6. THE MICRO SETTING: HOUSEHOLD RESPONSES AND OUTCOMES

6.1 Agriculture in the Study Villages

Original data for this study was collected using the Participatory Rural Appraisal (PRA) approach in four VDCs in different ecological belts and regions (Table 6.1 below). The major objective was to examine the household poverty and food security situation of people living in different physiographic regions, socio-economic environments and physical, social and economic situations and to assess the underlying causes, including the policy and institutional constraints. The PRA exercise conducted as part of the present study aimed to identify linkages and gaps between the formulation of policies and strategies on poverty alleviation household food security at the macro level and their ultimate impact at the micro (household) level in the rural areas.

Table 6.1 summarizes major characteristic features of the four study villages situated in four districts.

Table 6.1: Major characteristics of the study sites

Study VDC	**Murma**	**Sokat**	**Kharaula**	**Belha**
Focused ward	7 & 8	4	7	1
Focus village/settlement	Rara	Sokat	Pratappur	Amahibelha
District	Mugu	Achham	Kailali	Sunsari
Physiographic Region	Mountain	Hill	Tarai	Tarai
Development Region	MWDR	FWDR	FWDR	EDR
Poverty and deprivation situation rank	Worst	Worst	Worst	Best
Human development Index	Lowest	Lowest	Lowest	Highest
Altitude of the study VDC	3,698	1,700	250	300
Dominant caste group in descending order (Study VDC)	Chhetris, Dalits and Brahmins	Dalits, Brahmins/ Chhetris	Tharu, Brahmins, Chhetris	Tharu, Dalits, Chhetris, Brahmins
Dominant farming systems	Livestock based	Upland rice based	Rice based	Rice based
Nature of farming systems	Subsistence	Subsistence	Shifting towards commercialization	Shifting towards commercialization
Major crops	Millets, Wheat and Barley	Upland rice, Millet, Maize	Rice, Wheat, Mustard, Potato, Sugarcane	Rice, Wheat, Sugarcane, Vegetables
Major livelihood strategy	Men's winter migration to India	Men's migration to India	Farming, Sugarcane cultivation, Business	Farming, sugarcane cultivation and vegetable growing
Average land holding/household, ha	2.14	n/a	n/a	1.79

6.1.1 Murma Village (Far Western Mountains)

Agriculture is the main occupation of the people in Murma village. Farming is strictly subsistence oriented and farmers follow a four-year crop rotation. Millet and wheat are grown in two parts, barley, pulses or potato in the third part and the fourth part is left fallow. Farmers keep livestock mainly for farmyard manure and as means of income earning through transportation. However the number of livestock has decreased significantly in recent years due to the overriding priority given to community forestry programme (which effectively closes off grazing areas to people who are not members of the Forest User Group), and the establishment of Rara National Park[1]. Residents of the village have neither heard of the APP nor have they felt any change in terms of district line agency approach towards agriculture since its adoption.

Although gender division of labour is the norm in this mountain village, when men and women were asked (in separate groups) to list and rank the agricultural problems they face, the ranking was remarkably similar. This village is close to Rara National Park, and both groups listed crop damage by wild animals as the top problem. They did not mind the national park, they said (indeed park-associated projects provided a welcome source of employment for some who were in dire need of it), but they wanted measures taken to ensure that the animals stayed away from their fields. The next four problem listed were virtually the same in ranking and they all concerned lack of access to the technologies and services that would improve their productivity. Lack of improved seeds was listed first, then lack of skills and technical knowledge, followed by lack of credit, lack of improved cattle breeds and lack of access to plant protection chemicals. Lack of access to fertilizer and veterinary medicine also figured on the lists.

6.1.2 Sokat Village (Midwestern Hills)

Subsistence agriculture is the main occupation of the people in the village. Major cropping rotations include paddy-wheat/barley, finger millet-wheat, finger millet-mustard and maize-wheat. None of the elements of modern agriculture has reached the village. People keep livestock mainly for farmyard manure and for livestock products like milk and ghee. As the forest is denuded and rainfall irregular, it provides little livelihood support, yet to date little effort has been made to protect and manage the forest in a sustainable manner. As in Murma, residents of the village have neither heard of the APP nor have they felt any change in terms of district line agency approach towards the farmers.

As in Murma, gender division of labour is the norm in Sokat's agriculture; yet again the results of independent identification and ranking of problems were similar. There was greater difference of ranking in the Hill village, but the similarities were greater than the differences. Lack of skills and technical knowledge, lack of modern inputs and lack of access to veterinary medicines and services figured high on both lists. Unlike Murma, lack of access was also perceived as a problem, but only by the men in Sokat. Attitudes towards water control also differed comparing men and women. For the former the problem was lack of access to irrigation, whereas for the women a more pressing concern was loss of crops to the flooding that occasionally affects the area.

6.1.3 Kharaula Village (Far Western Tarai)

Agriculture is the main occupation of the people of Kharula. Although the sector is in a stage of transition from the subsistence to commercial orientation, cash crops still occupy only a small percentage of total cropped area. With the establishment of a sugar mill nearby, farmers have begun to grow sugarcane, and a few have tried growing sunflower instead of the traditional mustard crop, a switch that was triggered by the low price of mustard and further aggravated by increased aphid infestations. The paddy-wheat cropping pattern is predominant followed by paddy-fallow and paddy-pulses. Although a few improved Nepalese paddy varieties are grown in the village, Indian varieties are more common. Many farmers said that they did not know yet of any Nepalese improved variety of paddy which is likely to replace the Indian Surju variety in the near future. Both cattle and buffalo are used as draft animals and for milk production. Most livestock fodder comes from crop residues, but the number of buffaloes in the village is restricted by lack of fodder and labour for management. Except for a few educated landlords, no one knew about the APP, its approach or priorities.

The most pressing agricultural problems reported by men and women in the village were similar, but there were gender differences in their relative ranking. For women the lack of technical support services and of appropriate agriculture tools and equipment were pressing problems. This indicates that women, even more than men, are bypassed by the agricultural extension services provided by District Agricultural Development Offices (DADOs). Despite the fact that the village is linked with the all-weather national highway to Dhangarhi (the district headquarters) the men said the lack of market facilities for their agricultural products was their most important problem – by which they meant that prices are low and they are unable to influence prices because of their small volume of sales. Lack of irrigation facilities, credit and technical support services were also seen as problems by the men.

