Services, Kathmandu, Nepal.

is dominated by foodgrain due to the high pressure of population and hence the main focus is on food self-sufficiency. This in turn discourages the production of high value cash crops. Lack of irrigation and marketing facilities have slowed the process of adoption of modern agricultural technology. Chemical fertilizers and pesticides use is limited to big farmers and irrigated field. In recent years lucrative farming is constrained by deteriorating soil fertility and increasing labour costs due to urban attraction by industry. Farm yard manure is the major source of nutrients added to the soil.

Our field survey observed changes in the cultivation of major foodgrains. The increase in production can be attributed to the use of new crop varieties, and marginal and forest lands brought under plow. In general, the long run agricultural productivity has either declined or stagnated. The eradication of malaria and resettlement programs in the Terai districts attracted more people from the Hills. As a result, large population increases occurred (Table 2). However, no more increase of population is desirable because of the decreasing land-man ratio. The agricultural lands are characterised by small scale operations, especially in the Hills, and are inefficient.

Table 2.

Population Statistics for the Selected Districts of Far Western Development Region, Nepal

1961, 1971 and 1981

District	Total Population			% Change	
	1961	1971	1981	1961-71	1971-81
Kailali	89,910	128,877	257,905	4.3	10.0
Kanchanpur	18,889	68,863	168,971	26.4	14.5
Doti	295,367	166,070	153,135	- 4.4	- 0.8
Dadeldhura	87,108	94,743	86,853	0.9	- 0.8
Achham	165,699	132,212	185,212	- 2.0	4.0
Baitadi	163,308	128,696	179,136	- 2.1	3.9
Bajura	NA	61,342	74,649	NA	2.0
Bajhang	NA	108,623	124,010	NA	1.4
Darchula	NA	68,868	90,218	NA	3.1

NA = Not available

Source: For 1961; see (1) Table 1.

For 1971 and 1981; Population Census 1971 and 1981, HMG, National Planning Commission Secretariat, Central Bureau of Statistics, Ram Shah Path, Kathmandu, Nepal, 1975.

The provision of roads is not the only answer to agricultural development. Farmers are faced with location specific problems like physical, biological and institutional constraints. The cropping pattern now followed is largely governed by these factors. Irrigation facilities, introduction of improved crop varieties and the adoption of new methods are complementary to increased productivity. Paddy is grown in the monsoon season because of the high water requirement. This is followed by mustard or wheat in the winter season. The lack of market has inhibited the potential production of wheat. Mustard is grown as a cash crop in the Terai. Surplus rice and mustard oil is exported to Bhairahawa, Pokhara and Kathmandu via India. Rainfed crops dominate the arable land in the Hills. Maize, millet and upland paddy (ghaiya) are cultivated in the terraces which depend on rainfall.

Some specific changes brought about by the improved transportation, among others, are the introduction of high yielding varieties of paddy, wheat, maize and potato. In 1982/83, 250 and 21 quintals of improved paddy and wheat respectively were distributed in Dadeldhura under the agricultural program of the Mahakali Integrated Rural Development Project. The figures for 1981/82 were 792 and 320 kg respectively of improved seeds of paddy and maize transported by Agricultural Inputs Corporation to Dadeldhura. New varieties of

potato and vegetables are increasingly popular in the Hills. Potatoes are locally marketed and is the source of cash to buy daily necessities from the same market. Seasonally, vegetables in excess of home consumption are sold out. Vegetables from India also have found markets in the Hills, though in small quantities.

Due to heavy rain in the region on September 11 and 12, 1983 the WHR was rendered impassable. Heavy landslides occurred. The potential of the road is realized primarily through its effect on output prices. At Dadeldhura, the unit prices of imported consumer goods rose sharply after the road closure, for example in cases of potatoes (40%), Onions (33%) and cooking oil (20%).

		Price (Rs/p) per unit, when		
Commodity	Unit	Traffic open	Traffic Closed	% Change
Potato	kg	2.50	3.50	40
Onion	kg	3.00	4.00	33
Cooking oil	ltr	20.00	24.00	20
Milk	kg	6.00	4.00	-33
Ghee	kg	35.00	28.00	-20
Flour	kg	5.00	5.00	0
Rice (Coarse)	kg	5.50	5.50	0
Rice (Fine)	kg	7.00	7.00	0

Source: Field Survey.

On the other hand, the price paid to producers of the major exportable item (ghee) from the Hills has fallen due to the lack of transport. This has a strong negative impact on the income accruing to the farmers in the Hills.

The prices of staple foodgrains have been stabilized to protect the consumers. This was made possible by timely stocking of these commodities by the government owned Nepal Food Corporation for which the products move by WHR.

b. Food Consumption

It is customary to observe some changes in the traditional consumption habits of the people living around a newly constructed road. However, provision of a road is not the only important determinant of improved diet. Other factors like people's income and the prices of essential commodities are important considerations. Improved transportation brings about changes in consumption habits by way of price decrease in consumer goods.

During the past few years, the use of vegetables has increased greatly. Consciously or unconsciously many people have learned by experience the need for other nutrients as evidenced by the use of different kind of vegetables. Similarly, fruits are becoming increasingly popular.

Vegetables and fruits prove highly valuable in situations of marginal food supply and of actual famine. The pattern of use of staple food (cereal grains), of course, has not changed much. The consumption of cereal grains depends on the cropping pattern of the household. New agricultural technology which alters costs and returns of cereal production has effects on consumption pattern. Since the Hills are deficit areas, much of the additional food has to come from the Terai.

