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INSTITUTIONAL & PRIVATIZATION
TECHNICAL ANALYSIS

RAPTI DEVELOPMENT PROJECT
1987 - 1995

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INSTITUTIONAL AND PRIVATIZATION ANALYSIS

The purpose of this report is to provide USAID/Nepal with an analysis of the institutional environment for implementation of the Rapti Development Project, a second phase to the 1980-86 "Rural Area Development-Rapti Zone" project. As mandated by AID/Washington, the purpose of Phase II is "to increase agriculture and forestry production in the Rapti Zone through local capacity building". It will thus be sectorally more narrow than Phase I, which achieved moderate successes in establishing public sector services in remote areas and in developing much needed developmental infrastructure. This narrower sectoral focus appears appropriate in terms of ensuring that the Phase I gains are sustained over time. Phase II may thus be seen as a consolidation effort and as an effort at stimulating resources to more fully utilize and maintain the infrastructure in place.

This analysis is based on five companion pieces prepared for the Phase II Project Identification Document (PID). The first, "The Rapti Zone Livestock Development Assessment", was undertaken as an independent exercise by consultants from Planning and Development Collaborative International (PADCO) during January-April 1986. The second, a "Rural Credit and Cooperative Assessment", was prepared during March, 1986, by the Asia Regional Representative of Agricultural Cooperative Development International (ACDI). The third piece was prepared concurrently with this report by an independent consultant and is entitled "A Preliminary Monitoring and Impact Assessment Plan and Sample Monitoring Report for Rapti Development Project". Finally, Sheladia Associates, Inc. fielded a team of three persons to work with Nepali consultants on this report and two others, an Agriculture Technical Analysis and a Natural Resources Technical Analysis. It is understood that USAID/Nepal will use the six analyses, plus other material as relevant, to develop a full Project Identification Document (PID) for the Phase II project.

The report that follows must thus be seen in this context as a piece of the whole, and subsequently may not cover all elements of the to-be-defined Phase II effort. Further and most importantly, it must be seen as a cross-cutting analysis of institutional and management issues of the productive sectors of agriculture, livestock, and natural resources, and not an analysis of an implementation sector in itself.

Following guidance provided by AID/Washington and USAID/Nepal, and working within fixed time and length-of-report constraints, the pages that follow first summarize the overall institutional environment for development project implementation in Rapti Zone, including indigenous, political, administrative, private sector, and donor concerns. It then describes and examines the implementation and potential impact of Nepal's 1982 Decentralization Act on the productive sectors. A third section examines some current institutional and management issues and

constraints experienced in this environment and under Decentralization during Phase I. Recommended cross-cutting strategies to increase the efficiency, effectiveness and sustainability of activities aimed at increased production are then summarized, followed by recommended strategies for USAID/N and HMG/N overall project management.

1. THE INSTITUTIONAL SETTING

1.1 Indigenous Institutions

Power, and hence control of land and labor resources in Rapti Zone, is determined primarily by two key factors: gender and caste or ethnicity. Both key determinants are firmly embedded in indigenous social, cultural, religious and economic systems in the Zone. Each is important to contemplated project activities in terms of its impact on the allocation of resources and types of participation likely to be encountered during implementation.

The existence of and manifestations of gender discrimination are relatively straightforward: males have more power, and hence better control of resources than do women. Although Nepal's legal code is being challenged and modified to provide for basic inheritance and other legal rights for women, there is a long way to go. Women headed households have difficulty gaining access to credit and other resources. Women are rarely represented at the Village or District Panchayat Assemblies. Women do not get selected as frequently as men for training and other development benefits. Gender discrimination is thus a pervasive and fundamental institution within which development efforts in Rapti Zone are carried out.

The second determinant, caste or ethnicity, is more complex.^{1/} One means of describing the situation derives from the Hindu caste system. From this vantage point, there are essentially three basic socio-cultural categories. The high Hindu castes of Brahmins and Chhetries (including Thakuris) and the lower occupational castes form one group. The Brahmin-Chhetris are the historical rulers of the area that is now Rapti Zone. They and the service castes associated with them generally occupy the best land in the middle hills and intra-mountain river valleys. They also control--although they do not cultivate themselves--large tracts of land in Dang and Deokhuri Valleys. They have been characterized as more hierarchical, with individual households maintaining themselves as independent economic and political entities, and with often keen competition among like households for control of resources. Cooperative group behavior among this group is thus difficult to obtain, both for developmental as well as political aims.

^{1/} The discussion is derived from the PADCO Regional Assessment, Appendix 1.

The second major group in Rapti Zone includes the Magars, Kham Magars, other Tibeto-Burmese groups, and the Tharus. The first three have some land on the slopes of the middle hills, but it is generally not on the river bottoms and is generally much less productive. The Kham Magars dominate northern Salyan, Rolpa and Pyuthan, and northern and eastern Rukum. They have the least productive land, at the highest elevations. The Tharus are found in Dang and Deokhuri Valleys, and with the notable exception of a few Tharu landowners, are often tenant farmers for the Brahmin-Chhetri landlords. These groups, being less Hinduized, have been characterized as more egalitarian, with relative ease in group formation and group action. Social class does exist, but its manifestations are not usually disruptive to cooperative effort.

The third group is the Newars, mostly traders located in the bazaar towns of the Zone. Although, some Newars do own land, they generally form the entrepreneurial or merchant class in Rapti Zone. Their social characteristics have been characterized as somewhere between the more hierarchical Hindu and the more egalitarian Tibeto-Burmese groups.

This rough characterisation of groupings is overlaid by the historical feudal system in the area. What is now Rapti Zone once consisted of several independent rajs, or principalities. Salyan and Rukum, with each including parts of present-day Rolpa, were ruled by Thakuri (Chhetri) kings, with a fairly linear progression in one household in Salyan and continuing strong dispute in Rukum between key households in Musikot and Rukumkot. Pyuthan had a Brahmin king. Dang and Deokhuri valleys were only populated by Tharus, with some stronger households serving as leaders. As malaria was eradicated, however, the powerful Brahmin-Chhetri families from the hills appropriated most Tharu land and effectively control the resources today. Rolpa was only created as an administrative unit in 1963, and has yet to find an identity in terms of cohesive indigenous powers.

Space precludes a discussion of other relevant indigenous institutions, including land and tree tenure and markets. Readers are requested to review the Rapti bibliography for more information.

1.2 Political Institutions

The Partyless Panchayat System of government was established in Nepal in 1962, after a decade of seeking for a suitable system of government. Although direct elections were always held at the lowest level of the system, the ward, for most years the representation at higher levels of the system was determined only through indirect election. In 1980, a major national referendum was held and the Panchayat system subsequently reformed to provide for direct elections at all levels of government. Given the fact that under Rana rule (1846-1951) there was virtually no popular participation in politics, the move to direct democratic government in only 30 years is somewhat remarkable.

In Rapti Zone, as in much of the rest of the country, the Panchayat system has taken hold and most people are aware of their ward politics and their village panchayat. National-level elections, for the Rastriya Panchayat (RP), are frequently still dominated by the former ruling households of the area. Thus in Rukum the same Thakuri households that once vied as raja now stand against each other every 5 years for election as RP member. In Pyuthan, several Brahmin families vie, through the indigenous system and in the national elections. Dang has normally had one wealthy Tharu RP member, and a second selected among various Brahmin-Chhetri landlords. Salyan is the most cohesive and the exception, with almost universal support for a strong Newar leader who is nationally influential. And Rolpa has one strong and respected Magar leader and great deal of factionalism elsewhere.

The District Panchayat, now key in terms of development planning and implementation, is much less tied to the historical power structure. Although the key households can still guarantee the election of numerous "favored sons", in all districts changes have been occurring. The new demands on the District Panchayat in terms of actual governance imply new skills, and some of the older and less educated politicians are now retiring. Although the team was unable to gather any detailed statistics, anecdotal accounts suggest that approximately half of the District Assemblies in Rukum, Salyan, Pyuthan and Dang are under 40. This age difference implies that the members are people who have grown up during Nepal's democratic era, that they are more likely to be educated than before, and that in general they may have a different set of allegiances and client concerns to represent. Although direct elections for the District Panchayat have only taken place once, in 1982, coming elections will be interesting to watch in terms of the types of people now being chosen. Changes are definitely occurring at this most critical level.

The interface of historical and "modern" political systems has a number of implications for the smooth conduct of District-level government, especially under the new Decentralization Act. Essentially, district governance should run smoothly where the indigenous and "modern" systems have melded, and where the RP members and District Panchayat are of the same faction (historically based or more recently developed) or have made some compromise to work together. In areas where the RP members and the District Panchayat represent different interests, be they based on historical powers or on modern development needs, there is sure to be conflict. Although well outside of project control, these political realities will guide the course of district development planning and implementation now more than before.

1.3 The Administrative/Bureaucratic/Technocratic Context

As briefly described above, the political system in Nepal is built on a pyramidal system beginning with the ward, and combining higher through the Village Panchayat, District Panchayat and National (Rastriya) Panchayat, with His Majesty the King above

all. The administrative or governmental system follows this hierarchy, with certain common points and certain additional layers, which are briefly summarized below in terms of the proposed Phase II project.

1.3.1 The National Level. At the national level, Nepal has 24 central ministries with several parastatal corporations. The key ministries for Rapti Phase II are the Ministry of Agriculture, the Ministry of Forests and Soil Conservation, the Ministry of Finance, and the Ministry of Panchayat and Local Development. The National Planning Commission, with its key role in Five Year and Annual planning and budgetting, is also important.

Following the recommendations in the related technical analyses, at the national level the following government organizations would be involved in the project.

Under the Ministry of Agriculture:

Department of Agriculture, or DOA, (for agriculture research, extension, training, and horticulture activities);

Department of Livestock Development and Animal Health, or DLDAH, (for livestock and some forage and fodder activities);

Agricultural Development Bank of Nepal, or ADB/N, (for Small Farmer Development Groups and overall agricultural, livestock and forestry credit);

Agricultural Inputs Corporation, or AIC, (for improved seed, fertilizer and pesticide supplies).

Under the Ministry of Forests and Soil Conservation:

Department of Forests, or DOF, (for all community and national forestry activities);

Department of Soil Conservation and Watershed Management, or DSCWM, (for road corridor and other critical areas stabilization);

The above are the vertical Ministries or agencies that the technical analyses have named as being directly involved in implementation or implementation support. In addition, there are three agencies that provide cross-cutting support to all development projects in Nepal. These are:

Ministry of Panchayat and Local Development (MPLD), primarily for training support but also for as the key national link with the District-level Local Development Office, which is key to all field-based programs in Nepal. The MPLD chairs the national level IRD Board which has been structurally responsible for coordinating vertical ministries' inputs in Rapti Zone. Section 4.6 discusses potential changes in the MPLD's role in this regard under Rapti Phase II.

Ministry of Finance, through its Foreign Aid Division negotiates the Project Grant Agreement and any amendments with USAID/Nepal and establishes budget ceilings for USAID and HMG contributions; through its Financial Comptroller General's Office, establishes and maintains the flow of funds and program accountaibility.

National Planning Commission, or NPC, establishes budget ceilings overall and provides Five year and Annual planning guidance to all line agencies.

Each of the above has an office or representative at the Regional level, located in Surkhet for the Mid-Western Region that includes Rapti Zone. The Regional Offices have historically had little to do with Rapti Phase I. Section 2.4 of this report discusses the role of these offices in the current and future policy context.

The Agricultural Development Bank and the Agriculture Inputs Cooperation have Zonal level offices as well. The Department of Livestock Development and Animal Health has designated its Dang District Office Chief as "Coordinator" for livestock activities under Rapti Phase I, but this is a temporary role and not a structural one. The ADB/N and AIC Zonal Offices play a more active role in terms of District support than do the Regional offices for the other ministries. With these two possible exceptions, however, most communications, support and direction essentially flow from the district level offices of the various departments or agencies listed above to Kathmandu.

1.3.2 The District Level. Section 2 of this paper describes the planned and actual changes in the relationships of the districts to the center due to the Decentralization Act and its by-laws. A brief description of the various HMG structures that will implement the proposed project at the District and sub-district levels follows.

The Departments of Agriculture, Livestock Development and Animal Health, Forests, and Soil Conservation and Watershed Management all have offices in each district of Rapti Zone, with the latter three departments having grown to this full coverage as a result of Rapti Phase I. Agriculture and Livestock are pursuing a vigorous effort at placing extension personnel (JT's and JTA's) at agriculture sub-centers, clustered where possible in Service

Centers at the Ilaka level. The Department of Forests follows a slightly different District structure, with "ranges" and "beats" that equate to slightly more sub-divisions (12) than the Ilaka structure (9). The DSCWM offices are quite new, and post field staff only at nurseries and worksites.

The Agriculture Development Bank and AIC have Branch Offices in each District Headquarters, several again of which were established due to the efforts under Rapti Phase I. Both also have additional branch offices in Dang District and at Chaurjahari in Rukum District. The ADB/N has sub-district personnel only at SFDP sites, now covering 23 Village Panchayats in the Zone. Agricultural inputs are theoretically distributed at a sub-district level by cooperatives (Sajhas) and private dealers. In fact, only 10 dealers exist and only 12 out of 23 Sajhas are functional.

The National Planning Commission has no presence at the district level. The Ministry of Finance backstops District Treasuries, which will eventually function in accounts and auditing in each district. All five in Rapti Zone were established during 1981-1983. At this point, they serve more of an internal audit function than a full accounting/budget control function, and most financial flows are still fully controlled from Kathmandu.

The Ministry of Panchayat and Local Development is represented at the District headquarters through the District and Village Panchayats. Again, section 2 of this paper describes the role of the new District Panchayat Secretariat, including technical agency personnel and the Local Development Office, in more detail. In summary, it is responsible for both coordinating the activities of all line agencies and for implementing "panchayat sector" programs in the district. Village Panchayat Secretaries are supervised by the LDO.

In sum, full-coverage District and sub-district levels of technical agencies in Rapti Zone exist where they did not five years ago. Problems of both quality and quantity of technical staff are highlighted in the relevant technical analyses. Problems of continuing vertical relationships and a centrist attitude on the part of the government are discussed in subsequent sections of this paper. The offices and infrastructure are essentially now in place, however, to carry out more productive work.

1.4 The Private Sector

The PADCO Regional Assessment undertaken in 1985 highlights a number of areas of active private sector growth in Rapti Zone over the last five years, especially when compared to the 1977 APROSC Reconnaissance Survey. The large growth in credit lent by the commercial banks and the ADB/N is particularly encouraging. Efforts under Rapti Phase I, through the Appropriate Technology

Unit, generated a number of small scale enterprises in food processing in particular. Tulsipur Engineering Works, Dang's only multi-purpose garage and workshop, was started through the efforts of the project. And, finally, the agriculture component greatly increased the production of vegetable seed by private contract farmers in Rukum district; they now supply much of Nepal.

The private sector in general, however, has not been well studied in Rapti Zone (nor in Nepal for that matter) and any analysis suffers from lack of definition. The Department of Cottage and Village Industries does employ one typology based on capitalization for tax break purposes, but succeeds in registering very few industries. Industrial forward and backward linkages and consequent resource mobilization is not well defined. As will be seen from below, defining the capitalization of many of Rapti's industries is fraught with problems. A rough typology, related specifically to the aims of the proposed Phase II project, is attempted in the following paragraphs.

Household Enterprise: This category would extend to all "private sector" activities carried out by individuals and households that are vertically integrated within the household, i.e., enterprises that require no or minimal outside inputs. Most farm households in Rapti, large and small, operate as small businesses on an ad hoc basis, marketing surplus production and some processed agricultural and livestock goods, such as chiuri ghee, ghee, beaten rice and wool. Barter is reported as surprisingly low, and cash sales seems to be the norm. Goods are sold within the zone or transported to Butwal, Nepalgunj or elsewhere.

Assisted Household Enterprise: This category includes individual or household enterprises with a forward or backward linkage with a government agency. Several farm enterprises have been stimulated through technical assistance and/or monopsonistic HMG practices in recent years. Farmers in Rukum, as noted above, engage in vegetable seed production and in Dang in certified cereal seed production, with supervision by district agriculture personnel and purchase by the ADO or by AIC. Tree seeds are collected by individuals and sold to the District Forest Controller. Each district except Dang now has at least one private fruit tree nursery, run by individuals who receive technical advice from DFCs. The ten AIC private dealers, who are paid transport costs and their commissions by AIC, are also included in this category.

Assisted Group Endeavors: This category includes all User Groups which theoretically can be self-sustaining, again with forward or backward (or both) linkages to HMG/N. The best established, the Small Farmer Development Program (SFDP) groups, do not in fact undertake whole group activities very often. Rather, as a group they assure through peer pressure otherwise uncollateralized loans for individuals in livestock, agricultural production, and occasionally farm equipment such as sprayers.

Recent data indicate that interest reflows of programs established in Rapti Zone in 1982-1983 now cover the administrative costs of the program, i.e., salaries and office expenses of the Group Organizers and accountants.

This self-sufficiency has not been attained by other types of User Groups yet, unfortunately. Panchayat Forest Committees that on paper are to eventually pay nursery naikes and guards have not yet begun to do so. Irrigation groups established by the ADB/N with CARE assistance have only recently begun to function, so data are not available to judge their viability as small enterprises. A similar situation exists with regard to the Women's groups established by District WDO's. The old Sajhas, which do fit this category, have for the most part major outstanding debts with ADB/N and are not considered viable by most observers.