6.1.4 Belha Village (Eastern Tarai)

Belha's economy is also dominated by agriculture, which is rapidly commercialising, as the village is less than 10 km from a major town, Biratnagar. Farmers usually grow three crops a year in a paddy-dominated cropping system. Popular crop rotations are: paddy - paddy - wheat, paddy - paddy - mustard, paddy - paddy - maize, paddy - wheat - fallow, and paddy - vegetables - vegetables. Due to the establishment of a sugar mill in an adjoining village, sugarcane has become a popular cash crop, and most of the big farmers plant it. After sugarcane, growing vegetables for market is common among all types of farmers, and vegetable growing is a source of cash income for all farm households. Most of the crop varieties grown are improved. Both cattle and buffalo are used as draft animals for transport and soil preparation, as well as milk production. A large proportion of livestock fodder comes from crop residues, and the system is relatively independent of forest and public grazing lands. Buffalo keeping is also quite popular and the increased private plantations are due to the popularity of buffaloes in the VDC.

Pressing agricultural problems as reported by men and women revealed their different priorities. Lack of irrigation was the most pressing problem perceived by men, whereas women reported damage to crops by floods as the most pressing difficulty, and they wanted immediate action and programmes to control flooding. As in Pratapur in Kailali, women reported the lack of technical knowledge and skills

needed to increase agriculture production as the second most serious problem they faced, but this was not mentioned by men. Again this is an indication of the lack of women's access to agricultural extension services. The issues raised by men mostly concern the difficulties they face in commercializing their farming, such as the lack of irrigation, lack of chemical fertilizers, high prices of fertilizers, the lack of access to improved seeds and credit. Many men said they knew more than a JT/JTA could teach them. If the extension service could just arrange credit, seeds and fertilizer on a timely basis, they would be satisfied.

6.2 Poverty, food security and gender issues

As shown in Table 6.2, the majority of the people are poor ('poor' plus 'very poor') in all four study villages. These poverty figures are significantly higher than the national estimates. These figures come from a very small study, yet, as reported in the previous chapter, they are close to the findings of the large-scale survey carried out by APROSC in 1997 (APROSC 1998).

Table 6.2: Economic Stratification of People in the Study Villages by Ethnicity (%)

Ethnic groups/Caste	Murma (n=55)		Sokat (n-193)			Kharula (n=125)			Belaha (n=121)		
	DC	Dalits	DC	IT	Dalits	DC	IT	Dalits	DC	IT	Dalits
Very rich	-	-	3.6	-	-	0.8	1.6	-	4.9	0.8	-
Rich	5.0	-	13.5	-	0.5	8.0	7.2	-	6.7	2.5	-
Medium	29.0	-	5.7	-	-	4.8	32.8	-	4.9	8.2	-
Poor	15.0	-	12.9	-	6.2	4.0	8.8		0.8	5.9	10.7
Very poor	43.6	7.4	12.4	-	45.2	3.2	28.0	0.8	-	29.8	24.8
Total	92.6	7.4	48.1		51.9	20.8	78.4	0.8	17.3	47.2	35.5

Note: DC refers to dominant caste group which includes, Brahmins, Chhetris, Baniyas etc, IT to indigenous tribe which includes Tharus, Magar, Gurung etc and Dalits to Disadvantage Group which includes Kamis, Damais, Sarkis etc.

Normally Tarai VDCs would be expected to be economically better off (at least on average) than VDCs in the Hills and Mountains, but disadvantaged castes (Tharus and Dalits) dominate the populations of Pratappur and Amahibelaha, and these villages appeared similar in economic terms to Murma and Sokat. Although it would be risky to pass judgement in the absence of supporting data, the findings of this study do suggest that the indigenous groups and Dalits benefit less than others from the government's current economic liberalization programme and the increased development opportunities this has created in the Tarai. This view is supported by the distribution of households by economic class and the state of food sufficiency against different ethnic groups in Table 6.3.

Villagers in the different study villages were asked to describe their concept of 'economic well-being', and this definition differed according to physiographic region and socio-economic environment. People in the Hill and Mountain villages struggle to feed themselves and their families, and year-round food self-sufficiency was for them the most important criterion. In the two Tarai villages, the size of land holding and nature and types of businesses engaged in were the main criteria. The poverty of people in Murma and Sokat is so great that they can scarcely think beyond their food supply, while in the Tarai

VDCs, people looked beyond this to consider also cash needs for their children's education, for purchasing agricultural inputs and to hire farm labour.

Table 6.3: State of food sufficiency by ethnicity in the four study villages (%)

Food sufficiency	Murma		Sokat		Kharula			Belaha		
	DC	Dalits	DC	Dalits	DC	IT	Dalits	DC	IT	Dalits
Upto 3 months	43.6	7.4	12.4	45.2	3.2	20.0	0.8	-	14.9	4.9
4-6 months	14.5	-	12.9	6.2	4.0	8.0	-	0.8	6.7	30.6
6-9 months	29.1	-	5.7	-	4.8	41.7	-	4.1	8.3	-
Year round	5.4	-	13.5	0.5	5.6	7.2	-	4.1	5.8	-
More than 12 months	-	-	3.6	-	3.1	1.6	-	8.2	0.8	-
Total	92.6	7.4	48.1	51.9	20.7	78.5	0.8	17.3	47.2	35.5

The monthly food availability situation in the four study villages is shown in Figure 6.1. This indicates that the situation is somewhat better in the two Tarai VDCs than in the two other belts, but not as encouraging as it should have been in view of the resources, development potential and infrastructure development in Tarai. The worst food availability situation is in Sokat, followed by Murma, Pratappur and Amahibelaha in that order. The situation was better in Murma since the village was situated near to the District HQ, and the village was in the buffer zone of Rara National Park, so that some employment is available. Most households experience food shortages from *Magh* to *Jestha* (5 months) in Murma, *Marga* to *Chaitra* and *Asadh* to *Bhadra* (7 months) in Sokat, *Asadh* to *Ashwin* (4 months) in Pratappur and *Bhadra* to *Ashwin* (2 months) in Amahibelaha. This problem was particularly acute for the poorer households which sell food shortly after harvest in order to pay back loans and raise cash.