Often vegetables and fruits imported into the Hills come from India, mainly in the off-season. Seasonal vegetables are home grown and are also sold in the nearby markets, but the art of growing vegetables year round is lacking in the area. Potatoes are becoming more popular.

c. Animal Husbandry

Agriculture and livestock enterprises are integrated in a whole-farm system. Animals are the principal sources of draft force and manure in the area. Ghee is the most important animal product exported from the Hills. Milk is sold in the local markets, primarily to tea-shops. Some families were still found to have raised 10-12 buffalo depending on the availability of pastures. They seasonally

migrate to the Terai for winter grazing, where they sell livestock products and seek occasional employment. However, this enterprise is affected in the recent years primarily because of the forest degradation by increasing pressure for fuelwood and fodder, and the poor quality of animals. Other animals raised are cows, bullocks for power, goats and sheep.

d. Industrial Growth

The growth of industries that would bring about significant employment opportunities in the Hills are non-existent. The only mill that exists along the road is in Budar (81 km), primarily for rice-flour-oil milling. One furniture industry in Dadeldhura failed due to lack of trained manpower. However, in Kailali, several smallscale industries exist, most of which depend on agriculture for raw materials. Most industries are of the rice-flour-oil milling type. Though the exact number of different industries that were operational was not known, 210 of them were agro-based production industries in 1982/83. Of these 47 were production mills, 47 saw mills and 10 brick factories. Cotton weaving and hosiery are some of the recent establishments. A turpentine factory which will utilize pine pitch from the Hills has a potential for generating signficant employment opportunities in future. Recently, a match factory is one

which is utilizing the forest product. There were attempts to establish soap, charcoal and loaf industries at Dhangarhi but they failed due to lack of raw materials.

e. Rural Income

No attempt was made to measure the income levels of the people served by WHR, nor did any such information exist before and during its construction phase. Therefore, the "before and after" the road construction income comparison was not carried out. Needless to say, agriculture occupation is predominant in the project area. Livestock, government employment and unskilled labor are secondary sources of rural income. Largescale business is limited to administrative centres in the districts, mostly in the Terai. Most shops like teashops, general stores (Kirana shops) and hotels are subsistent in nature.

Presently, the income accruing to the households can be seen through the kind of occupation they are in, and the effect of the road on such income is conceived in components like passenger service, reduced transportation charges, availability of essential goods at cheaper rates, generation of employment opportunities, increased productivity of resources (for example, land), easy access to social services provided by the government and so on.

f. Traffic Flows

Table 3 shows the available information about traffic as counted at Godavari. The record has some months missing and there is no indication whether the data were not collected, lost or the road was closed.

The available 25 months of data shows that 2531 buses and 4571 trucks passed through Godavari North bound. Of course, this same number must have also returned South bound, but since nearly all trucks are empty on the return trip the count is not included.

Buses account for 36% of the total traffic averaging 3.4 vehicles per day in each direction. The greatest single month was Paush 2039 (December 1982) when 190 buses went through Godavari North bound. If each bus carries an average of 20 passengers in each direction, the total traffic has been about 102,000 person trips or about 550,800 passenger km/ month. This is an impressive total in a remote area where road closures are common.

During the review, the team saw several buses per day. Some were crowded, others not, but the average of 20 passengers at any time seems a reasonable guess. Some people also ride on trucks and these are not included in the estimates.

TABLE 3.

TRAFFIC AT GODAVARI

NORTH BOUND

		Baisakh APR	Jestha MAY	Ashadh JUN	Shrawan JUL	Bhadra AUG	Ashwin SEP	Kartik OCT	Marga NOV	Poush DEC	Magh JAN	Phalgun FEB	Chaitra MAR	Total
2038 (1981-2)	Bus	–	–	–	–	11	53	90	99	119	112	124	141	749
	Trk	–	–	–	–	17	54	326	203	305	242	237	386	1773
2039 (1982-3)	Bus	126	116	97	67	57	106	122	181	190	189	–	–	1251
	Trk	283	179	152	60	33	157	224	234	250	327	–	–	1899
2040 (1983-4)	Bus	60	58	137	77	52	88	59	–	–	–	–	–	531
	Trk	150	191	269	167	91	44	36	–	–	–	–	–	899
Avg. Daily Traffic		10.3	9.1	10.9	6.2	3.9	6.6	12.7	12.0	14.4	14.5	12.0	17.6	10.9

NOTE: Blank indicates no record.

Truck traffic averaged 7.5 units per day North bound. If each carried a payload of 7 US tons (6,363 kg) the total North bound freight would be about 39,375 tons in 25 months or some 1,575 tons per month. The greatest single month was Chaitra (March 82) when 386 trucks were counted.

It is here assumed that all traffic went to Dadeldhura. Some cargo is unloaded at various villages and trail crossings but there are no available data on kinds or amounts of such movements. The important South bound commodities seem to be pine pitch collected south of Budar and ghee. The annual tonnage of the pine pitch was 412 metric tons in 1982/83 but of ghee is as yet not known. The pine pitch is presently exported to India but will be utilized in the turpentine factory under construction near Dhangarhi. Other forest products may be developed in the future.

The team heard several statements to the effect that the old porterage system from Dhangarhi to Dadeldhura had collapsed with the coming of the road, and it is now very hard to find porters to move freight when the road is closed. Some shortages of important items such as salt, sugar, and kerosene are felt in the villages and sharp price rises occur as shown below:

Price (Rs/p) per Unit at Dadeldhura

Commodities	Unit	Traffic Open	Traffic Closed
Salt	kg	1.25	5.50
Kerosene	ltr	5.90	14.00
Sugar	kg	9.00	15.00

Source: Field Survey.

The greatest price rise occurred in the case of salt (340%) followed by kerosene (137%) and sugar (67%). The effect of improved transportation on narrowing the price differentials of essential commodities between the Terai and the Hills was felt when the traffic was open.