Small Commercial Enterprises: This category would fit in what most people would define as "private enterprise" in the Zone. It includes turbine and mill operators, small brick factories, transporters (porters, mule trains, and tractors), grain traders, consumer goods stores and traders, small restaurants and lodges, etc. The District Tax Offices and District Panchayats have listings of most registered enterprises of this sort, and records at this level are fairly complete. All have been indirectly stimulated by Rapti Phase I efforts and are likely to receive indirect benefits from Rapti Phase II.

A special group in this category is the construction contractors, most of whom are registered as Grade D, and who undertake contracts of under one lakh. The Rapti Phase I project stimulated this group through major building construction efforts and the road construction work. Although less construction is envisioned under Phase II, they will still be active in small buildings construction, trail upgrading, and small scale irrigation works.

Medium Enterprises: Although data were not collected by the team, there are a few enterprises in Rapti that are not directly government assisted and that have substantially larger capitalization than the category above. The most notable is Lamahi Distilleries, which has the liquor concession for all five districts in Rapti Zone, employs a large number of people of Deokhuri Valley and consumes major quantities of the firewood in that area each year. Others include some of the larger transporters and bus owners and a few of the larger traders and merchants in Ghorahi. The new cinema in Ghorahi would probably qualify as well, given the investment made in the physical plant.

In summary, the existing private sector in Rapti Zone is undefined and relatively small and scattered, but active. As noted from the listing above, many have both forward and backward linkages with government and/or other informal enterprises in the Zone. It would be useful at some point for USAID to support a

survey to better establish a typology based on capitalization, and to more clearly define those that generate more private activity through intra-zone forward and backward linkages. This latter group would be a prime target for more formal assistance to increase production and benefit the inhabitants of Rapti Zone.

1.5 The Institution of Foreign Assistance

Foreign assistance and donor groups are an institution in Nepal and in Rapti Zone that cannot be ignored when discussing development. It has been estimated that roughly 60 percent of HMG's development budget and 40 percent of its entire budget is supported by foreign assistance. Any discussion of HMG contribution and project sustainability must be read with this fact in mind.

Nationally, HMG has not favored strong donor coordination either sectorally or overall, and much is thus carried out informally through personal relationships. The Donor Group Meeting held periodically is an exception, but one in which HMG is an occasionally reluctant participant. In the late 1970's, donors who tried to form a local group to meet to discuss the new "integrated rural development" projects were severely chastised by HMG officials for trying to work around the government. Sectoral working groups of HMG and donor personnel have generally not met with success.

America's entry into the Rapti Zone began with a request by HMG and IBRD for USAID to investigate upgrading the road impact area of the IBRD-supported Mahendra Rajmarg-Tulsipur Road Project in September, 1976. Although HMG's interest was initially only in agricultural development of Dang Valley, given AID's policy at that time to assist "the poor majority", its area of analysis expanded to the entire Rapti Zone. Although funding did not begin until mid-1978 under the RAD/RCUP Design Project, HMG central personnel and many politicians in Rapti Zone thus view Rapti Phase II as the continuation of a relationship that has already spanned one decade.

The era during which USAID became involved in Rapti was the same era that the World Bank and others, including AID, were beginning the newest generation of multi-sectoral or "integrated rural development" projects. Although HMG, to its credit, did host a number of Local Level Donor Group Meetings, "balkanization" definitely occurred in the IRD sphere. Over eight donors fund over nine area specific multi-sectoral projects in Nepal today.

Although most donors do appreciate the visibility afforded area-specific efforts, there are major drawbacks as well. The most discomfitting is that once an area has been "staked out" for one donor, others are reluctant to work in the area due to the lack of visibility for them. HMG tends to build on this phenomenon, often discouraging other donors from entering an area because "the Americans are working there", even when "the

Americans" have stated their intent not to fund a given intervention. Everyone tends to lose, yet no easy solution is in sight.

The fact of life in Nepal, however, is donor funded projects, be they area specific or not. Management distortions thus abound, in that different donors have different administrative and accounting needs that must be met. Normal HMG programs are often repackaged, into donor projects, and then molded (or not) to fit existing nascent systems. HMG is to be lauded for maintaining its control over so much.

2. THE DECENTRALIZATION ACT

2.1 Evolution of Decentralization

The constitution of Nepal, adopted in 1962, initiated the concept of decentralization, but early efforts did not meet with great success. In 1974 HMG/N brought out a new approach called the "District Administration Plan (DAP)". The main thrust of the DAP was to ensure the preparation of an integrated annual district development plan by each district and the creation of a unified administration. The Chief District Officer, or CDO, was to be the coordinator of development activities at the district level. The District Panchayat and District Assembly were also given important roles to assume in the formulation and implementation of district plan. Thus the DAP was to provide the framework for decentralized planning and implementation. It suffered, however, in its adoption by line agencies. The leadership provided by the CDO was not acceptable to the line agencies at the district level, and the line ministries at the centre were not prepared to entrust administrative control to the CDO.

Consequently, in late 1978, HMG/N introduced a new concept called the Integrated Panchayat Development Design (IPDD). The main thrust of the design was the development of the Village and District Panchayat as the institution for participation, resource mobilization, decentralization and rural development. The IPDD provided a chain of coordination committees at different levels in order to achieve greater degree of cross-sectoral integration and coordination. It envisaged the creation of nine "Service Centers" in the nine Ilakas of a district which was supposed to be a focal point for planning, implementation and supervision of the development program at the local level. However, the adoption of the Design was very slow and faced more or less same constraints as the DAP.

After the Refrendum in 1980, a separate ministry called the Ministry of Local Development was created for overseeing rural development. In 1981, it was named Ministry of Panchayat and Local Development. The status of the Panchayat Development Officer (who took over the function of District Panchayat Secretary from the CDO) was raised and designated Local Development Officer (LDO). He was to function as the coordinator

of the district development program, a role hitherto performed by the CDO.

His Majesty the King has on numerous occasions expressed his full support of Decentralization. His Majesty's strongest message, stressing the absolute necessity of decentralized planning and management for development was the crux of his Constitution Day message in late 1981.

The royal exhortations materIALIZED in a Decentralization Act in 1982, and the approval of Decentralization By Laws in 1984. The Decentralization Act came into full effect on mid-July 1985.

2.2 The Act and By-Laws (Shifts of Power and the Planning and Budgetting Processes)

The Decentralization Act calls for the formulation of annual integrated multi-sectoral plans at the Village and District Panchayat levels on which sectoral and national periodic plans are to be based. The Act also requires that the National Planning Commission (NPC) develop procedures for "bottom-up" planning and for strengthening planning capabilities at the District and Village Panchayat. In this way the Act delegates the responsibilities and authorities to the local Panchayats (DPs and VPs) for planning, implementation, monitoring and evaluation of development projects.

The annual District Development Plans are to be based on total financial and material resources available from various sources including: (i) locally generated resources; (ii) grant-in-aid contributions from HMG/N (i.e., the "panchayat sector" projects), and; (iii) funds allocated by HMG/N for district level sectoral (i.e. line agency) projects. The Act also empowers Village and District Panchayats to levy taxes and tolls including the Panchayat Development Land Tax (PDLT), with a view towards strengthening the financial resource base of local panchayats.

In Rapti Zone, locally generated resources remain modest, particularly in the hill districts, and are usually wholly devoted to covering the administrative costs of running the District Panchayat and convening the District Assembly. The PDLT is quite cumbersome to administer, and is generally viewed as regressive in that it taxes small farmers who more intensively cultivate in the hills at a higher percentage than the larger terai farmers. Only a few terai districts in Nepal have asked to implement it, and permission has not yet been granted. The locally generated resources collected by the districts in Rapti are apt to remain meager in the foreseeable future.

"Panchayat Sector" grant-in-aid funds are generally used for visible small rural works projects and have been greatly supplemented by USAID under Rapti Phase I financing. Salyan District this year has made a significant step in allocating some of its MPLD funds towards health and education, thus supplementing

line agency funds in areas of need. Section 4.4.3 of this report explores ways to utilize limited AID funds for this grant program to focus District Panchayats more on the productive sectors.

Line agency funding ceilings are provided annually by the line ministries, NPC, and USAID...often in different amounts. All concerned are aware of the problem, and based on existing plans the process should go more smoothly next year.

The annual district plan has to be reviewed by various subject-matter based plan formulation committees and approved by the District Assembly. The committees include both elected DP members and district line agency personnel. The District Assembly functions as the main agency responsible for planning and resource allocation within the district. Without the approval of the District Assembly, theoretically no development project can be implemented at the district level.

Of the four district plans approved in Rapti Zone this fiscal year, however, the PID team only heard of one instance in which a District Assembly actually made a change in a line agency program. This was in Dang, where the DP requested that the ADO increase his target for improved wheat from 2000 to 3000 hectares and cover certain specific additional panchayats. The ADO agreed to this and changed his target. He did not change his budget or staffing pattern. Neither AIC nor ADB changed their plans regarding credit or input requirements.

Rolpa District--like almost one third of the districts of Nepal--did not convene a District Assembly this year due to internal political squabbling. Following the rules prescribed in the Decentralization By-Laws, its plan will thus be made unilaterally in Kathmandu by the NPC.

In the other Rapti districts, it appears that the line agency officers all succeeded in "convincing" the District Assembly members that their targets and programs, mostly received from the center and from the PCO, made sense. In Salyan, the whole planning process mandated was followed, with meetings at the Ilaka and District Committee level. Even there, much more attention was paid to the area of traditional control, the MPLD grant-in-aid funds, than the sectoral programs. Most District Assemblies thus have a long way to go in exercising the new authorities given them.

2.3 The New District Panchayat Secretariat

The emphasis of the present decentralization effort is not on creating new institutions. Instead it focusses on creating a new set of roles and relationships among the institutions in existence. At the district level, the District Panchayat Secretariat has been expanded to include all the sectoral line agencies, including parastatal organizations, concerned with development. These offices now function as integral sections of the Secretariat under some administrative control and supervision

of the District Panchayat. (The District Panchayat Secretariat is chaired by the elected official of the District Panchayat, which is composed of nine elected members.) However, the implementation responsibility for each sectoral component will continue to rest with respective line agencies, meaning that the line officials will also continue to be answerable to their parent ministries in adhering to their guidelines. This means that line officials at the district level operate within the framework of "dual" supervision.

According to the Act, the MPLD is responsible for coordination of inter-sectoral activities through Local Development Officer (LDO), who also serves as secretary to the District Panchayat Secretariat, (a position akin to Chief Executive Officer). He is in charge of the local planning, budgeting and implementation process. The LDO now reports to both the Chairman of the District Panchayat and to his line ministry, MPLD, again having "dual" supervision.

2.4 Roles of the Regional Offices

According to the Decentralization Act, the Regional Offices of different line ministries, including the Regional Office of NPC, have important roles to perform in providing technical support in planning, implementation and monitoring of sectoral activities at the district level. However, the roles of the Regional Offices so far seem to be more confined to the job of "clearing and forwarding" agents for administrative matters. The team visited all relevant Regional Offices in Surkhet as part of its research for this report. The offices have neither the staff nor the formal authority to provide much assistance to the Districts. The MPLD regional training centers in Surkhet and Nepalgunj, and the Agriculture Regional Training Center in Nepalgunj, are the main regional linkages foreseen.

2.5 Village Panchayats and Users Groups

One of the basic thrusts of decentralization is institutional development at the local level. Accordingly, Village Panchayats have been made the focal points for the planning, implementation and evaluation of local development programs. Sub-VP Users Groups or Committees have been formed for undertaking the planning and management of local development projects, including Drinking Water Committees, Forest Committees, School Committees and Irrigation Water Users Committees. Small Farmer Groups formed under SFDP have been the most successful of these in both improving levels of living as well as in undertaking community development projects for village development programs.

2.6 Some Issues Relating to Decentralization

2.6.1 The Role of the LDO. The Local Development Officer is in the difficult position of having at least two masters--his central ministry and the DP politicians--and potentially few

allies. His peers at the district level are more often the technical line agency personnel, outsiders like himself, rather than the politicians. Under the Decentralization By-Laws, he is ceded administrative authority over his peers for such critical personal matters as granting leave, and for substantive matters relating to plan formulation and monitoring. The technicians may respect his right to effect coordination, but can always claim higher technical concerns in case of conflict. LDO's have generally come up through the ranks of the non-technical ministries of Education, MPLD, or Home, and can rarely call the technician's bluff. In the end, much of the LDO's effectiveness in coordinating the line agencies rests on inter-personal skills and informal relationships.

Because of the LDO's position in MPLD and as the Secretary of the DP Secretariat, he is also much more closely linked with the politicians, and must astutely try to avoid being associated with one particular faction where factions exist. In some districts, in fact, LDO's privately estimate they spend the greatest proportion of their time assuaging political revalries, with consequently less time for development work.

The LDO also has major internal supervisory responsibilities for the DP Secretariat and other district MPLD divisions under his office. The average LDO must currently supervise the Planning Officer, the District Technical Office and an Accounting Section. In the five districts of Rapti Zone, positions exist for a Field Officer and a Training Officer, although not all are yet filled. Three Districts in Rapti have Women's Development Officers, supervised by the LDO. And in Dang District, the LDO supervises a Local Revenue Office. Next year, LDO's in Rapti will also supervise a Procurement and Logistics Section. Finally, the LDO meets monthly with the Village Panchayat Secretaries to discuss their activities and issues in the village. (This meeting, unlike many specified in various government documents, generally occurs in a timely manner as it is the time when the Secretaries come in to collect their salaries.)

The LDO has, in short, a near-impossible position. Following any basic structure-function analysis, it is a necessary position for sustained development in Nepal. Section 4.4.4 of this report provides strategies for increasing, to the extent possible, his effectiveness.

2.6.2 Inconsistencies in HMG Legislation/Law. Several existing HMG administrative decrees and laws have not yet been modified to meet the new requirements of decentralization. A notable inconsistency is between the Decentralization Act and the pre-existing Forests Act. Under the latter, the District Forest Controller has a key role as the district judge in matters relating to forest use. Under the former, he is a member of the District Forest and Industry Plan Formulation Committee presided

over by an elected politician. The potential conflict of the politician being brought before the judge for a fine and then having the judge sit before the politician for a program review has not been lost on those concerned. An administrative decree has been issued wherein the DP now posts a signboard for the District Forest Court, which is supposed to minimize the conflict. Formally, it may do so, but informally the situation remains awkward.

Other specific contradictions were not raised to the team, and all concerned noted that HMG is aware of problems and trying to revise regulations to achieve consistency.

2.6.3 Incentives for Decentralization. Many central ministries have not fully embraced the concept of decentralization and are following the law to the letter rather than the full intent. As noted earlier, central ministries are still providing their personnel separate budget ceilings and "guidance", the latter commonly accepted to be the same as the former "plans" (targets) sent in years past. The PADCO Regional Assessment and the PID Agriculture Technical Analysis point out the inefficiencies of these plans, or guidance, in terms of a lack of relevance to problems of the district. Yet the central ministries cite the precedence of national priorities and inter-district balance over often more localized problem-areas.

The intent of the Decentralization Act is supported both by development as well as modern management theory as a viable and efficient way to develop Nepal. Development literature repeatedly stresses the maxim that the more direct the control of resources to address problems, the more likely the problems will be alleviated. Management literature more and more is stressing the need for developing a sense of "ownership" over programs if managers are to be motivated and effective. The development of district plans is assuredly a key factor towards achieving this objective.

The incentives for district officers and politicians to fully embrace Decentralization are fairly clear, but those for the central ministries are not. It will presumably improve their management and cost-efficiencies in the short-term, but will also decrease their power. Field-oriented programs such as Rapti II must remain conscious of this concern, and take care to try to develop/maintain central ministries ownership of field programs wherever possible.

3. RURAL AREA DEVELOPMENT - RAPTI ZONE: THE INSTITUTIONAL FIT

3.1 The Design Assumptions

As well recorded, the Phase I project was designed during the four year period 1976-1980. Various documents produced for the project gave it budgets ranging from \$11.5 million (AID FY 80 Congressional Presentation) to \$ 96 million (APROSC Prefeasibility Study 1977). The early documents included little discussion of

overall management of the programs or the AID-funded project. HMG had no policy to deal with the institutional or management ramifications of such an undertaking. USAID/N created a separate office for the management of this one project.

Early design assumptions focussed on building on the socio-cultural heritage in the zone for local level undertakings, and for gradually building HMG/N capabilities at the then nascent district level to support such efforts. Indeed, the first phase emphasis was basically to build on existing HMG/N programs and resources, with an initial aim of successfully implementing a higher percentage of planned activities prior to introducing radical change. The design included a strong emphasis on intra and inter-district equity, purposely trying to keep funding levels for Dang District programs equal to those of the hill districts even though its population and resource base was greater. Although funding programmed for the "Farming Systems" cluster of activities was approximately 33 percent of planned expenditure, in fact the project tried to cover as many programs as feasible noting:

...by attacking the problems simultaneously from each of these directions, the probability of achieving widespread success increases considerably and exceeds the sum of the individual strategies' probabilities of success. Experience in rural Nepal suggests that thresholds of credibility, local participation, reduced opposition from the elite, and self-reliance are more likely to be crossed through the sensitive application of combined strategies such as these than if reliance were placed on only one or two alone. However, since it is impossible to predict which mix of strategy emphases will be most effective, the Project's soundness will depend greatly on the ability of project managers to identify and incorporate necessary readjustments as informed through adept monitoring. (Project Paper, p.6)

The "adept monitoring" was to be undertaken by a Project Coordinator's Office (PCO) located in Tulsipur. In July 1978, when the RAD/RCUP design Project was negotiated, the Ministry of Finance would not accept USAID's request that HMG appoint a Project Coordinator, as HMG had no policy for such persons. An officer was finally appointed in January 1980, to head up a small office. By 1984, the office had grown to over 150 persons, excluding technical assistance. As of April 1986, sanctioned positions were down to 76, with approximately 66 percent of those filled. The PCO was/is not only supposed to plan and monitor programs, but to provide training and communications support, technical (engineering) support, and procurement for district level projects.