Figure 6.1: Food availability situations by months in study villages

Month (B.S.)	*Bai-shak*	*Jes-tha*	*As-had*	*Shra-wan*	*Bha-dra*	*Ash-win*	*Kar-tik*	*Mar-ga*	*Paush*	*Magh*	*Fal-gun*	*Chai-tra*
Study Village	Apr/ May	May/ Jun	Jun/ Jul	Jul/A ug	Aug/ Sep	Sep/ Oct	Oct/ Nov	Nov/ Dec	Dec/ Jan	Jan/ Feb	Feb/ Mar	Mar/Ap r
Murma												
Sokat												
Kharula												
Belaha												

Food deficit/critical Moderate Food-sufficient

Until 1995, when the Karnali river was bridged, Pratappur, despite being a Tarai village, was isolated from the rest of Nepal. The people of the VDC had therefore little incentive to produce more or to commercialize agriculture, for they were highly dependent on Indian markets for the sale of produce.

Local farmers provided considerable insights into their perceptions of Indian agriculture, and by implication their views of the shortcomings of agricultural development in Nepal. In their view the cost of production is lower in India for four reasons. First, agricultural research is highly developed. Second, agriculture is heavily subsidized. Third, the average land holding size per household is larger in India. Last, India has better economic infrastructure in the form of transport facilities and communication systems. Pratappur agriculture, particularly rice farming, is dependent on agricultural research at Pantnagar, India. According to local people, Pantnagar's Sarju 52 rice variety dominates rice farming in the VDC. Nepalese agricultural researchers claim to have developed alternative rice varieties nearly equivalent to Sarju 52, but farmers are not aware of these varieties. Nepalese researchers say that Janaki variety equals to Sarju 52 but farmers do not accept this.

In Murma and Sokat, the local economy is sustained by the seasonal migration of male members of the family to India, where they work as unskilled daily labourers. It is a measure of their desperation that they do this despite that the fact that earnings are very low, and despite their allegation that they are often cheated in India by some work gang leaders and contractors. In fact some of them report that they are unable to earn more than enough to support themselves and repay the cost of loans for the journey, and that the main benefit of seasonal migration is that it relieves pressure on domestic food supply. Failing to go to India means being prepared to live in hunger. Murma people usually return home at the start of summer to work on their farms, but recent years have seen Sokat people staying longer and going to India more often. This is an indication of an increasing level of poverty in Sokat. Richer households which have sufficient to eat do not go to India, except for very short visits to buy clothes and utensils. Due to scarcity of food and the lack of employment opportunities, disadvantaged people in the two Tarai study villages also travel to neighbouring states of India in search of seasonal daily wage employment. Poverty, and hence seasonal labour migration to India, is as common among the indigenous peoples and dalits of the Tarai as among the poor of the two Hill and Mountain villages.

The study reveals that the majority of men would not go to India if sufficient remunerative and regular work were available in the village and surrounding area. People believe that India would not try to stop this seasonal migration because it requires a cheap source of labour. Neither would they stop going to India so long as there is no viable alternative. The implication for the development of Nepal is controversial. People believe that if Nepal were to create a sufficient number of jobs within the country, people still choosing to go to India would benefit significantly because supply of labour would decrease in India and this in turn would increase bargaining power of migrants to demand higher wages and simultaneously reduce the chance of being cheated.

Table 6.4 indicates that when agriculture is subsistence-based, women's workloads are high, as reflected by the case of Murma and Sokat, where women generally spend 7 to 10 hours a day on reproductive and other household tasks and 5 to 7 hours a day on productive tasks. Dominance of livestock in farming systems and strong linkages between farm, livestock and forestry are also factors contributing to the heavy workload of women. Seasonal out-migration of men from these two villages has a similar effect.

Table 6.4: Daily workload of women and men by study village

(Hours)

Activities	Murma		Sokat		Kharula		Belaha	
	Women	Men	Women	Men	Women	Men	Women	Men
Productive work	7	9	9	10	9	NA	5	11
Reproductive and other household work	10	3	8	4	7	NA	10	2
Total	17	12	17	14	16	NA	15	13

Table 6.5 lists the major problems as reported by farmers, their perceived causes and the livelihood responses they adopt. Increasing agricultural productivity (e.g. through irrigation development or locally-adapted varieties) evidently go a long way towards resolving these issues.

Table 6.5: Farmers' problems, their causes and livelihood responses

Problem	Causes	Livelihood strategies/ coping mechanisms
Seasonal staple food shortages	Low productivity Lack of irrigation Poor services from the government agricultural extension and research activities Lack of modern agricultural inputs Soil fertility declining	Seasonal migration to India (Murma and Sokat) Sell livestock to buy food Eat fewer meals per day Travel to India in neighbouring districts of India in search of wage labour (Kharula and Belaha) Sugarcane cultivation (richer households in Kharula and Belaha) Vegetable farming (Belha)
Rainfed agriculture	Lack of surface irrigation facilities Reduction in Govt subsidies being available for shallow tube well	Grow rainfed crops such as upland rice, maize and millets (Murma and Sokat)
Lack of employment or work opportunities	Lack of the government investments and programs to increase employment opportunities at the village level	Seasonal migration to India (Murma and Sokat) Travel to India in neighboring districts of India in search of wage labour (Kharula and Belaha)
Lack of co- ordination and linkages among development agencies	Sectoral approach followed by the village based intervening agencies Multiple agencies with nearly common objectives and programs operating (Kharula, Amahibelaha)	Not applicable

6.3 Development opportunities and interventions

With the bridging of the Karnali river in 1995 and the consequent completion of the East-West Highway linking the entire Tarai belt, market integration between Far West Tarai with the rest of Nepal began. But the Pratappur study indicates that such market integration has been slow. Some important questions arise from this, in particular: have the institutions operating before and after bridge construction changed their strategies and made positive efforts to help West Tarai to integrate with the rest of Nepal? To what extent have the private and public sectors built up mutually-supportive relationships?

The study uncovered evidence of beneficial impacts flowing through the private sector, but little indication of public-private collaboration or co-ordination. Due to easier access to Basulinge Sugar Mill after the completion of the Karnali bridge, the people of Pratuppur began to plant sugarcane. The factory both ensured a market for the crop, and provided the farmers with technical services and production inputs (seeds, fertilizer and pesticides). However there was no evidence of this private sector support being matched by any government extension and research services for the expansion of sugarcane area. Multiple institutions operate at the VDC level in all study villages, but there were more interventions and opportunities in the two Tarai villages than in Murma and Sokat. However little co-ordination were noted among these institutions in any village. A striking feature was the existence of multiple credit oriented institutions in Pratappur, but with little if any interaction or co-ordination between them. Perhaps the most discouraging finding is that in none of the study villages did the farmers appreciate the role and activities of the local Agricultural and Livestock Services Centres and Sub-centres, government grassroots organizations which are supposed to provide extension services. This contrasts with other organisations which are present in the villages, such as donor-funded projects, NGO programmes, but it also contrasts somewhat with other public sector bodies such as local school, the health post and the VDC offices, which, according to the villagers, occupy a much more important niche in people's lives.