Price differentials between Dhangarhi and Dadeldhura before the storm of September 11 and 12, 1983:

		Price (Rs/p) per Unit		
		Dhangarhi	Dadeldhura	%
Commodity	Unit	Jul-Aug.	Jul-Aug.	Difference
Salt	kg	1.00	1.25	25.0
Kerosene	ltr	4.90	5.90	20.4
Sugar	kg	8.25	9.00	9.1
Cooking oil	ltr	19.00	20.00	5.2
Ghee	kg	36.00	35.00	- 2.8
Flour	kg	4.00	5.00	25.0
Rice (coarse)	kg	5.00	5.50	10.0
Rice (fine)	kg	5.75	7.00	21.7

Source: Field Survey.

Depending on commodity (some bear a high transport charge per unit bulk, others not), the price difference between the two ecozones was less than or equal to 25%. In case of ghee, the most important single item South bound, the result of trade between regions is to benefit of ghee producers in the Hills. This has substantial effect on income redistribution. This situation when compared with no transportation facility as discussed earlier explains the urgency of road in the area.

What porterage is now available is based at Jhulaghat rather than Dhangarhi. Trucking to km 115, the present closure, and porterage from there to Dadeldhura is not done or is very expensive because there are no unloading or storage facilities at km 115 and sufficient porters are not available. Before the road closure, truck haulage from Dhangarhi to Dadeldhura was Rs.35-45/100 kg. During the survey, the team observed mule transport charge of Rs.150/100 kg from km 115 to Dadeldhura (km 135). This is how sharp price rises were caused at Dadeldhura.

	Transport cost (Rs/p) per kg from Dhangarhi to Dadeldhura	
Mode of Transport	1973	1983
Mule	1.50	
Sheep	1.12	
Men	2.00	
Truck		0.35-0.45

Prior to the road construction a trip to Dhangarhi and back took 7 days walking with a load. Most passenger service South bound now consists of shopkeepers performing a round trip in 2 days. No pedestrian walking would be observed when the road was open and the bus passenger charge is Rs. 55/head. Others used the transportation facilities to meet their relatives, to look after farming, for medical treatment, seasonal employment and administrative purposes.

The traffic data also shows that some vehicles of both types passed through in every month, including the maximum monsoon seasons. In 2040 (1983), for example, 406 vehicles passed North bound in Asadh (June), 244 in Shrawan (July), 143 in Bhadra (August) and 132 in Ashwin (September). These figures were posted despite the partial closure after the storm of 26 and 27 Bhadra (11 and 12 September).

It is obvious, then, that the WHR has become an important factor in the area. It is a viable facility under most circumstances and is important to the people served. The previous porterage system has been largely replaced by the road and trucks, and it would be difficult to reconstruct it. The people have learned to depend on the road.

Future Prospects of WHR

The WHR has created basic transportation network in the region. It has already initiated the construction of two feeder roads. Eighty-four km of the Dadeldhura-Baitadi-Darchula road and 60 km of Dadeldhura-Doti road were constructed in 1982/83. After the completion of these roads the significance of WHR will become greater.

B. Social Impacts

a. Education

There was a general awareness among parents to send their children to school. The increase in children's enrollment in schools is drastic (Table 4 and 5).

Apparently the absolute increment in case of boys is far more than in case of girls. Large number of school drop-outs were found, with the numbers increasing as we go from primary to secondary levels, and more in case of girls. Generally, proximity to school and economic reasons were the causes of such drop-outs but early marriages, among others, in girls also caused discontinuity. Traditionally, girls were not sent to school but were kept home for marriage and household works.

The effect of the road on the utilization of education facilities was limited. The road passes from relatively sparsely populated areas in the Hills and the fare is expensive as the transportation network is yet rudimentary

So the teachers and students resort to walking, but on the same road. With the advent of the road, new schools have been proposed by the residents along the corridor.

Table 4.
Number of Students Enrolled, Kailali District
1979/80 - 1982/83

Levels	1979/80	1980/81	1981/82	1982/83	% Change 1979/80-1982/83
Primary					
Male	8,907	10,341	14,143	17,546	32.3
Female	1,868	2,353	3,105	3,088	21.8
Lower Secondary					
Male	4,341*	4,852*	2,083**	2,505**	a
Female	769*	944*	437**	478**	a
Secondary					
Male	964	1,189	1,496	1,819	29.6
Female	122	231	333	427	83.3
Total	16,971	19,910	21,597	25,863	17.4

Source: District Education Office, Dhangarhi

* includes standards 4-7

** includes standards 6-7 only.

a Not calculated because of inconsistency

Table 5.

Number of Students Enrolled, Dadeldhura District
1975/76 - 1982/83

Level	1975/76	1976/77	1977/78	1981/82	1982/83	% Change 1975/76-1982/83
Primary						
Male	3,552	3,102	4,113	7,574	9,304	23.1
Female	390	279	475	1,092	1,182	29.0
Lower Secondary						
Male	1,083*	1,109*	1,183*	1,154**	1,106**	a
Female	37*	24*	29*	48**	46**	a
Secondary						
Male	288	291	285	746	775	24.2
Female	4	5	5	9	17	46.4
Total	5,354	4,810	6,090	10,623	12,430	18.9

Source: District Education Office, Dadeldhura

* includes standards 4-7

** includes standards 6-7 only.

a Not calculated because of inconsistency.

b. Health

People have learned to visit hospital. The practice of relying on shamans has almost stopped. There are government hospitals at Dhangarhi and Dadeldhura. One hospital is run by missionaries in Dadeldhura at Pokhara. The government facilities for medical care are minimal at best. They

are poorly equipped in terms of manpower and medicines. The effectiveness of care largely depends on the ability of the patients to buy medicines. The importance of improved transportation to providing cheaper medicines and access to India by road for cases not attended locally were appreciated. In cases of road closure the medicines which are rather difficult to handle are transported by men and the transport costs added to these medicines are excessively high.

c. Family Planning

The joint family system is still prevalent in the project area. For both cultural and economic reasons parents have a strong preference for sons. However, the attitude towards girls seems to have changed in the case of young and educated parents. This should eventually help in limiting the number of children in a family. During the survey it was found that the number of children increased greatly in the family for want of sons.