All of this fit totally within HMG's "Integrated Panchayat Development Design" and related policies. Funding was provided through Finance directly to line agencies for implementation, with the PCO coordinating efforts for HMG and AID. By the time the Decentralization Act was passed in 1982, the PCO was just getting into full swing. It had essentially been established with the authority of MPLD, and slowly developed legitimacy with the Zone's politicians and technical personnel as a supporter of their programs. Given the stated similar authority for coordination and support of various Regional offices today, and the lack of attention paid to them, it is likely that much of the PCO's initial legitimacy and power vis a vis line agencies came more from the promise of AID funding than from any services it could offer.

Although the center had finally aligned policies and staffing to support the massive IRD efforts in Rapti and elsewhere, by 1983 and 1984 several key events had a profound effect on the efforts: (1) The AID-funded Mid-Term Evaluation was severely critical of the project and of HMG commitment; (2) the Decentralization By-Laws were passed, providing teeth to what had formerly been rhetoric; and (3) AID Washington's new (1981) administration began requiring adherence to new strategies, one of which was to avoid multi-ministry projects. What "fit" there had been, in Washington, Kathmandu, and Rapti Zone, began to slowly deteriorate.

3.2 Current Implementation Realities and Constraints

The Rapti Phase I Project, then, initially aimed to help more district programs get implemented than had been possible before. All data available--financial, staffing, targets--suggests that this aim has been achieved. The technical analyses include summaries of impressive gains in HMG service availability and in production of wheat, rice, maize and tree seedlings at selected locations. Many local assisted groups have been formed, and those under SFDP and the WDO programs are functioning well. The analyses, and other relevant literature, strongly suggest that an emphasis on quality, rather than quantity, is what is needed now.

The design also tried to attack rural poverty from as many angles as possible, frankly admitting ignorance as to which would work. The final evaluation demonstrates notable quantitative targets achieved in many components. Data for cross-component analysis of the "integrated" or "coordinated" impact on alleviating rural poverty, however, has only rarely developed or used for measurement purposes. (see the 1985 PADCO Regional Assessment). Some indices have been noted, including increased monetization of the economy and the increasing commercialization in the zone. Monitoring--adept or not--combined with new AID policies now emphasize the need to narrow the efforts considerably and work to get production up to sustain what has been started.

The design followed HMG policies for IRD projects as fully as possible, including the building of the PCO complex and funding all other accountments of such an organization. The districts are now relatively well staffed and need less support than before.

A number of key cross-cutting constraints, however, continue to impede development in Rapti Zone:

1. An inadequate financial system is the current overriding short-term constraint. In most cases, authority over funds is adequate (currently Rs. 12 lakhs for gazetted officers) and theoretically well located at the proper level or position in the system. However, as noted in each technical analysis and in numerous reports on the project, funds are rarely released on time. District offices often wait several months for releases and officers must borrow at commercial rates to meet basic living expenses. Key personnel must absent themselves from posts to track files around Kathmandu. The best qualified staff ready to carry out perfect development plans could still do nothing in this situation.

Numerous reports offer suggestions on minor ways to improve the system. The PCO maintains a staff that theoretically should work to expedite matters but in fact is more absorbed in internal PCO accounts. An expatriate advisor was employed for 3 years, but found much of the system outside of his control. Most district line officers come to the USAID/RD Financial Analyst in Kathmandu for help.

The PID analysis team did not include an accountant or financial management expert and time precluded thorough reanalysis of the HMG and USAID disbursement systems. Section 5 outlines the team's recommendations for a separate focussed study of this fundamental constraint.

2. The increased HMG presence at the district and sub-district Level fosters dependencies that threaten sustainability of efforts. Although the significant increase in services provided has had a very positive impact, there is a negative side as well. The presence of more government employees and the increase in public sector spending appears to have eroded self reliance attitudes among political and private groups and individuals. Voluntary labor (shramadan) is less conspicuous than before, particularly for activities involving more than one ward. For example, Panchayat Roads work formerly undertaken through shramadan is now paid by HMG. Nursery naikes and forest watchers originally intended to be paid by Forest Committees are paid, and in fact supervised, by the DFC's. Village water system technicians that were to be paid by Village Panchayats are paid by MPLD. Although District Panchayat revenues have increased somewhat over time, most local persons now seem to expect the central government to fund most development efforts. Given very real budgetary constraints, HMG (political and administrative or

technocratic sides) must examine more ways to involve non-governmental groups and private individuals in development efforts.

3. In spite of 20 years of HMG efforts at coordination, integration, and decentralization, vertical line ministries' independence and continuing strong centrist practices contribute to inefficiencies and ineffective implementation that decrease the impact of scarce resource investment. The technical analyses note two substantive areas where coordination does not occur and critical activities have "fallen between the cracks": fodder and forest production and land use management. In other areas, redundancies occur, such as two agencies' establishment of multi purpose nurseries at the same location. Donor agencies support similar national level programs but offer different subsidies and staff incentives and require different monitoring systems. Means must be found, and incentives developed to pursue those means, of more efficiently utilizing financial and human resources at all levels of the system.

The Rapti Phase I project has helped alleviate many constraints but in some ways exacerbated the ones noted above. The following sections recommend strategies and programs to maximize Phase II efforts...without, it is hoped, creating yet another generation of constraints.

4. STRATEGIES TO INCREASE AGRICULTURE AND FORESTRY PRODUCTION IN THE RAPTI ZONE THROUGH LOCAL CAPACITY BUILDING

Based on historical and other reasons AID has reiterated its special commitment to continue supporting development in the Rapti Zone. Prior commitment has emphasized working within existing HMG public sector institutions, with a relative balance of investment in productive and social services. As noted at section 3.2 above, this initial emphasis has yielded positive results in terms of presence and visibility of public institutions. Given the accepted assumption that neither AID nor HMG can sustain this high level of public sector activity on the dwindling resources available to each, an overall phase II strategy emphasizing the following is indicated:

1) Focussed programs to increase agricultural, forest and livestock production and productivity in a sustainable fashion must be the cornerstone of investments; this focus implies a geographic as well as sectoral focus, in that much of Rapti Zone has limited production potential.

2) Concurrent with these focussed programs in production, carefully planned geographically focussed efforts in preservation and management of the land and resource base (e.g., soil, water, and forest) must be emphasized.

3) Returns from these investments in production/preservation must than be captured and fed into continuing development efforts. This is not to say that Rapti Zone is to be self-sustaining or isolated economically. Rather, means must be found to both capture a portion of the economic returns (through local resource mobilization and local reinvestment) and to reorient attitudes so that productive investment programs become as attractive to politicians as social welfare activities.

Separate technical analyses for Livestock, Agriculture and Natural Resources/Forestry address the first two points. Given the constraints and inefficiencies highlighted in those analyses, however, and the cross-cutting constraints summarized above, it is clear that the vertical line agency programs in isolation cannot achieve production gains desired overtime. A cross-cutting strategy emphasizing building the capacity of indigenous, "modern" political, technical, administrative and private sector is required. Criteria for measuring the success of the strategy vis a vis vertical programs would include immediate cost-efficiencies in implementation, medium-term improved cost-effectiveness of services delivered, and longer-term improvements in sustainability of benefits. Specific strategic emphases follow:

4.1 Private Sector Stimulation at the Ward and Village Level.

Greatly increased attention to stimulation of the ward and village private sector is critical to program viability. The government simply cannot reach all areas and/or all individuals, and private or government-stimulated private sector activities can greatly complement its efforts. Attention needs to be focussed on ways to activate groups and individuals in government assisted but privately managed and sustained development endeavors.

As noted at Section 1.4, many groups and individuals are noted as having been assisted in terms of "target achieved" by line agencies. The only ones that are at all functional in terms of productive activities are the groups formed under the Small Farmer Development Program (SFDP). The key problem has been that the various "users" groups have been given responsibility for certain functions, i.e., forest management, irrigation management, without being given any means to exercise that responsibility. Means that would appear to be most useful to these groups are skills--both technical and managerial--required to function, and resources--especially cash--to manage to sustain the group endeavors.

Basic managerial skills, in terms of how to organize a group, how to conduct a meeting, how to define priorities, how to make a plan, are well understood for group activities in rural Nepal when time-limited, single function activities need be undertaken. Groups have effectively organized to construct water systems, build bridges, annually repair trails, and roof schools. Certain multi-function activities, notably management of indigenous

irrigation systems, are carried out, based on repetitive tasks over time. Group management for longer term activities which may not have repetitive tasks, such as water system maintenance or forest management, have generally not met with sustained success. Increased efforts at defining skills needs for functional groups and providing training in those skills are essential if the groups are to operate over time.

In addition to skills, however, the groups need something to manage that is visible and provides relatively short-term benefits. The Natural Resources Analysis details a number of potential income-generating forestry and fodder activities that can yield short-term financial payoffs. The Livestock Assessment provides similar suggestions, as does the Agriculture Report. Policies and efforts enabling groups to generate and control funds will have an extremely high payoff in terms of generating more interest in group activities, decreasing dependencies on HMG/N and thus creating more cost-efficient delivery of services. Provision for this type of transition is already part of HMG policy and/or law in most cases and simply must be made reality. Credit and "seed money" are available from the banks and in line agency programs to foster this work. All involved need more encouragement and supervision to make it happen.

Stimulation of individual private sector activities, which would generally be more profit-motivated than those of groups, must also be accelerated in critical sectors, especially provision of production inputs. Speedy revision of leased forest legislation is very much indicated in Rapti Zone in order to take advantage of the new ADB/N provision for forestry loans. Agriculture, Forestry and Livestock personnel must be assisted in identifying promising entrepreneurs for provision of seeds, fertilizer, seedlings and vaccines and in helping link the entrepreneurs with credit outlets for operating capital. Simply stated, given management efficiencies and location-specific needs, the private sector can provide inputs better than HMG in most cases. Again, most policies provide for this, programs already exist, and either bank or line agency funds are available to assist. The strategic emphasis simply needs reinforcement.

This reinforcement can be provided in a number of ways, depending on the final project management structure developed for the Phase II efforts. Certainly district and sub-district level line agency personnel should receive skills training in group formation and organizational development, although technical analyses suggest more technical training may in fact be of higher priority. Certain persons at the district level, including Women's Development Officers, are adept at this sort of work. ADB/N Group Organizers for SFDP groups are especially skilled. For most Users Groups, however, it appears that a short-term outside efforts--either Nepali contractor or PVO--are particularly indicated. These technical assistance personnel would focus in on activating and training groups that already exist on paper, and on helping form linkages between group leaders and HMG line agency

personnel. They would also serve a liaison role for individual entrepreneurs in terms of helping access credit and skills training at the district or other levels.

It should be noted that Nepal and other countries have tried to develop such "multi-sectoral village development workers" before, i.e. during the 1950's Block Development program. In Nepal and elsewhere, this approach was generally unsuccessful because of the tendency to develop a large bureaucratic structure to support the efforts. In addition, most workers were given training in so many skills areas that they were rarely successful in any. It is suggested the short-term and periodic infusion of outside trainers and technical assistance is a more efficient and effective way to try to build these skills among the private citizens than creating another vertical or horizontal governmental level. The sub-district and district level technical personnel can then concentrate on their technical subject matter, and will be able to diffuse this knowledge more rapidly through the more active and responsive private groups.

4.2 Development Management Training at the Village Panchayat Level.

As is well known, a Village Panchayat in Nepal is an administrative unit that often encompasses more than one settlement, caste/ethnic group, ecosystem, and/or land-use type. Pradhan Panchas are directly elected, and usually are accorded respect for their nonsalaried positions. Village Panchayat Secretaries, salaried employees of MPLD, are also respected in that they have traditionally been selected from among the more powerful indigenous structures in the area.

Given the improving but still nascent state of district level planning in the Rapti Zone (and elsewhere in Nepal), it must be assumed that the level of Village Panchayat planning is not apt to improve dramatically during the project period. In terms of the more geographically tied production focus being recommended, then, the politically and administratively defined Village Panchayat is not strategically important to the formal planning process, but more to the management of productive endeavors. Village resource inventories should be made and maintained, but their use as planning tools should be emphasized much more at the District level with line agency personnel than as an end in themselves.

Emphasis during the 8 year project period at the Village Panchayat level should rather be on enhancing the ability of leaders, particularly the Pradhan Pancha and the Secretary, to manage implementation of development in their panchayats. Those who are literate can play a particularly useful role in absorbing the non-monetized transaction costs--particularly of accounting--of non-governmental user groups and private entrepreneurs in their areas. All can help groups and individuals in their constituencies better deal with community management and common property issues. Certainly, periodic orientation seminars

on the Decentralization process can be supported, but emphasis on management rather than planning will be more cost-effective and have a the greater impact overall. Successful implementation of development activities, be they private or public sector, in the panchayat will have a greater motivating effect for these political leaders than any planning seminar might.

4.3 Support to Agriculture, Livestock and Forest Sub-Centers Only Where Demand has been Demonstrated (as opposed to Expressed).

The Ilaka is a useful political-administrative unit in areas of higher population density and greater public sector activity than that of Rapti Zone. The HMG/N policy to cluster sub-district offices into Service Centers at the Ilaka level makes sense in certain areas. There are some locations, based on population and the resources base, where demand for only one technical specialty is needed, as suggested by the Veterinary Sub-Center in Takasera. There are other locations where more than one Sub-Center of one specialty may be indicated, particularly along fertile river valleys in Salyan, Pyuthan and Rolpa, where demonstrated need for JT/JTA's is high. While the establishment of a full array of services in each Ilaka is a desirable long-term goal, the PADCO Regional Assessment suggests that the expensively constructed clusters established under the Phase I project are not necessarily the most cost-effective or efficient means of providing quality services to those who will use them.

The recommended institutional strategy thus places little emphasis on establishing service centers as such, but rather on providing quality technical services where need has been demonstrated and production potential exists. The establishment of sub-centers based on district-level line agency analyses and plans should be supported, and clustering should be encouraged when and where it makes sense. Given the many issues and the cost differentials raised in the PADCO Regional Assessment, USAID/N might consider a policy of supporting only rental sub-centers until a certain client-use rate has been established by the office. Given the lower level of funding currently available for Phase II, and the criteria of cost-efficiencies and effectiveness, scarce resources should not be programmed for expensive buildings unless a specific technical need exists.

The Agriculture, Livestock and Natural Resources Analyses provide more detail on the provision of sub-centers for each technical sector.

4.4 The District as the Key Focus for Development Efforts.

The Decentralization Act notwithstanding, the 1977 APROSC Reconnaissance Survey and the 1985 PADCO Regional Assessment highlight the need to emphasize development on a district-by-district, rather than zonal, basis in Rapti Zone. After almost 10 years of repeating this maxim, however, most decision-makers still

seem to be working on its pursuit in a reflexive rather than active mode. HMG/N central "guidance" to agriculture officers, for example, still looks eerily similar across vastly dissimilar districts. USAID/N funding for Livestock is almost equivalent in Rukum and in Pyuthan. Based on the vastly increased and improved data base now available for planning purposes, these key decision makers need to start tying investment more closely to what the data analysis suggests.

The investment pattern across districts must begin to be more effectively tied more to development potential than political expediency. That is, the analyses strongly indicate that forestry investment in Dang, Salyan, and Pyuthan is more important for both preservation and production goals than in Rolpa and Rukum. The livestock analyses conversely suggests more work in Rukum and North Rolpa...and Dang. Cropping systems programs must follow the land's production potential. Certainly interdistrict equity should remain a consideration, but it should be given much less priority than that of the potential for a given intervention to increase production.

4.4.1 District Development Plans. Intra-district equity must also remain a consideration, but USAID in particular must play a more regulatory role in this regard than it has in the past. Strategies for dealing with the common District Panchayat practice of dividing development programs up as equally as possible across panchayats are suggested in subsequent sections. Given the data available, USAID can help line agency personnel lobby for spatial distribution that makes sense in developmental as well as political terms.

The line agencies acceptance of centrally developed targets (as opposed to plans, which they are not) and the politicians concern about visible spatial distribution are generally not leading to efficient or effective use of scarce financial and human resources. (See both the 1985 PADCO Regional Assessment and the Final Evaluation). Section 4.1 - 4.3 above include suggested strategies for improved efficiencies at the user group (ward), village panchayat, and ilaka levels. Some overall emphases with district level personnel follow.

4.4.2 Reorienting Line Agency Technocrats. USAID and the concerned HMG ministries must agree on and enforce a policy that district officers should not separate "regular" and "Rapti IRD" program activities in their plans. The policy should emphasize that the officer's work is agricultural, forestry or livestock development overall. This seemingly innocuous act, if written and circulated, may help in overcoming the pervasive notion that work funded under the Rapti program is somehow "extra" work for which one should receive "extra" perquisites.