If the PRA study could not trace any on-going agricultural research taking place to solve the food problems in Rara and Sokat of Mugu and Achham districts, Pratappur agriculture seemed dependent on the availability of research outputs, particularly rice seeds. However these came from Pantnagar in India (probably from the highly-reputed G. B. Pant Agricultural University), rather than from the Nepalese agricultural research system. Needless to say, these institutions across the border have no mandate to supply Nepalese farmers, so that technical progress in Amahibelaha agriculture seems completely dependent on the initiative of local farmers in accessing new sources of technology. Due to the fact that the market was accessible and the price attractive, farmers – large, medium and small – were expanding vegetable areas to raise cash, but Government support seemed minimal.

In general, women's mobility is significantly less than that of men, and they were generally confined within their villages or at most their districts. Women's mobility was least in Murma followed by Sokat, Pratappur and Amahibelaha in that order. This is at least in part due to transport facilities, because there was an apparent correlation between the quality of these linkages and the contact women had with the outside world.

6.4 Conclusions from the Village PRAs

The selection of four villages to represent three very distinct ecological belts could never produce findings that could be regarded as representative of the belts as a whole. Nevertheless they do provide insights from people at the receiving end of 'development', findings that throw some useful light on the macro level policies and findings that were reported in earlier chapters of this report. In this section, as in earlier parts of the present chapter, some tentative conclusions are drawn which have policy implications for the alleviation of rural poverty and the enhancement of rural food security.

6.4.1 Food security and credit

Pratappur and Amahibelha exemplify how Tarai remains the area with the best potential to provide basic food and industrial crops for Nepal. Nonetheless, despite both Tarai study villages being surplus food producers in aggregate terms, the majority of Tarai households included in the study were found to produce less food than their annual requirements. Many poorer households sell their food crops shortly after harvest in order to clear their debts and raise cash, and later purchase at much high prices through the income earned from the sale of their labor or livestock. There are clear implications of this situation for policy regarding crop storage and the provision of credit facilities using the stored crop as collateral. Yet the PRA found that the Agricultural Development Bank, the government's primary instrument for delivering agricultural credit services to the nation's farmers, has no such scheme and is in any case not used by the farmers, particularly poor farmers, because of its time-consuming and bureaucratic procedures.

Although women are found to be increasingly involved in various saving and credits programmes run by different agencies, it seems unlikely that these will contribute much to generating employment for women and to their economic empowerment. This is partly due to the limited coverage of such programmes, but it also owes something to the inefficiency implicit in lack of co-ordination and poor linkages amongst the promoters.

Such lack of co-ordination and linkage is not limited to credit supply. Generally it continues to be a problem with the activities of the different organizations operating in the VDC level. The importance of complementarities and comparative advantage is yet to be appreciated by people working at different organizations at different levels.

6.4.2 Seasonal labour migration

Not only Rara's economy, but the economy of the whole of Karnali Zone and that of nearly all of the Midwestern and Far Western Hills seem to depend on the seasonal migration of nearly all the menfolk from poor households going to India to find work as unskilled labourers, men who are not only poorly paid but who are apparently often cheated out of what little they have been able to earn.

The importance of seasonal migration was more pronounced and visible in Mugu, the most inaccessible district, followed by Achham in the hills, Kailali in the western Tarai and Sunsari district in the eastern Tarai in that order. In the past, people used to go to India during a fixed season and for a fixed period of time that coincided with the agricultural slack season at home, returning in time to work on the family farm when this was needed. However, with the increased incidence of poverty, this system appears to be breaking down, and people now stay longer in India to pay their debts back at home or to earn a little to support the families for a few months. The evidence shows that where local employment is available, or where other livelihood sources are accessible, migration slows significantly. Proof of this lies in the inverse relationship between land ownership and migration and in the fact that when people can find employment locally they do not migrate. It is the poor who migrate, and they tend to do it as a fairly desperate coping strategy. Unless this situation is reversed and seasonal migration becomes just one of a

number of livelihood alternatives available to households, neither the food security nor the poverty situation in Karnali area will improve in the near future.

More generally speaking, development of the Karnali area, which is one of the most remote mountainous areas of the country, is unlikely to be achieved within a general national development strategy which may be integrated with the market economy, but which takes the special problems of the area into account. Formulation of a Karnali Development Strategy that fully recognizes the needs and aspirations of Karnali people, available resources, local opportunities and constraints, is an urgent requirement for the development of the area. In fact, the government, with a view to addressing the chronic food shortages faced in the zone initiated a Karnali Zone Agriculture Development project in 2000 with its own funds. Unfortunately implementation of the project is not vigorous, and no impact has yet been observed.

6.4.3 The declining livestock economy in the hills and mountains

Historically livestock were an integral part of hill and mountain farming system and used to play crucial role in sustaining local livelihoods, but this study has found the contribution of livestock is declining, and partly as a consequence of this living standards and food security are being eroded. The PRA findings are supported by those reported elsewhere that the (otherwise highly successful) community forestry programme has contributed to this decline. The traditional livestock economy of the higher altitude areas depended on herders having access to higher pastures and other feed sources in summer and lower altitude fodder resources in winter, i.e. it was a transhumant system, and one that depended on open access feed sources, particularly those found in the forest. With the spread of community forestry, however, forests are no longer characterised by open access, because access rights have been transferred to locally-based user groups to the exclusion of traditional, but non-resident, users. These include, but are not limited to, herders during the transhumant cycle. This has dealt a double blow to the food security of those living in mountain areas. The first is the direct losses to the livestock economy. The second is the loss of the food supplies that these livestock used to bring in, because they were used as pack animals. Clearly some rethinking of the community forestry approach is needed in order that its undoubted benefits for poor people living in and around the forest should not be achieved at the expense of perhaps equally poor people living further afield. The interdependency among the three rural sub-sectors-farming, animal husbandry, and forestry is a key feature of Nepalese farming systems. A small imbalance in one sector can bring the entire crop-livestock-forestry system to breaking point as it has happened in Rara VDC in Mugu district.