The importance of smaller families is realized owing to the fact of limited arable land available for cultivation and increasing costs of supporting a family. The adoption of family planning methods has not been very great in the area, but there are several cases of people using contraceptives and surgical services. Nevertheless, the

cases of female sterilization are minimum at best, primarily because female surgeons are not readily available in those remote areas.

The lack of access to contraceptives held down the percentage of women practicing family planning since there were no female motivators (e.g. in Dadeldhura). In Kailali, female sterilization was practiced. Those who could afford it went to India for surgical services.

The male responses for not practicing family planning methods were various -- unawareness, self-control, the respondents had few children, shaman, unwillingness, and frustration.

d. Migration and Employment

The Hill people unemployed or idle during the slack agricultural season leave their homes in search of seasonal employment and winter grazing for animals in the Terai. They work as unskilled laborers in construction works and farming, and some sell their livestock products for cash to buy necessities like salt, cloth, gur (molasses), etc., which they bring with them on the return trip after 4 or 5 months (generally November to April) in the Terai. Some wealthy hill families have two holdings (both in the Hills and in the Terai) and spend most of the cold winter in the Terai. Resettlement program

in the Terai districts of Kanchanpur and Kailali has attracted people not only from the Hills of this region but also from elsewhere in Nepal. This coupled with purchase of land and clearing of forest has caused major increase in the Terai population of this region (Table 2).

The pattern of off-season employment has changed since the road construction. Considerable numbers of Hill people work temporarily on the Dadeldhura-Baitadi and Bhatkanda-Doti road construction. Some are employed in the maintenance work of WHR. The practice of moving to Terai and to India for seasonal employment has decreased in recent years since a daily wage of Rs.15-20 per day available locally provides a substantial subsistence. People from other regions of Nepal also came into the area to work on roads as contractors and laborers. Thus the provision of WHR has generated additional employment to the people in the area and beyond.

C. Fiscal Procedure

Under HMG/N financial procedures in effect prior to the LSS project, transfer of funds from AID to the project were complex and time consuming. Delays of three to four months occurred with adverse effects on the progress of work. Funds could not be obligated until they were formally released to the project, even though all parties were aware that the money was going to come eventually.

The original sequence was: USAID/N deposited funds in the Nepal Rastra Bank to the credit of the project and the Financial Controller General, Ministry of Works and Transport, the Department of Roads and the project were concurrently notified by AID/N. The Controller General then transferred the funds to the Ministry of Works and Transport which in turn transferred them to the Department of Roads. Then the DOR released the money to the project for obligation.

USAID/N arranged a meeting on May 8, 1980 with the Financial Controller General and other concerned officials of the Ministry of Finance for the purpose of devising a workable financial procedure for release of funds to the LSS project, in order to minimize the time lag between USAID/N deposit date and the date when the project receives the fund. It was decided to adopt and use the following procedure on a test basis for the LSS project.

USAID/N deposited a check to the Nepal Rastra Bank in the name of the Financial Controller General and the project. Concurrently the Ministry of Finance, Ministry of Works and Transport, the Department of Roads, and the project were also notified by AID. The Financial Controller General immediately requested the Nepal Rastra Bank, Central Office at Kathmandu, to credit the amount of the check in the LSS Project account at Dhangarhi branch of the Bank. To execute this, USAID/N followed the HMG/N quarterly

budget request system. The DOR project site office at Dhangarhi also followed HMG/N financial rules and regulations for disbursement of funds and financial reporting from this project account.

The team reviewed above procedure by interviewing officials both at Kathmandu and at the project site. It was observed that the new financial procedure did positively contribute to the smooth running of the LSS Project. The project office reported that the funds reached the site usually within a week, and in cases of delay, it was in within two weeks.

HMG/N financial rules and regulations have substantially changed during the time the above procedure was adopted and now. Since 1982/83 the Financial Controller General has Treasury and Accounts Controller Offices (TACO) in all 75 district headquarters nationwide. Hence the usual process of budget channelling through the concerned ministries and departments has been eliminated. The TAC Office at district headquarters also perform audit functions for the project offices.

Under new financial rules and regulations the fund release is on the trimester basis and the TAC Office lends money to the project offices for a maximum of 2 months after the new fiscal year begins. As soon as the message arrives telegraphically or by issuance of an official letter (which is slower but more

reliable), the district TACO releases the funds to the project on request against the trimesterly allocated budget. However, the failure on the part of the project to follow regular bookkeeping and to identify the amount against each subhead will jeopardise timely funds release.

In the main, the financial procedure adopted in the LSS Project contributed significantly to the smooth running of the project and a similar procedure has been adopted by the Financial Controller General for the AID/HMG bilaterally and multilaterally aided projects in the country since 1982/83 fiscal year.

On-Going Developmental Activities

In recent years, there have been attempts to exploit the natural resources base in the Far Western Development Region. The decline in agricultural productivity seems to have attracted the attention of planners at the centre and huge investments are underway to provide water for arable lands. The Mahakali Irrigation Project in Kanchanpur District, and three irrigation projects in Kailali District are the major investment activities in the Terai.