Efforts should be made under Rapti II to help district line agency officers better cope with their roles as external and temporary advisors in the district development process. Although

USAID and HMG rhetoric state correctly that "programs are to be implemented through line agencies", district personnel must begin to more actively stimulate sustained and meaningful participation of local user and political groups. Various types of skill training, such as organizational development, can be provided technical officers to help them in this regard.

As advisors to the district's inhabitants, line agency officers continue to require technical and managerial skills training and information. This support should be provided on a more problems-specific basis (i.e. relevant short courses) than in the past.

4.4.3 Make Production-Oriented District Development Politically Attractive. To restate a key assumption from section 4.3, "successful implementation of development activities, be they private or public sector, in the panchayat will have a greater motivating effect for these political leaders than any planning seminar might." The same assumption holds true for the district as a whole. Rather than general planning seminars, the strategy emphasizes the district politician's role in implementing His Majesty's policies through improved management and monitoring/_supervision of the development process.

Following recommendations for the Village Panchayat officials to more actively assist in provision of basic management skills for private groups, it is recommended that District Panchayat officials be trained in and become more active in public sector administration and management. The DP members have historically involved themselves in this way in the MPLD grant-in-aid program, and that should continue and be strengthened. However, as was earlier pointed out with regard to ward-level user groups, ceding of authority is only effective if the authority is then exercised to manage resources. The DP's have now been given the authority to manage District Development, but the resources available to them to do so have not changed at all. If activities fail, they can still blame it on Kathmandu. Involving them more in operational decision-making, while somewhat risky in certain areas, should create more of a sense of ownership of district level plans than has heretofore existed. Three suggestions follow:

- Transport and Distribution of Agricultural Inputs. Based on improved quantitative district level plans for agricultural development, specific targets for improved seeds, fertilizers, and pesticides can be developed. In order to increase the role of the District Panchayat in productive sector activities in a meaningful way, it is strongly recommended that USAID and selected central HMG agencies lobby for AIC to transfer the transport subsidy in a lump sum to the District Panchayat account. The quantity of fertilizer to be brought in from the regional go-down or distribution point would be well publicized in the district and responsibility spread through the Secretariat, so the risk of "leakage" would be minimized.

The political benefits to a DP that managed to bring in adequate inputs on a timely basis would be as great as the agricultural benefits, and a positive link would be established.

Given the stronger DP role, project managers should then work with the DP to identify and recruit promising individuals to serve as AIC dealers and/or some type of "tuki" in the district. The ADB/N can provide short-term operating capital and the application process is straight forward. Project management should encourage District Panchayats to increase commissions if they feel their constituents can afford it (or they can afford it) in order to promote this more active and efficient private sector role.

- Grant-in-Aid Setaside for Productive Activities. Previous sections have noted that District Panchayats receive an MPLD block grant each year that they normally allocated to visible small rural works, frequently dividing the grant equally among all panchayats. They thus have gained little experience in planning and managing more productive activities. Although they are now to be more involved in line agency sectoral plans, the discussion has noted that this is apt to take time. The easiest way to involve them more directly is to give them control of funding. The establishment of a separate account for the grant-in-aid program, funded on a modest annual basis by AID, with specific criteria to tie the funds to activities in agriculture, livestock and forestry, may provide them this experience. It will further force collaboration on their side with the technical ministries, as they will need assistance in determining the feasibility of projects. This "Local Development Fund" fund would be administered by the LDO and subject to the same regulations as other programs, and is discussed in more detail at Appendix 1 to this report. It would hopefully help the politicians see the value of their fuller involvement in these sectors.
- Increase Local Resource Generation. Again, providing the politicians with more funds under their specific control is apt to involve them in district development more than any planning seminar. Although the PDLT is not apt to be adopted for some time, there are probably ways in which districts can increase resource generation within existing programs. USAID might consider providing local consultants to work with the District Revenue offices to identify ways of increasing their efficiency and possibly expanding their venues for collection. That is, the consultant could help to maximize collections, not impose new taxes.

Also, the Salyan District Forest Controller has recently contracted with a Nepali private sector firm for collection of pine resin in the district, which will provide income to the national account as well as local employment. Although the Natural Resources/Forest Technical Analysis cautions against plantation of pines, the speedy registry of some of the existing stands as Panchayat Protected Forests would enable the local (private) Forest Committees to keep 85 percent of the revenue from this contract. Generation of such revenues at the Village Panchayat level--although not public funds--would again help focus politician's eyes on development. Rolpa and Pyuthan also possess mature pine stands that could be rationally exploited by the private sector.

4.4.4 Increase the Local Development Office's Efficiency.

Section 2.6.1 notes that the LDO has what amounts to an impossible job. Both in Project Paper development and in implementation USAID and HMG should avoid the tendency to assume the LDO can do more, and do it better. Where possible, the skills of his subordinate staff should be developed to lessen his supervisory load. Section 4.2 recommends that management training be provided to Village Panchayat Secretaries as one means of decreasing his burden. The above section suggested consultancies to assist the Revenue Offices under his auspices. Rapti Phase II should continue the technical assistance and staff development thus far provided to District Technical Offices and Women's Development Officers, including the provision of counterpart Peace Corps Volunteers where indicated. Training for LDO accounts personnel and the new procurement section is indicated. Organizational development seminars for the entire DP Secretariat should be explored.

4.4.5 Improve the Skills of District Treasury Personnel.

The importance of improving financial flows cannot be overstated. The District Treasury Officers, and all district line agency accountants, must be offered accelerated training and incentives if the productive sectors are to have programs at all. Possible in-country observation tours and visits to the Comptroller General's Office in Kathmandu would serve the dual training and incentive purpose as a supplement to specific skill training courses.

4.5 Multi-District Support

Sections 4.1-4.4 have enumerated specific strategies for improving the efficiency, effectiveness and sustainability of the productive sector programs contemplated under Rapti Phase II. Many of these strategies can be carried out directly by the line agencies as part of their regular programs. There are four areas, however, where fulltime cross-cutting multi-district support is indicated.

It is recognized that the current Rapti Phase I PCO now covers most of these functions in some manner. The following discussion, however, summarizes the needs outlined above which are not predicated on the existence of the PCO. That is, it enumerates some necessary functions to support district development. Section 4.5 that follows will address the options for structures to carry these out.

The first need is for training coordination and support of local programs on a vastly accelerated scale. Basic management and organizational skills are needed at all levels, and specific problem-solving and administrative skills are indicated for specific positions. Specific needs assessments must be undertaken for all types of positions or roles, and trainings developed to meet those needs to the extent possible.

Given the existing work-load of the LDO, it is not realistic to assume that his office would be able to cope with the need. For certain skills training, there are also efficiencies to be obtained from inter-district courses, i.e. for Treasury officers. The Panchayat Development Training Center in Nepalgunj and the Women's Training Center in Surkhet are good locations for some of this training, and can provide backstopping to District and multi-district training efforts. Linkages can and should be established with these--and other--institutions, but they are not staffed nor equipped to handle the necessary coordination and scheduling that must occur.

The second need is for technical assistance, on an ad hoc basis to respond to specific needs (i.e. an assessment of district revenue potential), on a periodic basis (i.e. for annual assistance to the District panchayat in determining the feasibility of grant-in-aid programs, or annually to AIC to ensure adequate fertilizer is moved to Ghorahi), and on a continuing basis as enumerated in the Agriculture, Livestock, and Natural Resources/Forestry Analyses. Again, for many of these needs cost considerations suggest that they be met on a multi-district rather than single district basis, although this rationale should not be a standard assumption.

The numerous types of technical assistance required leads to a higher-order need, which is some sort of authority with the capability to design the terms of reference for and supervise the work undertaken. Evaluation of the effectiveness of the assistance must be considered a necessary part of the contracting process.

The third area for multi-district support assumes a continuing USAID presence and is thus for financial accountability. As stated earlier, the flow of funds is the fundamental constraint to effective program implementation. Even should the recommended financial management assessment work wonders in devising a simpler system, the District, USAID and central HMG ministries will likely need some sort of structure to tract efficient and appropriate use of program funds

Again combining emerging needs of the districts with those of USAID and central HMG ministries, the fourth identified need is for improved planning and particularly monitoring and evaluation. The Smith monitoring report itemizes a number of new areas for monitoring purposes, and as the PID is developed more will likely be identified. Certainly criteria for efficiency and effectiveness of the productive programs, as a measure of whether local capacity is growing, need to be established during PP design and followed during implementation. Some of this function could be carried out through technical assistance provided directly to the individual districts, thus falling more into the "technical assistance" functional category noted above. But HMG and AID also require specific planning, monitoring and evaluation for project purposes, which needs be undertaken across-the-board. A functional need is thus established for this purpose as well.

4.6 Project Management

Although Rapti Phase I was carefully not called an "integrated rural development" project by AID, it fully fit the HMG definition and was thus subject to all HMG policies and structures regarding IRDs in Nepal. Rapti Phase II, as currently envisioned, no longer fits the HMG definition. Unfortunately, it is also not structurally appropriate for a direct ministry project if it is to meet the stated purpose. To compound the dilemma, AID/W and most HMG personnel have stressed that no new structures should be established under Phase II.

The proposed options assume that the USAID/RD office will continue to manage the project for USAID/Nepal, with roughly the same level and type of staffing that currently exists. Should USAID/Nepal be contemplating internal management changes, the "advantages" and "disadvantages" of each option would change. As it is definitely beyond the scope of this team to make such recommendations to USAID, however, the original assumption of the current management structure must hold.

4.6.1 The Lead Ministry. AID/Washington has asked that "careful consideration" be given to choice of a lead ministry for the project. Given the programs recommended, there are essentially three possibilities: the Ministry of Agriculture, the Ministry of Forest and Soil Conservation, and the Ministry of Panchayat and Local Development.

The team has undertaken summary function/structure analyses and discussed these options with numerous HMG and private persons in Kathmandu, Rapti Zone, and Surkhet, and has reached the following conclusions:

The Ministries of Agriculture and of Forests are tremendously overburdened with donor funded projects. Many agriculture projects throughout Nepal for which the Ministry of Agriculture is the "lead" suffer from the same lack of attention as did Rapti Phase I, due to this tremendous management burden. With the exception of the newly

created Department of Livestock Development and Animal Health, the Ministry essentially has the same management and administrative structures it did in the early sixties, when it managed many fewer projects, personnel, and funds. Contractors funded under the USAID Agriculture Research and Production (ARP) project are working with ministry officials to look at new options for organization and administration that would better respond to the workload, but no one involved is sanguine that changes will occur quickly. The management burden on the Ministry of Forest is somewhat less, but it also has less staff and is engaged in a massive training program to gear up to needs. District officers of both ministries have more than enough work in their sectors.

Given Nepal's resource base, the two ministries are also occasionally in competition for project resources. Most persons interviewed (both Nepali and expatriate) noted that if one of these ministries was given a "lead" role over the other, cooperation might be difficult. The experience of the USAID-funded Resource Conservation and Utilization Project, which was under the Ministry of Forest and Soil Conservation, is instructive in this regard.

The Ministry of Panchayat and Local Development, created in 1980, has been better able to build its organization and administration to respond to the burgeoning project workload than the other older ministries. It has established project offices and project coordinators for most donor-funded projects, and appears able to provide stronger support services to the field than most. It also has the mandate to support the districts in all district level program implementation efforts, including those of the technical sectors. It chairs numerous coordinating committees in Kathmandu and the regions, and although still somewhat skeptically regarded as "the new kid on the block", is more and more accepted in this coordinating role by the technical ministries.

The following sections outline three possible project management options for Rapti Phase II. Under Option I, there would be no lead ministry for the project. Under Options II (a) and (b), the proposed lead ministry is MPLD. Given current foreseeable organization, functions, management loads, and relationships, it appears the only choice for the project as structured should a lead agency be desired.

4.6.2 Option I: No "Lead Ministry". The Seventh Plan maintains the role of the regional offices for support of the districts, and makes no specific provision for anything in between. A number of HMG decision-makers have noted over the years that at some point the government will have to come up with something smaller than a region, as they are too big to carry out their mandate effectively. Two of the key agriculture agencies, ADB/N and AIC, have in fact moved to a Zonal organization over the years. In other arenas, the Zone remains simply an administrative

unit for law and order. The staffing of sub-regional offices to backstop the districts of Rapti Zone would thus be a wrinkle, but not really a new level of the system. It must be emphasized that the option is for discrete sub-regional offices, not one sub-regional office as recommended in the Final Evaluation.

Under this option, the current PCO complex facilities in Tulsipur would house small sub-regional offices of the following HMG agencies to carry out specified functions:

Department of Agriculture: to backstop ADO's and to coordinate efforts with the Zonal offices of AIC and ADB/N; to serve as a base for the Subject Matter Specialists proposed in the Agriculture Technical Analysis; to backstop efforts in promoting private contract seed multiplication; and to provide a stronger link and authority for and with any agriculture technical assistance personnel.

Department of Livestock Development and Animal Health: to backstop DLDAH offices and to provide liaison with the Departments of Agriculture and of Forests in program formulation and implementation; to provide specific support for private sector initiatives in livestock, as recommended in the Technical Assessment.

Department of Forests: fulfilling of the functions of the former Circle Conservator's Office, to provide backstopping for DFC's and for DSCO's, in that the DSCWM is thinly stretched and the two perform similar technical function; to serve as a base for the technical assistance proposed in the Natural Resources/Forestry Technical Analysis; and possibly to supervise the proposed Dang Agro-Forestry effort.

Ministry of Panchayat and Local Development: to provide backstopping to the LDO's in all other functions not elsewhere cited, including support to WDO's and District Technical Offices; to support a major training coordination and support effort as delineated above, in cooperation where appropriate with the institutes in Nepalgunj and Surkhet and with the assistance of an American advisor for at least the first few years; to support district efforts in formulation and monitoring of District Development plans; and to maintain and administer the complex facilities, including the radio system.

Each office would have its own administrative staff. Vehicle repair and maintenance would be undertaken through the private sector.

Under this option, the function of financial accountability would be performed by USAID/Nepal in cooperation with HMG's Ministry of Finance and through judicious use of short-term Nepalese technical assistance (i.e., the Varley and Sweet

"expediter" role). In that the current PCO does not fulfill this function adequately, particularly with regard to expediting financial flows, the workload would be no greater than it is now.

Under this option, technical assistance would be contracted to a prime U.S. contractor with specific provision for numerous Nepalese consultancies, on a joint venture and/or sub-contracting basis. An American Chief of Party would assume the major role of coordinating and sub-contracting or otherwise obtaining all technical assistance required. She/he would report directly to AID, with no counterpart or liaison ministry other than Finance.

There would be no real lead ministry for the project, other than the standard "lead" for all USAID projects of the Ministry of Finance, with which AID signs the grant agreement. The TA contract would also be approved by that Ministry, although long-term individual technical advisors would need clearance from the respective ministries. The contractor would ideally not have "corporate responsibility" for the project, as recommended by the Evaluation Team. It would have a major monitoring role, with major implementation responsibility remaining with HMG/N.

The major advantage of this option is that it may provide line ministries with much greater ownership of the project than was possible through the MPLD lead. It also provides the technical assistance personnel in agriculture, livestock and forestry with a direct linkage to and authority from the line ministries, which they currently lack. Finally, it provides HMG with an experiment in a possibly viable different level, which it is reportedly contemplating but has not moved on.

The major disadvantage of this option is that it adds a new level in the HMG structure, and would have to be carefully negotiated. The desire for the office as permanent or temporary or as a pilot would have to be clearly established, and funding modalities agreed upon. Further, specific authority for the Sub-Regional Officers would have to be developed that would be more substantive than that currently accorded the Regional Offices. As the offices would not necessarily have implementation responsibilities, recruiting for the positions would likely prove difficult. If implementation responsibilities were added, it would likely attract staff who would spend most time on "their" programs and thus provide inadequate support to the districts. Liaison at the center would also be quite management intensive for USAID/N personnel.

4.6.3 Option II (a) and (b): MPLD as Lead Ministry. This option really describes two possibilities, as follows.

Option II (a): A Streamlined PCO. The PCO is considered a temporary structure for HMG but one that fits policy with regard to IRD projects. It falls under and derives its authority from MPLD and the IRD Board which MPLD chairs.

Under this option, the PCO would retain the following units:

Coordinator's Office: to provide overall direction and management on behalf of HMG and AID for project management; to coordinate and contract for all technical assistance required; to provide a base for an American Chief of Party to assist in administering and supervising such contracting.

Planning, Monitoring and Evaluation Unit: to undertake support to the districts in these critical areas, and to provide personnel to monitor and evaluate the multi-district project efforts to meet central HMG and AID needs; to coordinate special evaluations. It is to be emphasized that the unit would need to begin to spend more time than it currently does undertaking district support and less time collating targets for IRD Board meetings if it were to be at all effective.

Training and Communications Unit: to carry out on a vastly accelerated scale most of the functions it now undertakes, in training coordination and support to district and multi-district efforts; to maintain the radio support linkages established under Phase I.

Financial Management Unit: to carry out its current functions but to activate the Reimbursement Section to initiate efforts at improving financial flows and at problem-solving.

The functions of the PCO Procurement Section move to the Districts this year. A small administrative office would be maintained for internal purposes.

Technical assistance contracting would be the same as for Option I, except that the Chief of Party would have a counterpart and derive authority from that position. The proposed technical assistance personnel in Agriculture, Livestock and Forestry, and other short-term personnel not otherwise cited, would be housed at the PCO as they are now. MPLD would have overall responsibility for project implementation, but the Contractor would need to be given somewhat more authority in the technical sectors as that is currently lacking.