6.4.4 Access to agricultural technology

Farmers still face all sorts of traditional agricultural development problems such as the lack of improved seeds, fertilizers, equipment etc. People’s access to external inputs such as chemical fertilizers, seeds, veterinary medicines and credit was poor. In the hills and mountain areas studied it was for all practical purposes non-existent. This is despite that fact that people there evince a strong felt need for productivity-raising technology and the fact that the government extension service has a presence in the vicinity. In the Tarai farmers do have access to modern technology, but at least in the case of seeds it is

Indian technology. The impact of agricultural extension is very low in all the study VDCs. Farmers have hardly any contact with the local ASCs and LSCs and women's access to extension was almost non-existent.

6.5 Linking the Meso and Micro Levels

The PRA exercise in each district was to have been succeeded by a district workshop at the District capital. This was done in Gamgadi (Mugu District), Dhangarhi (Kailali District) and Inaruwa (Sunsari District). However no workshop could be organized in Achham District because by the time the PRA was completed it was the rainy season when the road to the District capital was closed and the majority of district officials were unavailable. A half-day regional workshop was therefore organized instead at the regional capital, Nepalgunj. The purpose of these workshops was to provide a platform for the study team to present the PRA findings to the district authorities, to validate and triangulate findings and to hear the reactions of the district authorities. The specific objectives were:

- to take the processed information back to the district for presentation and verification;
- to gain an understanding of the policy linkages and transmission mechanisms from macro to meso to micro levels
- to similarly explore the process of feedback from micro to meso to macro level for policy formulation and implementation; and
- to solicit comments and suggestions on the case study findings.

The participants in the district workshops included all relevant district officials, selected community leaders and team members. Table 6.6 summarizes the representation of different institutions at the workshops.

Table 6.6: Participants at the district workshop by district

District	Participants from				Total
	GOs	NGOs/ INGOs	Donor assisted programmes	Farmers	
Mugu	12	3	2	1	18
Kailali	11	3	2		16
Nepalgunj	17	-	-	-	17
Sunsari	27	4	1		32
Total	67	10	5	1	83

6.5.1 Reactions of the district officials

In none of the workshops did participants have major comments on the presentations or the findings of the PRA. In general, they confirmed the results. The Venn diagrams sensitized district officials and made the interactions lively and participatory. If it was a matter of satisfaction for those whose organizations were represented by big circles and were shown as close to the VDC (representing an organization that played an important part in villagers' lives), equally it was a matter of frustration for some to find the circle representing their organization was small and far from the community. This

surprised many. Some questioned how the diagram was sketched, while others raised the issue of reliability. A few accepted that the diagram represented reality, and gave explanations of the poor performance it indicated. As the majority of district participants had no detailed information by VDC, they did not comment much. Some participants, however, questioned the selection of a particular VDC for the study. They argued that if the study had been carried out in those VDCs which are the focus of their attention, their circles would have been large and near the VDC. The major issues identified at the district level are described below.

6.5.2 Understanding the APP

Although district agricultural officials had a fair knowledge about the priority inputs of the APP they found it hard to describe how to integrate these priority inputs so as to achieve the outputs envisaged in the Plan. When asked to enumerate any activities or projects in the district which exemplify the integration of the four priority inputs, no-one in any district could present examples. Much remains to be done to realize the concept of an integrated Pocket Package Programme approach. Despite the Government's claims and statements about the implementation of APP over the past three years, most of the district authorities agreed that there is a wide gap between the policy and implementation. Although the District Agriculture Development Offices (DADOs) and the District Livestock Services Offices (DLSOs) have identified pocket areas as appropriate to the pocket package programme strategy (PPPS) formulated by the Ministry of Agriculture and Co-operatives, these were hardly known to organizations that are meant to be involved in APP implementation. DADOs nevertheless often report poor co-ordination and support of related district line agencies in translating PPP strategy into action.

6.5.3 Programmes and resource allocation

During the workshops, many participants expressed concerns over the MOAC's instruction to allocate 60 per cent of resources to the pocket areas as identified under the PPPS. This was misunderstood by many present in the workshop[2]. They asked how they were expected to implement programmes effectively when such a high proportion of resources are to be allocated to the pocket areas which hardly exceed a thousand hectares, and be left with only 40 percent to cover the rest of the district. When asked if the budgetary resources and manpower had increased after APP adoption, in all the study districts, the answer was no. It was noted that the MOAC had been restructured before APP formulation, whereas it should have been restructured afterwards in line with APP priorities. District participants argued that without appropriate restructuring and resource allocation, achieving the APP targets would be impossible. Interestingly, when many other officials were questioning the commitment of DADO and DLSO officials to APP implementation, they themselves questioned the seriousness of more senior officials at the regional and central levels regarding Plan implementation – apart from giving speeches and issuing instructions. The issue of the lack of an effective monitoring and evaluation system was repeatedly raised by the participants in all the study districts. In one district some participants argued that the recent decisions of the Government to liberalize the fertilizer trade and remove subsidies on fertilizer and shallow tube-well were 'anti-APP'. The question arises: Are these policy decisions really anti-APP, or supportive of the Plan? This is a controversy which will not be settled in the near future.

6.5.4 Dependency on Indian technologies

Officials were asked about the farmers' heavy dependence on Indian rice varieties in the Far Western Region. Interestingly, when extensionists confirmed that this was the case, they blamed lack of appropriate Nepalese varieties. The research scientists, on the other hand, argued that the research system has already released and recommended many appropriate rice varieties for the Region, and that it was due to the poor performance of the extension service that these had not reached the farmers. Whatever the reasons, the district workshop in the Far West clearly confirmed that research-extension linkages are weak. Interestingly the workshops confirmed that this high dependency on Indian varieties in the Far Western Tarai is not echoed elsewhere in the country. It is minimal in the eastern Tarai and non-existent in the Hills and Mountains.

The lack of Indian technologies in the Hills and Mountains is perhaps not surprising, both because communications in these districts are poor and because agroecological conditions are so diverse that many technologies do not readily transfer. Regarding the Tarai, it is important to note that the most agriculturally-advanced parts of the Nepalese plains lie in the east of the country, whereas the Far Western Tarai is relatively undeveloped. The Far Western Tarai borders on Western Uttar Pradesh, which has been at the forefront of the green revolution in India. It is therefore not surprising that varieties from that area are attractive to neighbouring Nepalese farmers. The eastern part of the Nepal Tarai, on the other hand, borders on Eastern Uttar Pradesh and Bihar, which in India tend to be regarded as agriculturally backward. It is therefore perhaps equally unsurprising to find that they have little to offer farmers across the border in Nepal

Mugu workshop participants expressed concern over their access to, and the quality of the agricultural research being carried out at Jumla Agricultural Research Station. A wheat variety developed at the main wheat research, which is situated in the Tarai at Bhairahawa Research Farm, will not perform well in the very different mountain environment of Mugu district. However Jumla station, which is in the mountains, is too small in terms of resources, number of scientists and too far away to provide any effective service to Mugu district. Many participants noted that in Mugu people are so poor that they are not even in a position to store the seeds for the next year, as they would be forced to eat them. They therefore have to buy the seeds every year. As improved seeds are not available in the district, farmers would buy local seeds available at the local market. Yet the fact that farmers buy seeds offers an ideal opportunity for introducing new varieties, provided they are appropriate and affordable.