In the Hills the Mahakali Integrated Rural Development Project has prioritized agriculture development. The project also has extended irrigation facilities, provided animal health care services, and constructed check dams to conserve soil in the project area of Darchula, Baitadi and Dadeldhura.

In its attempt to provide basic infrastructure facilities, the project has started a number of construction works including warehouses, official and residential buildings, suspension bridges, mule tracks, etc. The project has other components such as cottage industries, education, health, and local developmental activities. The major impact of WHR is seen as far as it extends (i.e., Dadeldhura) and future impacts on the other districts will be more noticable after the completion of the feeder roads. Presently, access to higher Hills of Darchula and Baitadi is via India.

Besides bilateral assistance, the local panchayats have carried out several developmental activities such as the construction of irrigation facilities, drinking water projects, school buildings, bridges and trails. These projects incur both HMG financial grants (34%) and people's participation (66%).

ABBREVIATIONS

ADO	Agricultural Development Officer
JTA	Junior Technical Assistant
AIC	Agricultural Inputs Corporation
DOR	Department of Roads
HMG/N	His Majesty's Government, Nepal
WHR	Western Hills Road
TACO	Treasury and Accounts Controller Office
DEO	District Education Office

APPENDIX A

EVALUATION METHODOLOGY

This was an evaluative research effort aimed at determining changes brought about by the WHR in the quality of life of the people living along the road and beyond. Given the time limitation and the study area, no specific methodology suggested by social science research was adopted. In essence, the sampling was purposive in the sense that the knowledgeable people were interviewed along and around the road alignment. Hence the data were collected mainly from three sources: (a) government offices both in Kathmandu and in the field, and (b) questionnaire interviews administered to ordinary people at both ends and along the road and (c) shopkeepers, leaders and others met on the way.

The study was conducted mainly in four phases. The first phase consisted of the review of related documents on the subject and the preparation of questionnaires to be utilized in the interview. To avoid the delay, the questionnaires were prepared in advance before the U.S.-based team members (Messrs. Martin Everitt and Paul Winkelaar) arrived in Kathmandu on October 26. The team met in Kathmandu on October 26 to plan the field survey and left Kathmandu on October 29. The second phase of the social survey collected data by interviews in the project area using personal questionnaires and arranging meetings from November 1-9. Feelings and impressions about the road were

gathered from people of various walks of life as we moved along. Thus porters, shopkeepers, laborers, teachers, political leaders, and farmers were met to gather their responses. In the third phase, the personal questionnaires were tabulated and analysed in Kathmandu from November 10-18 (see Appendix B). Finally, the informations was systematically put together in the form of a draft report. The review of related literature went on every morning and evening and during the course of study.

Although the personal interviews were conducted by Tek Bahadur Thapa (Economist), the other team members also actively participated in the meetings especially at Dhangarhi and Dadeldhura. Mr. George Lewis, Acting Deputy Director of USAID Mission to Nepal, showed a great interest in the social research work and stayed a night with the researcher in Dadeldhura.

Besides the personal questionnaires (Appendix B), open-ended questions were listed in advance before meeting local and central government officials. The officials interviewed are given in Appendix C.

Distribution of Personal Questionnaires

By Main Occupation

Agriculture	26
Teaching	6
Government Service	3
Medical Practitioner	1
TOTAL	36

By District

Dadeldhura	23
Kailali	8
Doti	5
TOTAL	36

By Age

23-35 years	11
36-50	19
51-70	6
TOTAL	36

By Education

No school	1
1-5 years	13
6-10 years	19
10 + years	3
TOTAL	36

By Distance of Residence from Western Hills Road

0-1 km	16
2-5 km	15
6-18 km	5
TOTAL	36

Number of political leaders in the sample	10
Number of Village Panchayats in the sample	8
Number of villages in the sample	20

ANALYSIS OF QUESTIONNAIRES

A total of 36 personal questionnaires were administered in three districts (two, Kailali and Doti in Seti Zone, and one, Dadeldhura in Mahakali Zone) of Far Western Nepal. Of the three, Doti and Dadeldhura are in Hills whereas Kailali is in the Terai, the northern part of Indo-Gangetic plain.

As dictated by time limitations and terrain, the number of interviews conducted along the Western Hills Road was limited to 36. However, it is believed that the information gathered provides, without losing generality, consistent and valuable insights into the social impact imparted by the provision of the road. The questionnaires were not field pre-tested but the useability was materialized by slight modification and alteration of the content in the original questions. During the survey, no significant problems were encountered since Mr. Tek Bahadur Thapa (Economist) was engaged starting from preparation to administration of these questionnaires. This appendix is the result of 36 personal interviews.

RESULTS OF QUESTIONNAIRES

A. General

Name

Age

Occupation

District

Panchayat

Ward No.

Village

Distance of Residence from Western Hills Road

Membership in Organization

Remarks about the Respondent

B. Migration

B.1. How long have you lived in this village? If migrated, where did you come from?

Migrated to	From	No. of Answers	Years Lived
Kailali, Geta	Dadeldhura	3	9,20 and 20
Kailali, Geta	Baitadi	1	21
Kailali, Geta	Kailali, Sripur	1	6
Doti	Rolpa	1	40

B.2. Who was the previous resident on land?

In Kailali district, 4 of the previous residents were Tharus (local), 1 was from Pokhara (Gandaki Zone) and in Doti, the previous occupant was local.

B.3. Where did he (previous resident) go?

Three Tharus migrated to Kanchanpur (adjoining district), the one from Pokhara went back home. The rest (32) were local.