The major advantage to this option is that it is non-disruptive to project operations, requires little management change on the part of USAID and HMG, and is easy to negotiate. It also provides a direct link with the LDO and the District Panchayats who will be increasingly important as Decentralization takes hold. It fits HMG current policy for IRD's, which although Phase II is not an IRD could presumably be stretched for management purposes.

The major disadvantage to this option is that it is inefficient, particularly given the project's focus on the district-level technical productive sectors. Technical assistance personnel in Agriculture and Forestry have no counterparts nor any authority for their work, and must simply establish informal legitimacy in order to effect changes in the program. The existing PCO staff is focused much more on internal MPLD operations than on overall multi-sectoral district support. While it can be argued that this is structurally appropriate, and that all support should go through the LDO, it is unfortunately functionally not realistic given his demonstrated workload.

Option II (b): No Project-Specific Support Office. Under this option, MPLD would retain its "lead ministry" role but essentially function from Kathmandu through its regional and district offices. The various identified multi-district support needs would be provided as follows:

Training Coordination and Support would be provided through the MPLD Training Division, acting primarily through the Panchayat Development Training Center (PDTTC) in Nepalgunj and the Women's Training Center in Surkhet. The training coordination function and any training technical assistance would be located at the PDTTC in Nepalgunj, which would facilitate linkages with the Agricultural Training Center located there as well. Trainers from Nepalgunj and elsewhere would provide direct assistance to District Training Officers under the LDO and to district line agencies.

Technical Assistance would be provided directly to districts on an as-needed basis. Long-term personnel could base in Tulsipur, simply because housing has been prepared and office space is plentiful, or in districts as needed. Although the proposed Chief of Party could reside in Kathmandu with an MPLD Project Coordinator, the long-term technical advisors must reside in Rapti Zone. Experience with other USAID and other donor field-based projects suggests that even when a contract states that advisors must spend 50 percent or more of their time in the field, this is not enforced. Thus posting in Rapti Zone for the various line agency technical long-term advisors, Nepali and American, is still viewed as mandatory even though no project specific office would be there. Their administrative support needs would be provided by a small contract office and/or by district level technical offices.

Financial accountability, as under Option I, would be undertaken by USAID/Nepal and the Ministry of Finance with judicious use of short-term technical assistance.

Improved Planning, Monitoring and Evaluation support would be undertaken through the MPLD at Kathmandu, with strong support by the PDTC, the NPC, and technical assistance contractors. Pending final decisions regarding the 1986 Smith report on monitoring, certain functions would rest with USAID/Nepal.

The major advantage to this option is that it avoids the creation of any new structures for HMG, indeed it saves on the costs of maintaining 76 staff of the PCO in Tulsipur. With no project-specific office or staff, the inefficiencies that occur when the office gets involved in achieving its own targets instead of supporting those of the district are minimal. With one less layer in the system, management can focus more directly on the district issues.

The major disadvantage under this option is that with no project-specific office in the Zone, less attention is apt to be paid to the project and to the district efforts. Trainers based in Nepalgunj are less apt to get into the informal networking that occurs and that helps so greatly in organizational development work. A Project Coordinator and Chief of Party stationed in Kathmandu would also be out of the informal politicking that is natural to any project, and would likely be recruited to help on non-project work in which the MPLD is involved. It also provides AID with much less visibility, which has generally been viewed as a positive attribute by Embassy and AID/Washington personnel.

Conclusions. Various officers at USAID/Nepal prefer various options. The writers have been urged to choose one over the other. Given some pending serious internal USAID/Nepal management decisions, and the lack of a concrete HMG/N policy governing a two sector project, the writers do not believe they can make a final recommendation. They do believe, however, that it is important to show that no one recommendation is free of problems, and that depending on USAID management needs and negotiations with HMG/N, several are possible.

4.6.4 Contracting Modes. The Phase I project was designed with a very deliberate choice to have two technical assistance contractors resident in Rapti Zone and for the USAID mission to provide independent short-term assistance as well. The rationale behind this choice was that technical assistance contractors tend to take on lives and identities of their own, often overshadowing the key HMG role in project implementation. This strategy appears to have worked; in one month, the team has heard of other USAID projects referred to as "the (prime contractor) project", but Rapti is always Rapti. It is an HMG project.

The Final Evaluation, however, recommended that in the second phase the Mission provide "corporate responsibility" to a contractor for project implementation. It did not fully explain the rationale behind this recommendation, except that it would decrease the USAID staffing needs and workload.

The team has reviewed the proposed technical assistance needs and the various project management options and concurs with the recommendation that corporate responsibility be designed into the second phase. This is not, it must be stressed, meant to detract from the major HMG role in project implementation. Rather, the large number of short-term individual consultants and sub-contracts envisioned will require a strong corporate leadership and backstopping. The short-term consultants must be supervised, even though they will work in different districts and/or different sectors. If all long-term personnel are from the same contractor (prime or joint venture), and if all have a vested interest in ensuring quality contractor performance, this supervision is more apt to take place..

The major advantage of this mode is that it provides USAID/Nepal with streamlined management and the option of freeing up current USAID/RD staff for other purposes. In addition, given the difficulty of recruiting HMG staff for Rapti Zone, and the continuing concerns about facilities and incentives, it provides great flexibility to hire and support qualified Nepalese who might otherwise not be available to work in the Zone.

The major disadvantage of this mode is that it runs the risk of turning the project into "the (prime contractor's) project", thus diffusing any HMG ownership. It is also riskier in the sense that HMG and AID, having chosen one prime contractor, would have to ensure that the contractor performed. If a poor contractor were chosen, very little additionality would be provided HMG's efforts.

5. PROGRAM RECOMMENDATIONS

Section 3.2 and elsewhere, including the Agriculture, Livestock and Natural Resources/Forestry Analyses, highlight the concern over improving the flow of funds to field offices in Rapti Zone. It is strongly recommended that USAID obtain the services of a Financial Management team, preferably through one of AID's Financial IQC's, to undertake a detailed assessment and provide recommendations on improvements or revisions to the system as part of Project Paper development. It is recommended that the team consist of two expatriates, at least one of whom is thoroughly familiar with AID financial management and accounting regulations and practices, and that its in-country work be complemented by the full-time services of the USAID/RD Financial Management Specialist and at least one other Nepali. If other USAID projects are encountering the same problems as those found in Rapti Zone, the Mission may consider an overall review.

An estimated life of project budget for the activities discussed herein is provided in a separate Appendix to all three Sheladia Associates analyses. A program summary is provided at Table I that follows.

It is important to note for this and other project analyses that the proposed program outputs or targets and budget levels are meant to be flexible. The final Project Paper design must avoid proscribing a "blueprint" for the next 8 years in Rapti Zone. The program targets are given for guidance and funding allocation purposes, but it is understood that all rests on the annual District Development Plans.

Programs are summarized below.

Ward and Village Level Private Sector Activities: A strong emphasis on complementing HMG technical extension efforts with an accelerated training effort for private groups and individuals at the ward and village level is proposed. This training would be primarily for various users groups and selected entrepreneurs, and would be focused on organizational and management skills. The relevant line agencies would provide technical inputs. The training would be carried out by technical assistance, either a for-profit contractor or a PVO (or both, depending on the location and the sector). Training needs would be identified through the annual planning cycles, and coordination effected through one of the project management modes discussed above. If groups or individuals required "seed money", it would have to be provided through line agency programs or established bank (ADB/N, RBB, NBL) programs. No implementation funding is anticipated in this program category.

Village Leader Development Management Training: Funding and possible technical assistance would be provided the PDTC in Nepalgunj for accelerated training of Pradhan Panchas, Ward Leaders, and Village Panchayat Secretaries in organizational development and management and administration, on a periodic basis but preferably annually if staffing and funds permit.

Ilaka Level Sub-Centers: Following the strategy focus in section 4.3, and the Project Paper deliberations, funding may be provided on a limited basis for construction of selected sub-centers for line agencies. This funding, and any operational funding for sub-center personnel or operations, would be provided through the relevant line agency.

District Development Activities: USAID would continue providing administrative support to the Local Development Offices in Rapti Zone, but on a scale that decreases 10 percent annually. Carefully focussed training would be provided to LDO staff based on needs assessment, undertaken by technical assistance and/or the PDTC. District Panchayat officials would also receive management training from the same sources. Finally, USAID would fund a fixed amount of up to Rs. 10 lakhs (current \$ 50,000) per district per year as a "Productive Sectors Setaside Program" within the MPLD grant-in-aid program. This is described in more detail at Appendix 1.

Multi-District Support Activities. The options for multi-district support are discussed in detail at section 4.6 above.

Agriculture and Natural Resources/Forestry technical programs for each of these administrative levels are discussed in the appropriate analyses. A budget summary listing combined technical assistance and training requirements is provided in a separate short report.

TABLE 1
Cross Cutting Institutional Support

PROGRAM	INPUTS	RESPONSIBLE	OUTPUTS
1. Ward & Village User Groups and Private Stimulation	TA training credit "seed money"	AID/HMG PDTC, WTC, TA ADB/N, RBB DLA's, DP	X functional User's Groups X private input providers 25 new SFDP groups
2. Village panchayat training	training (TA trainers)	PDTC, WTC, LDD (AID, HMG)	All Pradhan Panchas, VP Sec'ys trained in management X % ward leaders trained
3. Ilaka level Sub-centres	funds for O.E. training DLA staff	HMG, AID DLA's, Agr. Train.Cnt. TA	X agr. sub-centres X livestock sub-centres X range X beat centres operating
4. District Development a. Line Agency Mgmt. and Planning b. LDO efficiency c. DP Management	funds & training studies training "Setaside"	HMG, AID PDTC, WTC, TA TA PDTC, TA HMG, AID	X problem-centered plans improved staff utilisation and resources X productive activities undertaken
5. Multi-District Support	funds TA training	HMG/USAID USAID PDTC, WTC, TA (AID)	Imp. M & E System X special studies/evaluation X people trained

Direct District Support Sub-total 3,250

- Administrative support to LDO offices on a descending scale, decreasing 10% each year 1,250
- Local Development Fund for Productive Activities, estimated at 50/year/district times 8 years 2,000

B. Multi-District Support Maximum 1,600

- Option I or Option II office costs, estimated based on initial PCO costs 200/year 8 years 1,600
- Option III local office costs for MPLD maintenance 400

(assume 1,200 additional to TA contract for admin if Option III is chosen)

C. Technical Assistance

Expatriate Maximum 2,712

- Chief of Party x 8 yr x 120 960
- Trainer x 3 yr x 120 360
- (Farming Systems Specialist x 3 yr x 120) 360
- (Livestock Advisor x 3 yr x 120) 360
- (Forestry Advisor x 2 yr x 120) 240
- 1989 "First Evaluation", 6 pm x 12 72
- 1992-93 "Second Evaluation", 6 pm x 12 72
- General short-term average 3 mo/yr x 8 x 12 288

Qualified Nepalese TA may be available for these positions

Nepalese Minimum 1,203

- Senior Manager 8 yrs x 15 120
- Trainers (one male, one female) 2 x 8 yrs x 15 240
- Agricultural Advisor 8 yrs x 15 120
- Veterinary Medicine Advisor for Private Sector 5 yr x 15 75
- Livestock Extension Specialist 8 yrs x 15 120
- Pasture/Fodder Specialist 8 yrs x 15 120
- Community Forestry Specialist 8 yrs 15 120
- Short- term ad hoc & studies 12 mo/yr x 8 yr x 3 288

D. Training Minimum 960

Third Country Non-Academic

- 24 person months/year x 8 yrs x 5 960

In-country

(no estimate available; assume Rs. 80/day/trainee;
need more detailed technical program descriptions
to determined)

E. Commodities

Pending USAID's PID development, and decisions regarding management emphases, no detailed commodities can be determined. Vehicles and motorcycles for project support are required. Office and training equipment on a modest scale is also needed. No other major commodity procurement is envisioned outside of line agency budgets, which will thus be host country procurement as during Phase I and which is included in technical analyses.

F. No Construction is Contemplated Outside of the Technical Sectors

(The PCO godown may be converted to a training hall depending on structural and management decisions.)

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AGRICULTURE

TECHNICAL ANALYSIS

RAPTI DEVELOPMENT PROJECT

1987 - 1995

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May, 1986

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1. REVIEW OF EXPERIENCE TO DATE

1.1 Rapti Phase I Achievements

Activities under the agriculture sector in the Rapti Project have included support and training numerous agencies involved in agricultural productions, including:

- the five district Agriculture Development Offices, for support to additional JT/JTAs, new sub-centers, technical assistance, and a major new effort in cropping systems;
- the Musikot Horticultural Farm in Rukum District, for support of contract (private) vegetable seed production, seed distribution, and some fruit seedling production for Rapti Zone and elsewhere;
- the Department of Agriculture's Training Center at Nepalgunj, for support to dormitory construction and some materials and equipment;
- the Agriculture Development Bank of Nepal, for support to general credit, to expanding credit outlets to all districts in Rapti Zone, and to establishment of 23 Small Farmer Development Groups programs, the first five of which are now self-sustaining;
- the Agriculture Inputs Corporation, for construction of new warehouse facilities in Rapti Zone; and
- the Department of Livestock Development and Animal Health, for establishment of new sub-centres and other program support.

This analysis covers only the crop and horticultural portions of the proposed Phase II program. A separate analysis, undertaken by a team from PADCO during January-April, 1986, provides information and recommendations on livestock.

The program did not achieve all of its stated objectives, although there is general consensus that the basic infrastructure is now in place to accelerate efforts. A brief review of the agriculture situation in Rapti Zone today follows.

Table I shows agricultural baseline data for the Rapti Zone for the year 1984/85 and gives the status of agricultural production to date. Total area under paddy is 67,136 hectares and average yields are 2.8 MT per hectare. Likewise the area under wheat and maize is 122,247 hectares and 126,666 hectares respectively. The average yields for wheat and maize are 1.9 MT and 2.95 MT respectively. The oil seed acreage is 25,899 hectare with an average yield of 0.52 MT per hectare.

Agriculture inputs used in 1984/85 includes 525 MT nitrogen, 339 MT phosphorous and 12 MT of potash. Improved seeds supplied by AIC included 5.6 MT of paddy, 49.9 MT of wheat and 4.38 MT of maize. Total credit disbursed for agriculture and related activities amounted to NRs. 15,156,000.

The table reveals that a total of 3254 person days of extension training was provided for agriculture JT/JTA and farmers. Likewise 70 person days of training was provided for livestock JT/JTA and training was provided for livestock training was provided for livestock farmers.

1.2 Production Potential

The Final Evaluation report further emphasizes that adaptive technologies evolved from the Cropping System Program (CSP) hold great promise for increased agricultural productivity in the zone. The CSP has identified adaptable technologies, particularly for irrigated rice and wheat, where potential for yield increases is great, but also for maize and mustard. In Phase I of the Project, PPVT (verifying recommended cropping patterns through farmer's field trials) were conducted in 25 panchayats covering all five districts of the Zone. A total of 400 PPVTs were conducted involving 215 farmers and 730 hectares of land. Four major crops--paddy, wheat, maize, and mustard--were involved.

The trials yielded marginal cost-benefit ratios ranging from negative to 20. The trials realized yield increases up to 100 percent in Dang, 150 percent in Salyan, 50-100 percent in Rukum and moderate increases in Pyuthan. These results are very encouraging as the PPVT has demonstrated that yield increases are possible especially on irrigated low lands with the provision of adequate inputs. A recent report of the World Bank noted the following:

"The above examples indicate that several locally tested and economically viable technologies for improving yields are known. These technologies have yet to be delivered economically on a large scale, and, equally important, renewed biologically. These issues should receive high priority. In fact, insufficient and unreliable input supplies have already constrained even the testing and the pilot production activities of the CSP. To ensure successful delivery of the improved technologies, the institutions which handle agricultural inputs in Nepal need to be strengthened thoroughly and immediately."

Section 2 of this paper addresses the constraints noted in the Bank report.

Following an established progression for the CSP, successful PPVT's led to Block Production Programs in selected areas.

Block Production Programs were initiated in 15 panchayats involving 817 farmers and 1195 hectares of rice, wheat and maize. Yield results in the block program were found to be promising.

Based on the yield results of Block Production Program, it is theoretically possible in Rapti Zone to increase rice production by 24% percent, wheat by 51 percent and maize by 9 percent.^{1/} Table 2 shows the present and potential area and production for rice, wheat and maize over the eight year period of Rapti Phase II.

TABLE II: Present and Potential Area and Production for Rice, Wheat & Maize

CROPS	PRESENT PRODUCTION AND AREA			POTENTIAL BASED BLOCK PRODUCTION ON TRIALS			% Potential Increase End 8th Yr.
	Area HA	Yield Per HA MT	Total PDN MT	Area HA	Yield Per HA MT	Total PDN MT	
RICE	67,138	2.77	186,671	(34,311) 67,138	4.15	233,320	24
WHEAT	122,247	1.97	163,350	(82,995) 122,247	3.32	352,869	51
MAIZE	126,666	3.00	224,808	(75,128) 126,666	3.36	407,044	9

^{1/} Computation is based on land types identified by LRM Project. According to it: 51% of total rice land was suitable for application of block results; 68% of total wheat land was suitable for application of block results; 59% of total maize land was suitable for application of block results. Figure in parenthesis indicates the area to be brought under Block Production Program during the 8 year period.