6.5.5 Government-NGO partnerships

The economic liberalization program initiated by the government is meant to reduce the role of the state in favour of the private sector and NGOs. However district officials, particularly those of HMG line agencies and corporations, said that the suggestion that NGOs were more efficient was unfair, adding that they themselves were not given the financial, personnel and other resources required to carry out their mandates. Some line agency officials stated that NGOs provide free inputs and services with financing from international NGOs and donors. They claim that NGOs enjoy high salaries, have more staff, and serve only a small number of people, yet they blame the government service for poor performance. Others

said that if NGOs could achieve their present results with the same low level of resources and with the same degree of political intervention which the public sector service faces, they too would wholeheartedly support NGO involvement. Regarding the private sector, government staff expressed the view that businessmen work for profit only, while the NGOs have access to external funding. The response of the NGO representatives was that, while acknowledging that it was true that they themselves had more resources, blamed government line agencies for mismanaging what resources they were given, for lacking flexibility and transparency, and for lack of commitment.

All of this suggests that there has been little mutual learning and trust generation between government and NGOs, which in turn creates less-than-promising prospects for their collaboration or partnership in the field. However, it is not only policy that demands that GOs, NGOs and others play complimentary roles and, where possible, work in partnership. Common sense dictates that this must be the case. All potential partners are actors, and each has unique and legitimate contributions to make. The Ninth Plan recognizes this when it states: "Development is possible only with the co-operative efforts of government, private and non-government sectors". Unfortunately the Plan fails to create an appropriate environmental and institutional set-up to foster such partnerships. The findings of the district level workshops indicate that there is an urgent need to develop a system and a set of programmes to bring the various sectors together.

6.5.6 The worsening food security situation

While agreeing that food security situation in Mugu is worsening, some participants in the Mugu district workshop raised the issue of the removal of the Agricultural Inputs Corporation Office from the district headquarters, arguing that this was a retrograde move. Others seemed to be opposed to the policy of the government distributing food in the district at subsidized prices. Their argument was that food distribution through the Nepal Food Corporation has discouraged people from producing more for sale. One official even said that, as long as the government continues to provide food at subsidized prices, "people would prefer to stand in a long queue all day to buy two kilograms of rice, than to work and earn a wage of Rs 60, which is sufficient to feed a family for a day. People," they claimed, "have become lazy. Men would go to India and bring cash to buy rice. Therefore, people have no incentives to produce food." It should perhaps be added that this remark contradicts the reality that (a) not everyone can find a job that pays Rs 60 daily, (b) productivity-enhancing inputs are not available, and (c) NFC-distributed food equates to less that four percent of the estimated food deficit in the district.

The idea that villagers are lazy is strongly contradicted by the findings of the PRA exercise. The picture that emerges is one of long work hours (particularly for women), forced migration to India for minimal returns and the constant threat of hunger. This contrast in fact lends credence to the point made by villagers that government officials have little contact with them. Perhaps improved contact between the two sides might at least benefit the government officials, in that they would learn something about the grinding poverty which is the daily lot of villagers in places like Murma. On a rather more positive note, officials arguing against NFC operations also added that if Karnali is to be developed, poverty alleviated and the problem of food scarcity solved, the only approach to follow is to implement programs related to

infrastructure development, natural resource management, tourism promotion and community development aggressively, and thereby create local employment opportunities.

6.6 Micro Effects of Macro Policy

The effects at village level of government policies can to some extent be assessed in the context of the PRA exercise and the meso level discussions with district officials. Since the government's policy on agriculture is contained in the APP, this will be the yardstick against which impact will be measured here. Section 6.5.2 above assessed the impact of the policy at the district level. This section will cover both, but concentrate on impact at the level of the four survey villages.

6.6.1 Fertilizer deregulation

This is the area in which the greatest degree of agricultural policy change has occurred in recent times. Table 6.7 shows the effect of fertilizer trade liberalization program in the four study villages. In the hills and mountains generally speaking, observers report that supply levels have fallen due to restricted access of the private sector to the transport subsidy controlled by AIC. However, considering that before liberalization fertilizer use was 7 kg/ha in Achham and just 1 kg/ha in Mugu, the loss cannot be too severe, except perhaps locally. Certainly in the case of the two surveyed hill and mountain villages the farmers hardly use fertilizer at all.

In the Tarai, the effect seems to have been mixed. While the supply level has fallen drastically in Kailali, it is reported to have increased significantly in Sunsari, due to supplies from the private sector.[3] In the case of the Far Western Tarai, the media and the public have criticized government policy, which they believed created fertilizer shortages. However fertilizer has always been relatively scarce in the Far West because all of it is imported through Calcutta and transport costs to the Far West are correspondingly high. The post-liberalization shortage was in fact created because AIC kept its operations at a low level because of expected private sector operation as happened in western, central and eastern Tarai. However, in the event this did not materialize. The private sector, like AIC before it, has less incentive to operate in the Midwestern and Far Western Tarai because of high transportation cost and because of the unofficial import of low price Indian fertilizer. Fertilizer shortage is reported to have prompted the local administration in these two parts of the Tarai to close their eyes to unofficial flows of fertilizers from India.