C. Farming

C.1. Have you changed your farming practices in the past few years? Yes/No

Distance from WHR	% Yes	Number of Answers
0-1 km	88	16
2-5 km	73	15
6-18 km	60	5
TOTAL	78	36

The reasons given for not changing their farming practices were the lack of irrigation and proper marketing facilities (especially for wheat).

C.1.1 If yes, were you able to increase production? Yes/No

Distance from WHR	% Yes	Number of Answers
0-1 km	86	14
2-5 km	91	11
6-18 km	100	3
TOTAL	90	28

In one case, the respondent unable to increase production said that the soil fertility was deteriorating because of forest degradation.

C.1.1.1 If yes, how?

Distance from WHR	Chemical Fertilizers	Improved Varieties	Improved Methods	Pesti-cides	Fruits	No. of Answers
	Percent Users					
0- 1 km	57	86	22	57	29	14
2- 5 km	45	91	9	36	18	11
6-18 km	33	100	33	67	100	3
TOTAL	50	90	18	50	32	28

The major factor contributing to increased agricultural production was the use of high yielding varieties. Half of the respondents (14) practised indigenous organic source of fertilizer (farm yard manure). Chemical methods of agricultural pest control were in increasing use. Fruit plantations (apple, pear, citrus) were of recent introduction.

C.2. How do you get the idea of improved farming?

Source	% Yes
Government Agency (ADO/JTA)	56
Agricultural Assistant	11
Neighbor	14
Radio Listening	0
Publications	0
Training	14

More than half (20) of the respondents received the idea of modern agricultural technology from the government extension agents. Equal number of

farmers (5 each) received training and consulted neighbors for improved farming. Four contacted agricultural assistants in the village. None listened to the radio and read publications for the purpose.

C.3. Where do you get modern agricultural inputs (seed, fertilizer, pesticide etc.) from?

Source	% Yes
Agricultural Inputs Corporation	42
Cooperatives	25
Neighbors	14

Most respondents (15, from the Hills, i.e., Dadeldhura) purchased agricultural inputs from the government owned corporation (AIC). The Terai (Kailali) farmers got their inputs from village cooperatives, whereas the farmers from Doti had no access to either of the two and so purchased from neighbors.

C.3.1. Are they (agricultural inputs) available when you need them?

Distance from WHR	% Yes	Number of Answers
0- 1 km	92	13
2- 5 km	55	11
6-18 km	75	4
	75	28

Generally, the agricultural inputs were available. Six farmers reported that the inputs usually arrived late in their place.

C.4 How do you market your produce? Which is the main market centre?

After the road provision, some places along the road have emerged as market centres which serve the areas in the vicinity. Geta (in Kailali), Phaltunde, Gaira, Budar, and Dadeldhura (in Hills) are the examples.

Products commonly marketed include paddy, wheat and Tori (Oilseed crop) in the Terai and milk, ghee, vegetables, fruits and potatoes in the Hills.

D. Food Consumption

D.1. Do you find any significant change in your (your family's) food habits after the road provision? Yes/No.

Distance from WHR	% Yes	Number of Answers
0- 1 km	75	16
2- 5 km	80	15
6-18 km	27	5
TOTAL	70	36

D.1.1. If yes, how?

Distance from WHR	Increased use of			No. of Answers
	Vegetables	Cereals	Fruits	
	Percent Users			
0- 1 km	100	25	17	12
2- 5 km	92	42	17	12
6-18 km	100	25	50	4
TOTAL	97	32	22	28

The most significant change that has occurred in food habits is the increased consumption of vegetables followed by cereals and fruits.

D.1.1.1 Where does the additional amount come from?

Distance from WHR	Home Grown (% growers)	Purchased (% buyers)	No. of Answers
0- 1 km	92	42	12
2- 5 km	92	33	12
6-18 km	75	100	4
TOTAL	90	46	28

Majority of the increased food consumers (25) grow the additional food by themselves. Others purchase them from nearby markets e.g. Dadeldhura, Gaira and Budar. Occasionally, vegetables, fruits and food grains are imported into the Hills from the Terai. Vegetables and fruits are also found to have been grown and marketed in the Hills.

E. Health

E.1. Whom do you consult when you are sick?

Almost all informants (34 of 36) visited the hospital for treatment. One used Vaidya (homoeopathist) and the other remained at home and did never visit a hospital.

F. Family

F.1. How many members are you in the family?

The informants generally lived in a joint family (28 of 36). The average number of family members was 13, maximum being 31 in one case. Others (8 of 36) lived in a nuclear family with an average members of 6 (sons 1.6 and daughters 2.4), maximum being 9.

F.2 Do you practise family planning methods? Yes/No.

Distance from WHR	% Yes	Number of Answers
0- 1 km	38	16
2- 5 km	40	15
6-18 km	0	5
TOTAL	34	36

The respondents who practised family planning methods (12 of 36 or 33%) resorted to both permanent sterilization (7) and temporary contraceptive methods (5).

F.2.1 If not, why not?

The reasons given for not practising family planning methods were -- unawareness (5), self control (3), few children (12), shaman (1), unwillingness (1), and frustration (1). One was planning to practise soon.

G. Education

G.1. For how many years did you go to school?

Schooling	Number of Respondents
No school	1
1-5 years	13
6-10 years	19
10+ years	3
TOTAL	36

G.2. Do you send your sons and daughters to school? Yes/No.

Distance from WHR	% Yes		No. of Answers	
	Sons	Daughters	Sons	Daughters
0- 1 km	100	71	15	14
2- 5 km	100	80	12	10
6-18 km	100	25	3	4
TOTAL	100	68	30	28

All informants educated their sons. The girls were not educated because there was no tradition to send them to school (6), the parents were poor (1), and the girls hesitated to go (2).