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The achievement of these production levels assume the use of 10,242 MT of nitrogen, 4,261 of phosphorus and 2,253 MT of improved seeds per annum at full production i.e., three years after project implementation. The cost of the fertilizer amounts to approximately Rs.47,351,700 in current prices, giving an idea of annual credit requirements. This would amount to roughly ten times the current levels for fertilizer in the Zone. As overall credit use increased by a factor of almost five during the last six years, this does not appear impossible. More difficult will be the timely provision of the physical inputs. This problem is addressed at Section 3 to follow.

These production potentials, while encouraging, cannot be assumed to be production targets for the project period. Little is known about farmer adoption rates, and calculations regarding adoption of only the partial package of inputs (i.e. less-than-recommended fertilizer, improved seeds only, etc.) are tenuous at best. The figures must also be taken with extreme caution in that they represent data from a small number of trials, and most of those have been conducted on quite favorable land and favourable condition. Thus, these are production potentials under almost optimum conditions. USAID/Nepal is encouraged to work with ADO's in Rapti and technical assistance personnel to develop more detailed production targets during Project Paper development.

2. KEY CONSTRAINTS TO INCREASED PRODUCTION IN THE RAPTI PROJECT

2.1 The Agricultural Setting

2.1.1 Land Resource Base: Uneconomical farm size, the scattered nature of the holdings and settlement pattern which has placed a constraint on production. Seventy per cent of Rapti's population live in the hill areas of Salyan, Rukum, Rolpa, and Pyuthan where the farm size rangers from 0.25 hectare to 0.4 hectare. The remaining thirty per cent of the population live in the Dang and Deukhuri Valleys where the average farm size is about one hectare and where there are a large number of tenant farmers. Share cropping arrangements have inherent disincentives to production because the tenant is not encouraged to investment in high cost production inputs (fertilizers etc.) when the landlord gets a fixed share without any extra effort. The land resource has forced the farmer to place increasing emphasis livestock and forestry. It is estimated that about twenty per cent of Rapti's population are landless and some of these migrate to the Terai and India thus creating a labor shortage during peak agriculture season particularly in the hill district. As a result production responsibilities have been placed on women within the household system.

The possibility of increasing agriculture production through bringing new land under cultivation does not exist as a viable option. Soil studies done by the LRM Project indicate that only 31% of the land in Rapti Zone is suitable for cultivation and of this amount 24% is already under cultivation. In general it is reasonable to assume that production increases should come from more intensive production of existing areas under cultivation rather than to bringing marginal land into cultivation.

2.1.2 Limited Irrigation: Absence of perennial irrigation in 85% of the presently cultivated area poses a serious constraint to production in that it is difficult to get more than one crop a year and impossible to get three crops a year. At the present time 8% of the total cultivated area has perennial irrigation and 7% is partially irrigated making a total of 15%. The remaining 85% as indicated above is rained. Unfortunately production increases on an intensive basis assumes the introduction of short duration high yielding varieties (HYV) and consequently more consumptive use of water which does not exist under rainfed conditions all year round. However, in some cases it is possible to get a second crop the rained areas as a result of residual moisture as for example short duration mustard crop. The Deukhuri Valley has ground water potential because of a high water table and shallow tubewells with mobile pumps can be used with good results.

2.1.3 Difficult and Costly Transport: Rugged topography and absence of access roads impede transportation of both outputs and inputs in the hill districts. An all weather gravel road connects the main Zonal centers of Ghorahi and Tulsipur in Dang District to the East-West Highway and thus gives a definite advantage to the Dang/Deukhuri Valley relative to the hill district. However seasonal jeepable roads run from Tulsipur to Salyan Khalanga and from Ghorahi to Pyuthan Khalanga and partly into Rolpa. While mule tracks serve as important transportation links in other hill areas. The motorable roads are subject to landslides and washouts in the raining season which sometimes take months to be repaired. Most goods in the hill district are carried by porters and animals at a high cost in terms of money and time particularly in the monsoon season.

2.1.4 Available Technology: High yielding cereal technology is available for the Terai and low hills but this is input and water intensive. Only partial technology is available for horticulture and cereal crops in mid and high hills.

Numerous agro climatic variations make the development of suitable technology very difficult. For the purpose of agro climatic distinction, the Dang District is divided into upland and lowland and each of these is in turn further subdivided into low, medium and high production potential areas making a total of six (6). The hill areas can be seen in terms of low hills, mid hills and high hills and these are in turn subdivided into upland and lowland.

2.2 Agriculture Service Provision

2.2.1 Inadequate Quantity and Quality Extension Staff:

JT's, JTA's, AA's are inadequately trained, illequipped and poorly paid and this leads to a lack of commitment, lack of motivation and high staff turnover. The level of training of JT's is limited to two years of technical training and this is not enough considering that many JT's are just out of school and have no solid farming experience. To compound matters many JT/JTA's do not have a suitable technological package to deliver. The farmers have years of practical experience. Thus creates a credibility gap and a difficult environment for Extension activity. At the present time there are 101 JT/JTA on staff serving 230 Panchayats and many farmers never see the extension officer and many Panchayats are not served. It is difficult for the JT/JTA to visit these families as he has to travel long distances on foot, particularly during the monsoon when movement in the hills is very restricted. The indications are that direct contact with many farmers in the hill districts will never be possible, and strategies to maximize this limited manpower through use of groups as contact points is indicated. It also appears that many of the authorized extension positions remain vacant. While many vacancies exist at the JT/JTA level certain key positions like Subject Matter Specialist (SMS) are not authorized anywhere in HMG budget for Rapti Zone.

2.2.2 Inadequate Support for Extension: There is a lack of equipment and this is affecting the work of the extension staff. The vehicle of the ADO Dang has been unusable for over one year now and the JT's/JTA have to travel on foot to remote areas and use buses to get elsewhere.

Only 23 Sub Centers out of a the long-term plan of 45 have so far been established. This makes for difficult supervision of Extension staff and severely restricts Extension activity.

2.2.3 Inadequate In-service Training: To date training for extension staff and farmers has been geared to the achievement of targets rather than the actual needs and problems of the area. It is the consensus of opinion that in-service training has been generally very ineffective.

2.2.4 Weak Research and Extension Links: Formal links between the National Research Program and the ADO offices have been weak. The main link has been through the minikit distribution and farmers field trail programs. The two agricultural advisors on the Rapti Project do serve as a link with the Commodity Research Stations mainly through attendance at the summer and winter crops seminar each year. Weak research extension links and the absence of a free two way flow of information tend to slow down the diffusion of new technology. In addition a basic draw back in the Research Program is the absence of hill agriculture research in a meaningful way. Only limited attention is given to research in non-chemical fertilizers despite their importance to traditional agriculture in the Rapti Zone.

2.2.5 Agricultural Planning Targets under Decentralization: Agricultural planning at the district level under the decentralized systems appears to be weak because of a poor data base, lack of village profiles and ineffective statistical reporting system. The number of programs in the agriculture development plan for Rapti has too many programs when matched against manpower and other resources available. It does appear that the district level agriculture targets were based on target guidelines received from the center and therefore more target oriented. These guidelines may not have taken the locally available resources fully into account. The plan should target site-specific activities and be more detailed. Unrealistic targets create serious problems in implementation of programs.

2.2.6 Late Budget Releases: Untimely release of funds has also affected program implementation in the agriculture program of Rapti Zone. At the present time for example payments are over five (5) months overdue because of uncleared advances. The accounting system is based on the reimbursement principle, accountability and justification. The problem may be eased if qualified accountants are placed in district offices. In many cases salaries of extension staff are not paid on time seedlings not purchased and the productive machinery ground to a halt because financial flows are inadequate.

2.3 Agriculture Inputs and Markets

2.3.1 Weak Impact of Services Delivery: Un timeliness and inadequacies of inputs are major deterrents to agricultural production. The new technologies require fertilizer and improved seeds to reach their full agronomic potential but at the same time large quantities of imported fertilizer place a foreign exchange burden on HMG and involve a heavy fiscal subsidy every year. This is an issue which has to be considered at the policy level. At the field level the input supply situation also affects both the PPVT and the Block Production Program, in addition to other farm production. The total amount of fertilizers and seeds delivered by AIC appears to be too small relative to the total demand. There is also a chronic inadequacy of chemicals and tools. There are 33 distributor outlets in Rapti Zone of which 23 are SAJHAS and 10 private dealers. The cooperative structure is too weak and other private groups as yet unformed for input delivery. Private dealerships may not be economical, given low fixed commission rates and variations in transportation.

2.3.2 Price Policy and Marketing: Price policy by the NFC has not provided effective incentives to farmers and in fact might have had disincentive effects. To meet immediate cash needs farmers sell after harvest at distress prices lower than the announced NFC support prices even though they have to buy grain again later at higher prices from traders. This situation occurs because of the fragmented nature of the market, long distances, between markets difficulties in transportation and the limited intervention of NFC which buys on a quota system thus making the support price ineffective. Apart from the fact that markets are too few and too distant there is a lack of market information, inadequate storage and the lack of a standardized system of grading.

3. STRATEGIES TO INCREASE PRODUCTION FOR PHASE II RAPTI

3.1 A Geographically Focussed Strategy

The strategy is to continue to work within the framework of the policies, programs and objectives of HMG as regards the Rapti Zone and the policy emphasis of AID/Washington on the productive sectors. Within this framework, the analysis of production potentials and experience to date indicate that more geographic focus will increase effectiveness and efficiencies of project supported efforts. The overall focus should be roughly as follows:

1. Continued and increased work in cereals production in Dang, the low hills and river valleys of the hill districts where production potential exists. This will consist of continued use of PPVT's and extension work based on the block approach. These efforts should be tied to complementary efforts of the ADB/N and District Panchayat in improving small scale irrigation.
2. Expanded crop production work through use of farming systems-based extension in selected areas of high production potential in the middle hills. Given the described constraints in terms of staffing, resources and coordination of inputs, these efforts should only be undertaken in conjunction with SFDP or other viable user groups, e.g. irrigation associations. Efforts will be based on PPVT's and a "new" extension approach for the hills. Expansion of this work may have to await development of appropriate varieties and technology for the hills being developed under the AID-financed ARP.
3. Efforts in the higher hills will focus more on horticulture, livestock--the predominant productive resource--and/or production of goods that can be marketed given transport and other constraints. It is accepted that the high hills will never become food grain sufficient, so marketable products are indicated. Continued emphasis on vegetable seed production and an increased emphasis on fodder and fruit saplings is indicated, both through the private sector at the ward and village level.

The strategy takes advantage of the project infrastructure already in place and consolidates gains already made. The constraints indicated will be addressed through the simultaneous application of complementary programs in research, extension and training. An important element of the program would be establishment of close links with the ARP Project and the Farming Systems Network of the Farming Systems Division of the Department of Agriculture in support of new HMG strategies. Given the absence of an effective broad-based extension methodology in the hills, early efforts under the project will focus on identifying improved methodologies per land use area. Use will be made of appropriate technology already developed under the previous ATU component of the project. The essential expansion of irrigation must continue under funding from the ADB/N (rower pumps in Deokhuri, group loans under SFDP) and/or the District Panchayat grant-in-aid program.

The overall approach must be seen as three pronged:

1. Accelerated efforts in group formation at the ward and village level to enhance the efficiency and effectiveness of extension efforts. Groups have formed and are effectively disseminating technology through "Leader Farmers" under the PPVT/Block Production programs. SFDP groups are repaying loans and increasing production. Women's groups are beginning to work in various forms of agriculture. The strategy assumes that expanded and improved work with these "users groups" will greatly complement extension efforts in place.
2. Expansion as indicated by demonstrated demand of extension services through sub-centres, located in areas of high production potential and feeding into group efforts.
3. A crop development program directed from the district office which emphasizes the rapid diffusion of new tested varieties, improved plant protection measures and improved use of nurseries, seed production, on farm storage, farm trials and provision of agricultural tools. (Over the course of the project, subsidies on these latter items should be progressively lifted.)

3.2 Improved Agriculture Service Provision

Emphasis will be placed on more efficient coordination of agriculture support services at the sub center and district level. As noted above, User's Groups at the Panchayat level will be trained and/or formed to undertake planning, monitoring and implementation of agriculture activities. These groups would include, but not be limited to, PPVT/Block Production Groups headed by "Leader Farmers", SFDP production groups, women's groups formed by the WDO working in agriculture, and Irrigation Water User Groups associated with the ADB/N and/or the panchayat system. Individuals from these groups would serve as contact points for extension personnel, thus enhancing possible spread of technology transfer.

In terms of ADO staff, technical and in-service training will be improved qualitatively through use of Training Consultants and Coordinators to undertake needs assessments and to evaluate on a more regular basis the impact of training. Where possible, in-country facilities such as the new Agriculture Training Center in Nepalgunj and the Institute of Agriculture and Animal Sciences at Rampur will take precedence over foreign training. Strategic emphasis above all will be on improving quality rather than quantity of services provided.

3.3 Improved Provision of Agricultural Inputs

The overall production potential analysis assumes that the input supply situation is regularized and adequate and timely inputs including fertilizer seeds, chemicals and agricultural tools are made available to farmers. This is unfortunately not the case in Rapti Zone. Although the Phase I project achieved all its targets regarding expanded input storage and input supplies, they rarely arrived in the Zone on time.

AID/W has requested that the team address the potential for privatization of input distribution. Nepal has no stated policy against fertilizer imports by private individuals, and indeed the Seventh Five year Plan includes encouraging rhetoric about the private sector. His Majesty's Government does, however, maintain a policy that inputs should cost the same in each of the 75 districts in the country, be they Kathmandu or the base of Everest. The actual price of the fertilizer and supplies are subsidised, and HMG pays a major transport subsidy each year to move the fertilizer out. Given that this is national policy, and that the Rapti Zone shares a long and very open border with India (where subsidised Nepali fertilizer is in great demand), the team suggests that the overall provision of inputs cannot be addressed on this area-specific basis.

Once fertilizer has reached the Zonal headquarters, however, private dealers and more effective means of distribution of inputs can be encouraged by the project. The Institutional Analysis includes one pilot suggestion wherein the internal-zonal transport subsidy would be provided in a lump sum annually to the District Panchayat, which would have to contract for transport to the District headquarters and then line up dealers (or Tukis) for distribution to outlying areas. Another possibility is for the project to experiment with paying higher rates to existing AIC dealers. A third is to use the model developed at the Kabre SFDP group, where a wealthier progressive non-small farmer (in fact, the Pradhan Pancha) serves as dealer for the group with the SFDP Group Organizer helping him with the transaction costs of credit chits and payment. In sum, the strategy is to maximize efficiency where the project has control, at the Zonal and District and sub-district and village levels, and to emphasize the use of private outlets to complement the AIC efforts.

AID/Washington has also stated that support to credit not be included in the Phase II program. The Phase I Rapti effort provided a lump sum of almost \$ 1 million to the ADB/N for use in Rapti Zone, which is now revolving in the area. As noted under the section on "Production Potentials", to reach the optimal levels theoretically possible credit for fertilizer would have to increase tenfold over the project period. As USAID/Nepal develops the more detail production targets for the Project Paper, it should carefully assess with the ADB/N the probability of those credit amounts being available from the national accounts. The new Asian Development Bank loan of \$ 15 million for three years should make this possible; USAID/Nepal must carefully work with the ADB/N to ensure that Rapti zone gets its fair share.

Finally, AID/Washington has proscribed direct support to irrigation under Phase II. The analysis above notes that access to irrigation is a major constraint to many of the zone's farmers, and that water is a key input towards optimizing production potential. Through the emphasis on improving User's Groups, the project can serve as a facilitator for groups to get ADB/N credit for irrigation activities (either individual rower pumps or group-constructed systems). Also, through the small "setaside for productive activities" under the District Panchayat, some groups may be able to get District support for expanded systems. The PP design team will need to take this limitation into account when developing production targets for the Phase II period.

4. RECOMMENDED PROGRAMS

4.1 Cereal Production in the Low Hills

The standard PPVT's and Block Production approach should continue but with greater emphasis on the diffusion of the technology. Based on likely availability of staff, the program can be expanded from 25 up to 75 panchayats to take into account the numerous variations in agro climatic environments as they relate to cereal crops. The CSP will focus and expand cereal production in the low hills both on irrigated and non-irrigated areas where there is access to inputs, markets and roads. Selected locations in the middle hills will also be used.

A cardinal principal in site selection should be locating near sub-centers, or vice versa, to avoid diluting the services of the already few JT/JTA's. Attention will be focused on minor hill crops like finger millet, barley, buck wheat, amaranthus, pulses, cash crops and other oil seed crops when technologies are available.

4.2 Mixed Farming Systems in Middle Hills

This program will work closely with the recently established Farming Systems Research Division of the Department of Agriculture. This research network is based on the nine research sites under the ARP Project and the work being done at Lumle and Pakharibas.

The approach and organization to the FSP is basically the same as the CSP. FSP describes the entire farming system including the animal component but then focuses its development work on the plant or crop components. The interactions with animals are noted and in fact the cropping system is designed to maximize the interaction between crops and animals which exist on the farm, either as draft animals or production animals.

It is suggested that at least two accessible and visible pilot sites be identified and that PPVT's begin with forages, fodder and agro-forestry. Coordinated and interdepartmental efforts are suggested at the proposed East Deukhuri Agro-Forestry site in Dang District and near the Musikot Horticultural farm in Rukum.