Table 6.7: Effect of Fertilizer trade liberalization at the village level

Village & District	Activities after intervention	Government's response	Farmers' reactions and effect
Murma, Mugu	AIC closed its district office to streamline its organizational structure and reduce administrative expenses.	DADO made responsible also for the transport and sale of fertilizer in the district (role of the district AIC shifted to DADO).	As Murma farmers hardly use fertilizer, no farmers raised this issue. However, during the district workshop, this issue was raised and district authorities demanded the re-establishment of AIC.
Sokat, Achham	-	Government reduced transport subsidies for fertilizers to reduce the number of district eligible for this subsidy in conformity with the SAPL covenant.	Removal of transport subsidy meant increase in the price of fertilizers. However, as Sokat farmers hardly use fertilizer, none of them raised this issue.
Kharaula, Kailali	AIC reduced fertilizer sale in the district.	-	As private importers did not import fertilizers into Kailali district, farmers continued to experience shortages of fertilizer during the peak agricultural season and low quality Indian fertilizer begun to be smuggled into villages like Pratappur. On the other hand, AIC used to make the farmers buy (poor quality) AIC lentil seeds as a condition of supplying fertilizers. Farmers had thus indirectly subsidized the cost of lentil seed as part of the cost of using fertilizers. Basulinge Sugar mill distributed fertilizers from their store.
Belha, Sunsari	Presence of private importers encouraging.	-	Due to lack of imports of MOP by either AIC or private dealers, farmers faced shortages of potash fertilizers. Different brands of Indian fertilizers were available, but questions were raised about their quality. Many farmers complained over the price increase after deregulation and some argued themselves against the current fertilizer policy of the Govt. Likewise, some Govt officials, leaders and AIC officials argued against the Govt policy on fertilizer liberalization.

6.6.2 Irrigation

Table 6.8 shows the status of APP implementation in the four study villages in terms of the Plan's priority inputs and outputs (other than fertilizer which is covered in Table 6.7). In the case of irrigation, the APP prioritizes development, improvement and rehabilitation of small schemes in the hills and mountains, but no effect of the policy was observed in the study villages in these belts, because no new irrigation facilities have been installed in recent years.[4]

In the Tarai the APP's irrigation focus is on groundwater development through shallow tubewells (STWs). However the subsequently-adopted policy of phasing out subsidies on STWs so far seems to have had the opposite effect, at least in some districts. The Sunsari study village lies within the command area of the Sunsari Morang Irrigation Project and is therefore not a priority area for STW installation and no conclusions could be drawn. However in Kailali STW irrigation is important, and in the study village in that district farmers reported that STW installation in the VDC fell from about 20 in 1996/97 to about 10 in 1997/98. This coincided with the reduction in STW subsidy from 60 to 40 percent. Many farmers expected further reductions in 1999/2000 when the subsidy was due to be removed completely. This forecast seems to have been borne out in practice, because district level statistics indicate in the two Far Western Tarai districts, Kailali and Kanchanpur, the number of STW loan applications fell from 500 in 1997/98 to 117 in 1999/2000, with the larger reduction in Kailali.

6.6.3 Technology

Pre-APP policy on agricultural technology was to conduct research on a large number of commodities and have the extension service try to cover the entire country with the research outputs. The APP changed this and instead insisted for the need to focus research on a few priority commodities, and extension on priority pockets within districts chosen on the basis of their agricultural potential (see Section 6.5.3 above). This policy change has had no apparent impact on the hill and mountain districts studied, but then research and extension have never had any significant effect on them, either now or in the past. The only exception emerged from the Far Western mountain village study, where Indian varieties of vegetables are now being grown, brought in by returning migrants. In the Eastern Tarai village no evidence emerged of any change in the impact of research and extension policy since the APP was adopted. In the Far Western Tarai the previous dominance of Indian technologies, particularly for cereals, continues. Research and extension may blame each other for this state of affairs (see Section 6.5.4 above), but the fact remains that the India is doing the research and the farmers are doing their own extension, so that in this part of the country at least, policy changes in the official Nepalese research-extension system are largely irrelevant. However it has to be added that only one of the survey villages was within one of the priority package pockets, so that it is not possible to comment on the impact of the change in extension policy in these areas. The exception is Kharaula in Kailali District, which has been designated as a vegetable pocket area under the APP, but an integrated programme package has yet to be implemented in that village, so again it is impossible to report that there has been impact. Turning to research, at the time of the PRA exercise the APP had been in operation for only a couple of years, and that is far to early to judge the impact of any change in research policy.

Table 6.8: Extent of APP implementation in study villages

APP Priority	Murma (Mugu)	Sokat (Accham)	Kharaula (Kailali)	Amhaibelha (Sunsari)
Irrigation	No irrigation in the village and no efforts are being made to develop irrigation facilities.	Irrigation is restricted to low land along the Gosali Gad through farmers constructed irrigation channel.	Tubewells are the major source of irrigation. High cost (Rs 60 000) despite 60 percent subsidy makes STW non-affordable to smallholders. This year installation has reduced from 20 last year to less than 10 and is expected go down when subsidy is removed.	The village is covered by surface irrigation scheme (Sunsari-Morang Irrigation Project) and STW programme is not prominent. Around 50-60 percent of the area in the village is irrigated, buy this predates the APP
Technology	Traditional technology in use. No-one uses improved seeds or keeps improved breeds of livestock. Access to extension is poor.	Technology used is traditional. No one uses improved seed or keeps improved livestock breeds. Access to extension service is poor. Extension agents from district line agencies have never visited the village.	Farmers in the village are used to adopting improved agricultural technology in the form of improved crop varieties and fertilizers. For crop varieties, they depend on India rather than Nepal's research system. Agricultural extension is poor and static.	Farmers are quite advanced in terms of adoption of modern seed varieties and fertilizer. However they reported lack of confidence in the local research system regarding its ability to generate and provide improved technology. In the last two years, no new technology has come to the village.
Credit	No access to formal sources of credit.	No access to formal sources of credit.	Despite multiplicity of NGO rural credit programmes, the majority of farmers have yet to have access to formal sources of credit particularly for crops; this is because NGO operations are confined to income-generating activities focused on women.	Access to institutional credit is still a problem in terms of getting the required amount, lengthy processes and timely availability. Credit is however assured for sugarcane cultivation.
Agricultural roads and electricity	Not relevant; the district is completely isolated and there is no electricity supply in the village.	Road access limited to district headquarters and reaching DHQ requires more than a day's walk from the road. No plan to link the village by road in near future. No electricity in the village.	With the construction of Karnali bridge and the link road improved under rural road improvement programme, the village has now been integrated into markets, but farmers complain of market problems in getting good prices due low sales volume. The village has no electricity and STWs are diesel-operated.	With the improvement of the Biratnagar-Amahibela rural road the villagers have now better access to Biratnagar markets and markets elsewhere in the country, and this is facilitating commercial cultivation of vegetables. The village is yet to be covered by the rural electrification programme.