H. Miscellaneous

H.1. Do you use the road facility? Yes/No.

Distance from WHR	% Yes	Number of Answers
0- 1 km	81	16
2- 5 km	87	15
6-18 km	100	5
TOTAL	86	36

Three respondents who did not use the WHR were from the Terai. The rest (2) were from Dadeldhura who bought their essential commodities from the local market centre.

H.1.1 If so, on the average, how many times a year do you use the transportation facilities? For what purpose?

Occupation	No. of visits/year	No. of Answers
Shopkeepers	24	7
Others	3	24
TOTAL	8	31

Businessmen were using the road facilities most, primarily for transporting goods. Other users occasionally moved out to visit their relatives and to look after farming in the Terai (generally Kanchanpur). At times they also brought essential commodities like salt, sugar, clothes, etc., from the Terai.

H.2. If you need, loan, where do you borrow it from? For what purpose?

Distance from WHR	Cooperatives or Bank	Neighbors	No. of Answers
	Percent		
0- 1 km	75	25	12
2- 5 km	67	33	6
6-18 km	67	33	3
TOTAL	72	28	21

Thirteen informants borrowed for agricultural purposes, four each for household expenses, and for business.

I. Rural Income

I.1. What is your main source of family income?

All informants had agriculture as their main source of family income. Besides from agriculture, 23

informants derived their income from other sources also, viz., government service (12), business (7) and unskilled labor (4).

I.2. Has your family income increased relatively after the road provision? Yes/No. If yes, how?

Thirty one respondents reported increase in their family income. Most increases (17 of 31) were attributed to savings in time and transportation of goods. Fourteen informants reported the increase due to increased business transactions.

J. Resource Endowment

J.1. Farm Size

	Irrigated	Unirrigated	Total
	Ropani*		
Terai	2	119	121
Hills	9	37	46
TOTAL	7	54	61

* 1 Hectare = 20 Ropanis.

J.2. Livestock

	Average Numbers/Household
Buffaloes	1.1
Cows	4.7
Bullocks	3.0
Goats	1.2

K. Revegetation

K.1. Do you occasionally encounter floods, landslides, etc.? Yes/No

If yes, what measures have you taken to overcome these calamities?

Twenty-four respondents answered affirmatively to the first question. All occurred in the Hills, except one in the Terai where the flood damaged the crops. None has taken any step to overcome the floods and landslides.

K.2. Have you heard of afforestation program? Yes/No.

Two-third (24 of 36) were aware of the government effort to revegetate.

K.3. Do you practise tree plantation? Yes/No.

Sixteen (of 36) informants planted trees.

Most of these (9 of 16) are fruit trees. Others planted trees for Panchayat Forests (5 of 16) and forage trees for livestock (2 of 16).

K.4. Please give the source and time taken to collect firewood, fodder and drinking water.

Items	Time taken for each trip (Hrs.) Now	Ten years ago
Firewood	5.2	2.4
Fodder	4.8	2.5
Water	18 min.	25 min.

The time taken to collect fuel-wood and fodder for livestock has doubled in a decade. Most (35 of 36) collected firewood from the forest. One managed to get it from his own plantation. The fodder for livestock generally came from the forest in Hills (29 of 36). The time taken for drinking water has decreased by 7 minutes. This is attributable to the provision of polythene pipes for the purpose. The Terai residents had either the hand pumps (4) or the deep well (3) as a source of drinking water. Eight Hills residents had the privilege of drinking water projects. The rest depended on natural sources like springs (17) and steams (4).

APPENDIX C

PERSONS CONTACTED

1. Mr. Ajambar Rai, AIC, Branch Office, Dhangarhi
2. Dr. Sher B. Chand, Kailali Hospital, Dhangarhi
3. Mr. Maheshwar Ram Joshi, Treasury and Accounts Controller Office Dhangarhi
4. Mr. Ram Bahadur Khadka, Handicrafts Sales, Depot, Dhangarhi
5. Mr. Bir Bahadur K.C., Cottage and Rural Industry Development Section, Dhangarhi
6. Mr. P.D. Subhash, DEO, Dhangarhi
7. Mr. Ram L.P. Dhami, ADO, Dhangarhi
8. Mr. Laxmi D. Panta, Agriculture Section, Dadeldhura
9. Mr. Jitendra B. Basnet, Chief District Officer, Dadeldhura
10. Mr. Ganesh P. Bhatta, Chairman, District Panchayat, Dadeldhura
11. Mr. Basanta K. Shah, Family Planning Officer, Dadeldhura
12. Mr. Maheshwar L. Shrestha, Dadeldhura-Doti Road Project, Bhatkanda
13. Mr. A.K. Dhungana, DOR, Kathmandu
14. Mr. Bhubaneshwar Khatri, Financial Controller General, Kathmandu

OFFICES CONTACTED

1. District Education Office, Dadeldhura
2. Excise Tax Office, Dhangarhi

3. District Office, Dhangarhi
4. . ., Seti Zone Police Office, Dhangarhi
5. Kailali Forest Division, Dhangarhi
6. Central Bureau of Statistics, Kathmandu
7. Nepal Food Corporation, Kathmandu
8. Office of the Co-ordinator, Mahakali Integrated Rural Development Project, Kathmandu
9. Department of Food and Agriculture Marketing Services, Kathmandu.