4.3 Horticulture in the Mid and High Hills

The program begun under Rapti Phase I will also be continued. Fruit and fodder nurseries will be established by the private farmers with the assistance of the ADO and credit from ADB/N. It is estimated that over the eight year period horticultural production can be expanded by 2000 hectares at the rate of about 250 hectares per year. Emphasis will be on tropical and sub-tropical fruits up to 1000 meters elevation, sub-tropical

fruits between 1000-2000 meters, and temperate fruits above 2000 meters. Private farmers involved in this program will be trained and assisted to get loans from ADB/N.

Seeds will initially be provided by private nurseries in similar ecosystems. It is also recommended that the project through the ADO establish small fruit orchards, one in each of the ecological zones, for demonstration purposes. For the high hills an apple and walnut orchard would be most suitable, for the middle hills a citrus orchard and for Dang a tropical fruit orchard including mango, leechie, banana, and pineapple. It is recommended that a short-term local consultant be recruited to assist with the planning and execution of this program.

Rapti Phase II will continue to support the farm. The vegetable seed farm will work in close collaboration with the ADO who will oversee vegetable seed multiplication by selected private contact farmers. The ADO will collect, treat, store and redistribute the seed. Farmers involved in this program will be paid and provided necessary equipment on a partially subsidised basis.

In many cases seed germination is a problem and this will be approached through the establishment of vegetable seedling nurseries in selected areas of higher population densities where seedling viability would not be problem due to distance. Farmers involved in this program will be trained and given equipment. It is estimated that vegetable seed packets will be distributed to about 50 percent of the households in Rapti Zone during the project life.

In general the Horticultural Farm would play a more significant role in research and extension outreach programs directed at household vegetable production. Adaptive research and extension would be carried out to support private nurseries and growers.

4.4 Emphasis on User's Group Formation and Function.

4.4.1 Small Farmer Development Program: SFDP would be strengthened and expanded as an efficient and effective vehicle for continued access to credit and agricultural development in the Rapti Zone. As an agricultural lending program SFDP has been very successful in the Rapti Zone where there are 23 functioning units. The success of the program derives from the fact that small farmers are assured of credit because of group liability and peer pressure. Experience to date in Rapti Zone under Phase I indicates that the average length of time it takes for a new unit, composed of many groups, to create enough interest reflow to cover administrative costs is approximately four years. Although AID/W has noted that SFDP not be included in Phase II, given its remarkable success to date in increasing production and generating rural savings, and given the fact that hard data indicates that the interest reflows cover administrative costs over time, the team strongly recommends that USAID/N consider retaining support for expansion of the program

in Rapti under Phase II. It is recommended that AID fund the administrative costs for Group Organizer training and support for up to four years for each of up to forty new groups over the life of the project. In that the costs are estimated at less than \$ 5,000 per year per group and rural savings generated can equal that amount, and in that all programs to date have shown substantial production increases marked by creditable repayment rates, the team believes it is a high impact investment for AID.

4.4.2 Other User's Groups: Where socio-cultural and settlement conditions are favourable, farmers will be organized into users groups for production technology transfer. The transfer will be facilitated by Leader Farmers who are familiar with local conditions, interested in the long-term development of their areas and hold positions of respect in the community. Leader Farmers will be chosen by the groups, and will receive training at the district and sub-district level. They will provide assistance to fellow farmers as well as provide a contact point for outside extension or credit agents. These groups can be involved in a number of activities as for example seed multiplication, input provision, irrigation, group credit and group small scale marketing.

Group formation activities will initially be undertaken by JT's or JTA's in cooperation with Panchayat Leaders who have been trained in the process, i.e., WDO's for women's groups, District Training Officers where they exist, or other. If the accelerated training recommended in the Institutional Analysis is begun, it is hoped that some JTA's could eventually carry out the process on their own.

4.4.3 Women's Groups. The three new Women's Development Officers in Rapti Zone and their Peace Corps counterparts have demonstrated success in organizing women's and mixed sex groups for credit and for other self-help activities. Programs for the coming year emphasize group activities in agriculture (seed multiplication, vegetable gardening) and livestock (goat and sheep fattening). As these programs become more established, the WDO's must more strongly encourage support from the relevant extension staff. Funding for support to the WDO is provided through her supervisor, the LDO. No additional credit funds beyond what the ADB/N and RBB already provide are required for these small scale activities.

4.5 Improved Extension to Feed Into Group Efforts.

4.5.1 On-going Extension Efforts. Extension staff at the district level is at the present time too thinly spread to be truly effective. Although the new geographic focus on productive areas will help focus their efforts, and the emphasis on groups as vehicles for technology transfer will help, there may be need for additional JT/JTAs over the eight year project period. The project should encourage the concept of quality extension, however, much more than simple quantitative increases. If candidates can be recruited, an objective of at least 10 percent women should be maintained. Two Subject Matter Specialists (SMS)--in Plant Protection and Agroonomy--should be recruited for the ADO's office in Dang District.

4.5.2 Pilot Extension Project: An important element of the extension strategy for Phase II Rapti Project will be the initiation of new extension methodologies. Justification for this approach derives from the failure of the pure T&V system in the Gandaki Zone and the several difficulties with the orthodox HMG system. There appears to be the need particularly in the hill areas for a more focussed and intensive extension system.

In this regard a short term consultant will be recruited to study the various extension methodologies being used in Nepal at the present time with particular reference to the applicability of SATA's Tukey system used under the Integrated Hill Development Program to the Rapti Zone. This system appears to hold the most promise based on experience over the last decade. The system has many elements but essentially involves the use of Leader Farmers who are intensively trained for a month at a time and who provide extension and agricultural inputs for which they receive a 20% commission. The trained Leader Farmers are in turn required to pass on their training. It is strongly believed that this system can be modified and applied to the Rapti Zone with beneficial results, although careful planning of the pilot phase is required.

4.6 Research Extension Link

More active and more direct interactions between the Commodity Research Stations and District ADO's is imperative. To this end short one-to-two week consultancies will be periodically provided by researchers from the national maize, wheat and rice stations. The researchers will be requested during "down time" at the stations and will visit the Rapti Zone to hold seminars with extension staff and farmers. ADO's and other extension staff will in turn visit research stations on structured visits at least twice a year. This together with the proposed SMS's in Dang (see below) will have the effect of increasing the two way flow of information and strengthening the extension research links.

4.7 Training

At the present time over 1000 foreign aided projects are being implemented in Nepal of which 300 alone fall within the Ministry of Agriculture. The absorptive capacity in terms of availability of management and technical skills is very strained.

In this regard local extension training will be intensified with heavy emphasis on quality rather than quantity. In other words training will be problem or need oriented rather than target oriented. Selected overseas training will be carried out in fields in which Nepal is weak, such as plant protection. It should be mandatory that candidates selected for external training must have served in the Rapti Project for a minimum stipulated period and must be contractually obligated to return to the project for a minimum

period after the training is completed. Extension and project staff will also get courses in agriculture planning. The proposed expatriate long-term trainer under the Institutional Analysis will greatly facilitate the planning and execution of this improved training system.

4.8 Agriculture Inputs, Credit & Markets. No direct funding for AIC is proposed. The judicious use of short-term consultants for production campaign planning and logistics may be required on an annual basis. The program ideas presented under the strategy section should be detailed as pilot projects by other consultants.

Outside of funding for start-up for up to 40 new SFDP programs, no direct funding to the ADB/N is proposed. USAID/Nepal should monitor credit supply and demand in Rapti Zone, and should work with the ADB/N to ensure that Rapti Branch Offices get their share of the new Asian Development Bank credit.

AID/Washington has also proscribed direct support for irrigation, particularly medium irrigation. Through the accelerated support for groups described herein and in the Institutional Analysis, User's Groups and SFDP groups can access rower pumps (in Deokhuri) and funds for group-constructed small-scale irrigation through the regular ADB/N program. Some groups, with assistance of the local panchayat leaders, may be eligible for small-scale grants for irrigation improvement through the District Panchayat setaside program. No other support for irrigation is contemplated.

Following the recommendations of the IDS report, no direct support to or intervention in markets is proposed. Through the DP setaside program, small bridges can be constructed and trails/mule tracks improved to allow for better market access, the key IDS recommendation. Should groups want to engage in cooperative marketing, they should be encourage to request assistance from the ADO office.

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NATURAL RESOURCES/FORESTRY

TECHNICAL ANALYSIS

RAPTI DEVELOPMENT PROJECT

1987 - 1995

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NATURAL RESOURCES/FORESTRY TECHNICAL ANALYSIS

1. REVIEW OF EXPERIENCE AND DATA

The National Resources/Forestry Sector of the Rapti Phase I Project encompasses a variety of programs under the Department of Forest (DOF), the Department of Soil Conservation and Watershed Management (DSCWM), and the Department of Roads (DOR). Rebounding from an understandably slow start, the program has made significant accomplishments during the last two years. Probably the most significant was under the new program of Community Forestry, where slightly more than 800 hectares of previously barren land was planted with trees (Table 1).

To support this endeavor, 34 panchayat nurseries produced approximately 2 million seedlings. Survival rates for these seedlings averaged slightly less than 70 percent, which was greater than expected given the degraded conditions of the planting sites. When some of these plantations were examined in April 1986, growth of these trees was excellent in most places and specimens over 2 meters tall were found.

The DOF in the Rapti Zone has also produced and distributed approximately 1 million seedlings to individuals for planting on private land, established 640 hectares of community and plantations and placed 165 hectares of forested land under community protection.

Probably more important than these figures is the change in attitude regarding natural resources. Although difficult to measure, there appears to be a growing awareness, especially among panchayat leaders, of the importance of conserving and managing renewable natural resources.

The DSCWM and the DOR have also established successful natural resources programs. When both programs are combined, a total of 490 hectares of degraded or disturbed land has been planted with trees and approximately 600,000 seedlings produced and planted. Survival rates appear to average approximately 80 percent and the growth rate for many species is rapid. Other accomplishments of this program can be found in Table 1.

Additional information and data concerning Rapti Phase I can be found in numerous documents on file at the USAID office in Kathmandu. Some of these documents are listed in the Bibliography to these reports.

Although a massive deforestation problem still exists in the Rapti Zone, the participating staff and population can look with pride on their accomplishments of reducing the rate of degradation and at returning degraded lands to productive uses.

TABLE 1
Natural Resources Forestry Outputs for the Rapti Integrated Rural Development Project, 1980-1985

Activities	Districts											
	Dang		Pyuthan		Rolpa		Rukum		Salyan		Total	
	Area Ha.	No. or Sds.										
Plantation-Forest Dept.												
1. Panchyt. Forest Plntn.	235	1456000	164.7	1264000	23.0	36800	40	65000	177	1283200	639.7	1103000
Survival Rate %		72%		65%		70%		53%		70%		
2. Panchyt. Ptd. F.Plntn.	39	62400	55	88000	14.0	22400	1.5	2400	164.5	1263200	164.5	263200
Survival Rate %		69%		69%		70%		68%		68%		
3. Departmental Plantation	35.5	56800	15	24000	0	0	9	14400	14	22400	73.5	117600
Survival Rate %		68%		65%				63%		70%		
Total Plantations												
Nurseries Establishment												
4. Panchayat Nurseries No.		12		7		5		5		5		34
5. Divisional Nurseries No.		2		1		0		1		2		6
6. Private Nurseries No.		0		0		0		0		0		
7. Seedling Distrib. No.												
To Individuals		1300000		1175000		65000		50000		1385000		975000
8. Pcht. Forest Democat. Km		46		23.5		22.5		16.0		51.5		149.5
9. Forest Bndry. Democat. Km		0		50		0		80		30		160
Soil & Water Con. Dept.												
11. Plantations	155	1387500	10	25000	0	0	0	0	10	25000	175	437500
12. Nursery Establishment		2		1		1		0		1		
13. Gully Control No.		3		1				1				5
14. Roadside Stab. w/fencing	15	12500	10	25000	0	0	0	0	0	0	25	37550
15. Water Source Protection	170		15								185	
16. Irrigation Canal Rehab.		1							1			2
17. Trail Improvement		0		0		0		0		0		0
Roads Dept.												
11. Roadside Stab. Imp't.	9	11900	47	51861	49	52029					105	115790

(1) Information extracted from M. A. Conley and B. P. Upadhaya, 1985.
Report on Forestry Sector, Soil Conservation sector, and department of Roads
Biological stabilization sector.

The efforts under Rapti Phase I are just a few of many natural resources/forestry projects now under way throughout Nepal, undertaken by a variety of organizations and donor groups. As of July 1985, 44 different natural resources related projects were on-going in Nepal. Of these projects, 16 percent had community forestry as a primary area of interest, 2 percent had fodder production as a primary interest, 5 percent were primarily concerned with forest management, and 36 percent were product oriented (timber, pulp, fuel, turpentine, etc.). Other programs were concerned with silviculture, environmental protection, training, watershed management, livestock, and related areas. Although to date the Ministry of Forests and Soil Conservation appears to be able to keep up with the demands of these many projects, care needs to be taken that it does not become overburdened.

2. CONSTRAINTS TO INCREASED FOREST PRODUCTION

Following are some of the more obvious and serious constraints affecting the natural resources/forestry sector in the Rapti Zone. The list is not intended to be comprehensive and space limitation precludes elaboration.

2.1 Magnitude of Deforestation

The Rapti Zone is one of the least developed and most degraded areas in Nepal. A population of 0.95 million people and 1.3 million livestock depend on the forest for all of their timber, fuel and most of the fodder needs. The manner in which these products are obtained is not consistent with environmental protection of sustained yield, and degradation is occurring at an alarming rate. Mature forests (or those capable of supplying products on a sustained yield basis if managed) occupy only 21 percent of the forested land (Table 2). Degraded forests and shrub lands occupy 18 percent of the land area, and these areas are expanding at a rapid rate as the population of both people and livestock increases. While the efforts under Phase I in Forestry and Soil Conservation converted 1368 hectares of degraded forests and shrub lands back to project use, this represented only 1.2 percent of the total shrub and degraded land in need of such treatment.

Table 2

Type of Forest Area Coverage in the Rapti Zone
(Area in hectares)

<u>District</u>	<u>Shrubs</u>	<u>Degraded Forest</u>	<u>Mature</u>	<u>Immature</u>	<u>Regeneration</u>	<u>Total Area</u>
Dang	17,158	11,224	34,665	139,862	5,587	208,496
%	8.2%	5.4%	16.6%	67.1%	2.7%	
Salyan	5,989	9,183	5,904	65,070	2,633	88,779
%	6.7%	10.3%	6.6%	73.3%	3.0%	
Pyuthan	6,410	10,712	9,605	50,448	6,230	83,405
%	7.7%	12.8%	11.5%	60.5%	7.5%	
Rolpa	9,620	15,437	34,020	47,047	3,408	109,532
%	8.8%	14.1%	31.1%	43.0%	3.1%	
Rukum	8,042	20,244	52,259	75,995	156	156,696
%	25.1%	12.9%	33.3%	48.5%	0.1%	
Total =	<u>47,219</u>	<u>66,800</u>	<u>136,453</u>	<u>378,422</u>	<u>18,014</u>	<u>646,908</u>
%	7.3%	10.3%	21.1%	58.5%	2.8%	100%

Source: Resources Mapping project, Kathmandu, Nepal, Land Capability Report. Kenting Earth Sciences United, 1983, UNDP

Table 3

D.D.F. Project Targets for Rapti II

	Dang	Salyan	Pyuthan	Rukum	Rolpa	Totals	% of Total Cost
Panchayat Nursery No.	40	42	41	31	32	186	12%
District Nursery No.	2	1	1	1	1	6	1%
P.F. Ha.	2,500	2,100	2,100	1,700	1,700	10,100	16%
PPF, Ha. Total	10,000	3,000	3,000	2,000	2,000	20,000	
PPF, Ha. Planted	1,000	300	300	200	200	2,000	
Demarcation Km.	1,150	550	550	400	400	3,050	4%
Departmental Plantation, Ha.	400	200	200	150	150	1,100	
Building Construction No.	8	3	4	4	4	23	8%
M.P. Agro-Forest	4,000	0	0	0	0	4,000	43%
Natural Forest Management	180,114	73,607	66,283	128,410	84,475	532,889	5%
Lease Forest Ha.	100	75	75	50	50	350	
Private Plantations Ha.	100	75	75	50	50	350	
Preparing & Imp. Forest Mgt. Plans No.	80	84	82	62	64	372	8%
School Nursery & Plantation	25	20	25	20	20	110	
Estimated Cost (1) Rs.	59,700,000	12,500,000	12,500,000	9,600,000	9,600,000	103,900,000	

(US \$4,947,619)

(1) Annual Adjustments for Inflation will be needed.

2.2 Differing Attitudes of HMG and Local People

The prevailing attitude of the population appears to be that the forest will continue to supply fuel, fodder, and timber irrespective of treatment. This attitude is a serious constraint and threatens to destroy the basis of production, particularly the soil which supplies and cycles nutrients, retains water, supports microbial activity, etc. Even those persons who are aware of the problem are often not interested in changing their behavior. Their attitude is often that forest products can always be found some place and, from a man's point of view, such issues are not concern because it is the women's job to find fuel and fodder. In addition, the forests belong to the government, so many citizens assume that the government should take care of them. Villagers are often of the opinion that there is nothing to lose by over utilizing the forests, and if you do not utilize it, your neighbor will certainly do so. This "help yourself and let the future take care of itself" attitude only results in abuse and degradation.