Table 6.8 (continued)

APP Priority	Murma (Mugu)	Sokat (Accham)	Kharaula (Kailali)	Amhaibelha (Sunsari)
Crops	Climatic conditions restrict crop choices and crop yields have remained static except for bad years when they decline drastically.	Cultivation is dominated by cereals. Traditional varieties give low yields and fluctuate depending upon the monsoon.	Agriculture is the dominant occupation. Although agriculture has started to commercialize, it is still mainly subsistence for the majority of farmers. Cereals dominate but sugarcane is emerging as a new cash crop, and sunflower is replacing mustard cultivation.	Agriculture is the main occupation. Farming has gradually started moving towards a commercial basis, with vegetables and sugarcane emerging as the main cash crops.
Horticulture	No-one in the village has planted fruit trees, and growing of vegetables has just started; access to better seeds is limited to seeds brought from India by seasonal migrants.	No fruit trees are seen in the village. Vegetable cultivation, which has started recently is limited to gardens for household consumption. Vegetables available only seasonally.	Although traditional fruit trees can be seen in the village, fruit cultivation on a commercial scale has yet to emerge. The village has been designated as vegetable pocket area, integrated programme package is yet to be implemented.	Commercial cultivation of fruits has not yet started in the village. However, commercial cultivation of vegetables has picked up momentum and is expected to grow rapidly.
Livestock	Livestock raising is traditional. Livestock population in the village has reduced due to reduced access to forest grazing and community forests in the village and elsewhere.	Livestock breeds are traditional with no sign of improved breeds. Livestock population has reduced in recent years due to reduced feed resource base. No fodder trees were seen in the village.	Livestock raising is still traditional. Despite improved market access, commercialization in the livestock sector is yet to start. Farmers are hesitant to increase buffalo numbers due to low feed base, which is mainly crop residues.	Livestock raising particularly that of buffalo for the production of milk for sale in Biratnagar market (DDC and open market) is becoming popular. Despite heavy dependence of livestock on crop residues for feeding, cultivation of fodder is on the rise. Organised poultry raising is also on the increase.
Remarks	No indication of any effects of APP implementation.	No indication of any effects of APP implementation.	Some effects of APP implementation are visible in the high value vegetable sector.	Effects of APP implementation are visible in terms of commercialization of HYVs and livestock.

6.6.4 Credit

Access to credit from formal sources is reported to be poor in all four villages studied. While farmers in Mugu and Achham had no access to institutional sources of credit, it was reported to be difficult in the Tarai villages. There has been a change in the credit situation in the case of sugarcane, but this is because it is tied to the processing industry in both Kailali and Sunsari districts and the industry provides not only credit, but also technology and extension. Credit flows to APP priority commodities in the post APP period was positive for horticultural commodities in Mugu and Sunsari districts.

6.6.5 Changes in cropping patterns and crop productivity

Agriculture is traditional in the villages studied in the mountains and the hills, while it is in the process of modernization and commercialization in the Tarai. In the latter belt it takes the form of adoption of HYV-fertilizer-irrigation technology and cultivation of sugarcane and vegetables for the market. While the effect of APP implementation in the hill and mountain villages in the study has been nil, part of the ongoing pattern of change in the cropping pattern in the Tarai villages can be linked to APP implementation, particularly commercial cultivation of vegetables and sugarcane in Kailali and Sunsari villages. In these villages expanded vegetable cultivation is the direct effect of rural road improvement carried out after APP implementation. In terms of yield of APP priority crops, village level yields of paddy is higher than the district average in both the Tarai districts. In the case of potato, it is below the district average in Kailali, but higher than the district average in Sunsari. It is difficult to say how much of this can be ascribed to APP implementation.

6.6.6 Livestock Production

Except for the study village in Sunsari district, where commercialization in buffalo milk production is already well established, no perceptible change was reported. There has been no change in the herd structure in terms of composition of improved and local breeds. In fact, livestock population in Murma (Mugu), Sokat (Achham) and Kharaula (Kailali) is reported to have decreased while that in Amhaibelha (Sunsari), the population is reported to have been stable with increased buffalo population and reduced cattle population[5]. Obtaining veterinary treatment and veterinary medicines remains high on the list of priority problems for most of the study villages, as does lack of access to improved breeds. The relationship between problems in livestock keeping in the hills and mountains and the recent growth of community forestry was noted earlier (Section 6.4.3), and this indicates a need for greater attention to contradictions and inconsistencies between the APP and other aspects of government policy for the rural areas.

6.6.7 Flow of policy information

Information about policy changes flows from the macro to the meso level via government circulars. However there is no mechanism for onward transmission to the micro level. Farmers tend to obtain information only when they seek institutional support. For example, according to media reports, farmers approaching the ADB/N offices in Kailali and Kanchanpur district came to know about the

government's decision to phase out STW subsidies only when they approached the bank to make a loan application. Many of them then left without completing the application form.

The JTs and JTAs are required to monitor and report back on a number of variables at micro level, such as levels of technology uptake, but given their lack of contact with the great majority of farmers it is difficult to believe that this system is very effective outside of the (relatively very small) pocket package programme areas. In any case their remit is to monitor performance against physical targets only, and they are not required to attempt to assess the impact of policies on poverty or food security. Meso-macro flows exist only in the form of the trimesteral progress reports district offices must submit to the centre and which are compiled from the JT/JTA reports. Other that these, the only 'feedback' mechanism that exists is the occasional report in the media. It was observed during the field study that the government is completely unprepared to deal with the likely effects of major policy changes. The lack of fertilizers with AIC in Kailali district during March-April 2000, and lack of efforts to counter farmers' reaction to STW subsidy withdrawals are clear examples.

Notes on Chapter 6

[1] Livestock herding system is similar to other mountain areas. In summer season (between March and October), livestock are kept in the village and used for farm activities. During winter season, (November to March), they are moved to lower altitude areas, particularly Ruga, Ruwa or Srinagar VDCs for grazing. According to local people, the number of buffaloes is decreasing due to shrinking feed base.

[2] MOAC's instruction was that sufficient pocket area needs to be developed in districts such that 60 percent of budget would be used in these pockets and remaining 40 percent in other areas.

[3] Official estimate of average annual fertilizer supply in Sunsari district in 1997-1998 was lower than of 1995-1996 by about 1600 Mt.

[4] The findings of the village situations can safely be generalized for the two districts since no additional budgetary provisions were made there in the first two years of APP implementation.

[5] Compared to pre APP period, milk and meat production in post APP period has increased in Mugu, Kailali and Sunsari districts and these have decreased in Achham district. Production of poultry eggs has been higher in Mugu and Achham and lower in Kailali and Sunsari districts in post APP period compared to pre APP period.