APPENDIX D

PLACES VISITED FOR PERSONAL INTERVIEWS

District	Village Panchayat	Village
Kailali	Geta	Mohanpur
	Geta	Geta
	Sahajpur	Bayla
Dadeldhura	Ghatal	Kande
	Ghatal	Shera
	Ghatal	Birakham
	Ghatal	Pathroda
	Ghatal	Haat Gaon
	Ghatal	Shand
	Ghatal	Joshina
	Ghatal	Sholpari
	Ghatal	Chirkette
	Ghatal	Kari Gaon
	Ghatal	Maurada
	Bhadrapur	Bhuteun Balnek
	Chipur	Chaundi
	Gankhet	Hartola
Doti	Chhatiun	Budar
	Ghanteshwar	Gaira Badakhet
	Ghanteshwar	Nikane

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Appendix Table A.

Land-use Data for Selected Districts, Far Western, Nepal

(Area in ha.)

District / Category	Bajhang	Bajura	Doti	Baitadi	Dadeldhura	Kailali	Kanchan-pur
F_1	83409.6	88205.9	103427.4	44211.9	63520.9	176938.4	70895.2
F_2	31111.6	11225.7	43521.5	18850.1	53585.3	55291.0	29347.7
C_1	9163.5	8212.1	16751.3	12612.9	6018.0	2119.2	-
C_2	12745.9	4033.9	10717.7	7668.6	7959.8	1658.6	99.6
C_3	6715.2	2940.1	7542.7	3417.6	6545.1	2439.2	-
C_4	-	-	-	-	-	73247.9	47739.1
G	39191.5	38222.7	9223.8	14793.9	4920.1	4888.5	9785.1
O	13976.5	10900.8	16205.5	13720.4	7045.6	3310.2	14.2
R	144774.8	39891.4	313.8	-	-	-	-
B	172.5	-	1067.6	142.5	1550.1	7971.4	6518.8
L	-	-	-	-	-	-	-
UMA	-	-	-	16691.3	-	-	-
Total	341261.1	203632.6	208771.3	132109.2	151144.9	327864.4	164399.7

Source: Land Resource Mapping Project, Land Use Report - 1983.

Note: F = Forest; F_1 = Forest (Hardwood, Coniferous, Mixed Conif., Mixed hardwood)

F_2 = Forest (Shrub, Protection forest, Burned forest, Plantation forest)

C = Cultivation; C_1 = Hillslope cultivation-level terraces;

C_2 = Hillslope cultivation - sloping terraces;

C_3 = Valley Cultivation (with Tars and encroched areas)

C_4 = Terai cultivation; G = Grazing land; O = Others (mised use, settlement, ...)

R = Rock outcrop; B = Boulders (along the riverside or barren too)

L = Lake; UMA = Unmapped Area

Appendix

Table B. Production of major crops in selected districts of Far Western Development Region, Nepal, 1968/69, 1982/83.

(In MT)

District	Paddy		Maize		Wheat & Barley		Millet	
	1968/69	1982/83	1968/69	1982/83	1968/69	1982/83	1968/69	1982/83
Kailali	64,350	58,680	22,620	13,760	2,250	19,090	1,032	1,300
Kanchanpur	25,800	44,240	10,440	12,720	1,125	9,930	555	600
Doti	10,023	8,650	7,800	6,720	7,815	12,970	1,375	1,560
Dadeldhura	6,398	8,630	6,160	3,630	6,808	7,570	1,960	2,300
Bajhang	6,425	4,910	2,004	1,260	8,320	2,990	1,094	920
Achham	6,548	2,700	3,460	3,420	5,602	3,760	832	940
Baitadi	6,921	6,270	4,463	2,830	5,596	3,310	906	1,100
Bajura	6,944	3,130	1,503	870	4,554	2,720	1,129	630
Total	133,409	137,210	58,450	45,210	42,070	62,340	8,883	9,350
% change	2.8		-22.7		48.2		5.3	

Source: See Table 1 for 1968/69 and 1982/83 data.

Appendix
Table C. Yields of Major Foodgrain Crops, Selected Districts, Far Western Development Region, Nepal, 1964/65 and 1982/83.

(In MT/ha)

District	Paddy			Maize			Wheat			Millet		
	1962	1964/5	1982/3	1962	1964/5	1982/3	1962	1964/5	1982/3	1962	1965	1983
Kailali	1.10	1.65	1.37	0.60	1.32	1.19	0.59	0.66	1.37	NA	0.82	1.0
Kanchanpur	1.07	1.53	1.61	0.78	1.70	1.47	0.53	NA	1.07	NA	NA	1.0
Doti	2.12	0.99	1.25	2.45	0.55	1.60	1.26	1.09	1.19	1.39	1.09	0.84
Dadeldhura	2.60	1.43	1.60	2.76	1.59	1.43	1.62	0.88	0.8	1.85	0.88	0.8
Baitadi	2.26	0.99	1.90	1.67	NA	0.97	1.18	0.88	0.9	1.16	NA	1.1

NA = Not Available

Source: For 1962 and 1964/65, See (1) Table 1.

For 1982/83, See (2) Table 1.

Appendix Table D — Number of Users of Family Planning Methods, Kailali District, Nepal

Methods		1978/79	1979/80	1980/81	1981/82	1982/83
		Number				
Contraceptives	Male	270	219	494	581	1,091
	Female	230	145	372	1,206	840
Surgery	Both	53	a/	281	246	252 b/

Source: Kailali Hospital, Dhangarhi

a/ No program

b/ 207 female + 45 male)

Appendix Table E — Number of Users of Family Planning Methods, Dadeldhura District, Nepal

Methods	1981/82	1982/83
	Number	
Contraceptives	2,029	4,438
Surgery	88	219

Source: Family Planning Office, Dadeldhura.

The office was opened at the end of 1980/81 fiscal year.

A P P E N D I X

This appendix includes selected project reports and documents including the PASA agreement covering the LSS review team. These documents are not included in all copies of the report.