Compounding these problems is the general citizen attitude that the DOF is only concerned about protecting forests and, in essence, removing them from village use. The fact that the DOF has authority to arrest those engaged in unlawful removal of forest products helps reinforce the negative image. In contrast, the DOF often views citizens as unable to understand forest management and sustained yield. However, with promotion of community forestry programs, these antagonistic attitudes are quickly changing.

2.3 Lack of Short-Term Benefits to the Population

Compounding these differing attitudes described above are the problems of the low economic status of much of the population. When people live at or near the subsistence level, short-term solutions to problems are often needed. The idea of planting and protecting a resource for later use may be contrary to their immediate needs and attitudes. In addition, the current HMG reforestation programs often do not specify who will benefit from the program, other than in very general terms. If an individual suspects that another panchayat, individual, or the government will benefit from his or her efforts, she/he has little motivation to improve existing conditions.

2.4 Lack of Women's Involvement

While women are largely responsible for the collection and use of fuel and fodder, their traditional place in the social structure prevents them from taking an active role in many government-sponsored reforestation programs. The women may, in fact participate in planting seedlings, but is it the men who participate in training and orientation meetings, who

form the Forest Committees and who serve as naikes and guards. Part of the problem is that 100 percent of the DOF field staff in Rapti Zone is male, a fact which does not present role models on elicit strong women's attendance at meetings.

2.5 Unrestricted Grazing

The current common system of unrestricted grazing of animals can only lead to continued resource degradation. This problem is compounded by the fact that due to spcial reasons, unproductive cattle cannot be culled from the herd. Discussions with villagers indicate that approximately 70 percent of their cattle provide no other function that to provide manure that can be used for fertilizer. However, manure is being increasingly used as fuel so even this minor contribution to the resource situation from the unproductive cows is being lost. Cattle are considered a form of wealth, so villagers strive to increase the size of their herds without realizing the tremendous burden that is being placed on the quickly disappearing fodder resources. Goats are also a severe problem due to their ability to climb and to eat almost any type of plant.

2.6 Restricted Private Ownership of Land and Forest

Private ownership of forest land is limited and those lands in private ownership is generally confined to small parcels. When the community or government owns the forest and thus the products produced in the forest, the distribution of benefits to the individual is often not clear, and there may be little incentive for an individual to become involved with the existing natural resources/forestry programs. As government involvement increases, individual participation tends to decrease and the abuse of natural resources continues.

2.7 Lack of Operating Funds for Government Programs

Operating funds for natural resources/forestry programs (and all other HMG programs) are often received by the district offices 6 to 9 months late, and in some years the last trimester release of funds never occurs, thus arbitrarily reducing budgets by 33 percent. This forces operations to either cease or to operate at a low level and on credit. When funds are finally released, they must be spent before the end of the fiscal year, thus resulting in a crash program that may lack coordination and quality.

2.8 Lack of Coordination and Cooperation Among Line Agencies

The various agencies involved in the natural resources/forestry sector often fail to communicate with each other at both district and national levels. Coordination of activities for the benefit of the overall program is thus limited. Rivalry, status, a lack of consideration and empathy, etc. does nothing to enhance to the program and often results in incompleting projects, duplication of efforts, or failures.

Donor groups involved in natural resources/forestry programs also fail to communicate with one another on a regular basis. Without this sharing of information, mistakes are likely to be repeated and a coordinated strategy or program does not occur.

2.9 Lack of Manpower and Training

Approximately 40 percent of the authorized positions in the DOF and the DSCWM in the Rapti Zone are unfilled at the present time due to a lack of qualified and willing people. For the most part, technical people do not like living in hill districts due to the lack of facilities, the lack of prestige, remote location, etc. Additionally, while basic technical training is usually adequate, extension training and the techniques of motivating people are often lacking and this important component of the program suffers.

2.10 Environmental

While Nepal has a favorable climate and adequate soil resources for rapid production of fuel and fodder, current forest practices threaten to destroy these basic resources, and once these resources are destroyed or severely altered, recovery will be extremely slow. Current reforestation efforts often concentrate on the most degraded areas where the soil resource is essentially lost, where natural seed sources no longer exist, and where surface temperatures, water infiltration, crusting, and other factors produce extremely harsh conditions. Reforestation efforts for such sites requires large inputs of time and materials, and success is tenuous at best.

3. STRATEGIES TO OVERCOME CONSTRAINTS

Following are strategies that could be used to overcome the constraints mentioned in the previous section. These strategies are not presented in detail, but the recommended programs (section 4.0) that follow give detail for the strategies that are recommended for incorporation into the Rapti II program.

3.1 Reforestation

The massive problem of forest degradation in the Rapti Zone cannot be solved by huge infusions of foreign aid. Reversing the practice of degrading the land to obtain fuel, fodder, and timber and balancing the supply of these products with the demand will require decades of concerted effort by all concerned. Simple, panchayat based natural resources/forestry programs can have a significant impact on reducing degradation and restoring degraded lands to productivity. Production oriented programs must emphasize the basic concept that planting plus protection plus management will result in sustained benefits not obtainable under the present system which degrades the resource. In addition, more efficient use of fuel and fodder and alternate sources of these commodities must be investigated.

3.2 Resource Oriented Attitudes

Extension and demonstration programs probably represent the most effective methods for changing attitudes that are contrary to good resource management. Extension efforts should emphasize that abuse of natural systems will destroy the ability of that system to produce products and regenerate, and this cause and effect relationship must be thoroughly understood. Introducing resource conservation into the schools will also be beneficial, especially if the study of resource conservation is reinforced by demonstration (such as school plantations or nurseries). Changing attitudes is a slow process that is difficult to monitor, but attitude change is essential if the resource conservation is to take place.

DOF personnel should receive more training in extension so that they can become a positive influence concerning forest management rather than the negative influence which was conveyed to most citizens in the past.

3.3 Providing Short-Term Benefits

Reforestation efforts should be redirected to provide short-term benefits. In some situations, this simply entails planting fodder and multi-purpose trees rather than pines. There appears to be large number of such of fodder and multipurpose species that are well suited for reforestation. In other areas, increased utilization of high yielding fodder grasses will produce the desired short-term results.

3.4 Increasing the Role of Women

The integration of women into the reforestation programs will likely be slow. But efforts must be deliberate. Requiring women to be part of the panchayat Forestry Committee may be one socially acceptable step to involve women. Preferential treatment of women when filling naike and forest watcher positions is also suggested. Locating nurseries, preferably private nurseries, near homes will also facilitate womens involvement.

3.5 Control of Livestock

To control the practice of unrestricted grazing in the Rapti Zone, a system of confined livestock feeding will likely be required in most areas. In some areas where sufficient fodder resources still exist, a rotational grazing may be appropriate. This dramatic departure from the traditional livestock system must be approached within the present system slowly, such as through prohibiting grazing in Panchayat Forests (PF) and Panchayat Protected Forests (PPF), but allowing the cutting of fodder. Lands thus protected must be substantially increased in Rapti II. Improving the quality of livestock may provide incentive to decrease herd size, but given the social attitude that livestock is form of wealth, this reduction may not occur and cannot be viewed as a solution to the problem.

3.6 Privatization

The Decentralization Act provides an excellent vehicle for privatization in the natural resources/forestry sector, by reinforcing the Community Forestry mandates and promoting local participation and "bottom-up" planning and decision-making by essentially private groups and individuals. The leased forest concept now being reconsidered by HMG will likely be an excellent method of guaranteeing benefits to those who expend the money and effort to revegetate degraded land. Privatization of nurseries is recommended as a means of increasing quality and decreasing cost. Tax concessions to individuals that reforest barren lands can be viewed as another form of privatization. Other likely areas for private sector involvement includes seed collection, preparation of management plans, fencing, and demarcation.

3.7 Operating Funds for Government Program

HMG budgetary policies must be reviewed if the Rapti II natural resources/forestry sector is to achieve its objectives. Members of the Natural Resource Analysis team strongly support the recommendation for an outside financial management team to review the USAID/HMG financial systems.

3.8 Coordination and Cooperation Among Line Agencies

The reforestation problem is far too serious to be hampered by a lack of cooperation and coordination among agencies, particular the DOF and the DSCWM. One way to overcome this is to hold annual meetings that discuss programs, technical issues, and jointly plan the program for the following year. While the DOF is production oriented and the DSCWM is protection oriented, both Departments face similar problems and utilize similar solution, and cooperation between both Departments will benefit both programs.

A second agency with which the DOF and DSCWM must cooperate is the Department of Livestock Development and Animal Health, particularly in restricted grazing programs and in development of fodder and forage supplies and enrichment programs. All three, plus the Department of Agriculture, are working on the latter, and while some redundancies exist more often work seems to "fall between the cracks". With the new reemphasis on coordination of programs at the district level, it is hoped that more cooperation through periodic meetings can be achieved in these important areas.

As previously mentioned, there are 44 different forestry projects now being funded in Nepal. While there may be sporadic meetings with some of the Donor organization, an organized effort to share information, successes, and failures is needed to provide more coherence at the national level to support district level efforts.

3.9 Manpower and Training

A well-defined program of incentives for HMG personnel which includes a rotation policy between hill and terai districts, living allowances for hill districts, training, etc. will be necessary to maintain motivation and to attract foresters to serve in the hill districts. Promotion of forestry curriculum in hill district schools may lead to more hill professionals in the forestry program, and such individuals may be more inclined to enjoy the hill districts than those from metropolitan areas or the terai. Inservice training, foreign tours and short courses, annual workshops, etc. are needed to keep the DOF and the DSCWM personnel up to date with technical and extension information.

3.10 Environmental

Site selection for reforestation efforts should concentrate on degraded sites that still retain a high potential for rapid recovery. This is especially important for the Panchayat Forest program if villagers are to be convinced of the merits of the program's short-term benefits. This strategy emphasizes the prevention of sites from becoming highly degraded rather than trying to correct the problem once it occurs. Only

if surplus funding becomes available should it be focused on the highly degraded sites with a low capacity for recovery.

4. RECOMMENDED PROGRAM

Following is a brief description of the natural resources/forestry programs recommended for the 8-year Rapti II project. These recommendations are based on a 12 day field trip to the Rapti Zone, discussions with numerous HMG officials, discussions with consultants and directors of donor programs, and various documents obtained from USAID and other sources.

4.1 Objective of the Natural Resources/Forestry in the Rapti Zone

The long-term objective of the natural resources/forestry program is to balance the demand for fuel, fodder, and timber with the ability of the ecosystem to supply these products on a sustained basis. Given the constraints, it appears that the best means of accomplishing this is through a system of confined feeding of livestock in some areas, a rotational grazing system in other areas, and a panchayat based program of planting, protecting, and managing private, community, and national lands for the sustained production of fodder, fuel wood, and timber in all areas of the Rapti Zone.

Although attainment of this objective is beyond the scope of Rapti II, significant accomplishments can be made within the time and financial limits of the Project. If project aims discussed in the following sections are met, 17.1 percent of the degraded forests and shrub lands in Rapti Zone will be stabilized, protected and placed back into production for fodder, fuel and timber. The recommended programs that follow have the objective of continuing the process started during Rapti I of bringing supply and demand into balance through a series of simple production-oriented programs. However, it will likely require several decades to balance the demand for natural resources with the sustainable supply of natural resources.

4.2 Village Panchayat and Ward Programs

4.2.1 Community Forestry (DOF)

4.2.1.1 Panchayat Forests and Panchayat Protected Forests. An integral part of Rapti II is the establishing of new Panchayat Forest (PF) and Panchayat Protected Forests (PPF) and expanding those that exist whenever possible.

The expansion and strengthening of this program appears highly dependent on utilization of user groups (or forest committees) at the ward and village level. These groups must be made to feel important and to feel responsible for the production-oriented forestry program. The Panchayat Forest Management Plan as designed under the current program should be simplified from its present form. Much more emphasis needs to be placed on the collection of products and the distribution of benefits, particularly those in the short-term.

The area Ranger is extremely important in promoting community forestry and in describing the management process, but direct involvement in the planning aspects should be minimized to allow the ideas and plans to evolve from the user group. A member of the Forestry Committee should prepare the management plan and not the DOF.

Because initial success of the Community Forestry Program is essential to its acceptance and realization of benefits, selection of land for the Panchayat Forest should be altered from the present system which focuses on highly degraded land to a system which selects the areas that are rapidly degrading but that have a high potential for quick recovery and production. Such lands are far more valuable for fodder, fuel, and timber than severely degraded land that will require a major input of time and money and where chances of success and producing short-term benefits are remote. This same selection criterion should also apply to Panchayat Protected Forests.

By the end of Rapti II, approximately 10,000 hectares of barren land will have been planted as Panchayat Forests. Approximately 20,000 hectares of forests will be administratively transferred to panchayat control (as Panchayat Protected Forest) and of this approximately 10 percent will be planted as enriched forest.

4.2.1.2 Nurseries. For existing panchayat nurseries, seedling production at the designed rate of 25,000 seedlings per year should be met as soon as possible. It is also recommended that these nurseries be transferred to a private basis by renting (via payment in kind) the nursery to an individual (presumably the naike). The DOF would then either agree to purchase the seedlings at a set rate, or, as experience dictates, citizens could be encouraged to purchase the seedlings for a small sum.

This method will likely increase the quantity and quality of seedling production by increasing the naike's stake in the outcome. It is likely to be more efficient than the existing operation where the naike is in theory an employee of the Forest Committee but in fact is supervised and paid directly by the DOF. It is recommended that this privatization program be initiated on a trial basis at selected sites with capable and willing naikes in all the districts, and if the first evaluation finds that this program is successful, privatization should be promoted throughout the Zone.

New nurseries should be established as necessary to support the Panchayat Forests. Privatization of these nurseries is also recommended either under the Forest Committee as a private assisted group or under individuals on a "franchise basis" with the Forest Committee. There may be some reluctance to initially privatize the new nurseries as the naike will presumably have had no training. However, privatization should proceed as soon as feasible.

Nurseries should be responsive to local needs and in most cases this means increasing the supply of fodder and multi purpose trees^{1/}. Emphasis should also be placed on the propagation of native species. The current emphasis on propagation of pine seedlings at some panchayat nurseries should be discouraged because the benefits from planting pine can be only realized in the long-term and consequently do not satisfy short-term needs which are an essential part of the Community Forestry program. Forest Committee control of mature pine tree resin tapping contracts or sub-contracts, however, could be encouraged on a pilot basis to provide the committee with funds to support further multi-purpose forest development.

Although nursery location is dependent on water availability, land availability, access, etc., whenever possible the panchayat nursery should be located in a highly visible area, such as near a school, to serve as a reminder the reforestation is important and that efforts are underway to mitigate the current problems.

4.2.2 Leased Forests (DOF)

It appears probable that the concept and revised rules pursuant to leased forests will be approved in the near future. The Rapti II project should formulate a program that can quickly implement these rules in the Rapti Zone. It is recommended that the Agricultural Development Bank be encouraged to support private forestry undertaken by individuals or groups of individuals for the purpose of planting and protecting the plantations established under the lease. Repayment schedules should be flexible and preferably delayed until products are derived from the leased forest.

The District Forest Controller and his staff should be prepared to vigorously promote leased forests as soon as the rules are approved. This includes explaining the program to village panchayats, groups and individuals, assisting in the submission of applications, helping with loan arrangements when necessary, helping prepare simple management plans, supplying the quantity and desired species of seeds and seedlings (under a credit arrangement), and technical assistance (gratis) as needed.

^{1/} A fodder tree provides only fodder while a multi purpose tree may provide fodder, fuel, fruit, thatch, seeds for oil, timber, etc.

Leased lands may be well suited for the production of fodder and multi purpose species. Such species will provide a quick return to the farmer. In addition, this may make the Agricultural Development Bank more willing to issue loans because the return on the loan will be much higher than if slow growing species, such as sal or pine, are planted.

4.2.3 Private Forests (DOF)

A district level program should be initiated to assist present owners of private forests to manage their holdings for sustained yields and to replant poorly stocked areas. The existing HMG program of giving tax concessions to individuals that convert privately held barren land into forest has not been widely used, perhaps due to a lack of knowledge about the program and a lack of encouragement. This concession must be enlarged to cover agri-tree growing lands and also to encourage farmers to have agri-crops and tree crops together. The DFO and the DSCO and their respective staffs should vigorously promote this program.

4.2.4 Management and Utilization

4.2.4.1 Management Plans (DOF). It is recommended that a district forest management plan be prepared for each district in the Rapti zone. The purpose of these documents would be to evaluate the existing resources and to allocate these resources to maximize production of fuel, fodder, and timber. Efforts should be concentrated on evaluating the current and potential resource production from National Protected Forests, National Production Forests, Panchayat forests (existing and potential), Panchayat Protected Forests (existing and potential), leased forests (potential), and existing private forests.

During Rapti II, detailed planning is not viewed as necessary and efforts should concentrate on the direction and organization of forestry efforts for appropriate utilization of existing and potential resources. Some land classification information is available and should be fully utilized.

Preparation of detailed management plans for selected tracks of National Protected Forests and especially National Production Forests should be prepared for those areas that can in fact be managed under existing manpower and social constraints. Whenever possible, management plans should be jointly prepared by the area Ranger and the panchayat Forestry Committee, with the technical assistance and the guidance of the DFC. Forestry consultants could also assist in the preparation of management plans.

4.2.4.2 Demarcation (DOF). Demarcation of PF and PPF appears unnecessary in most situations because of village panchayat awareness of local boundaries, obvious geographic boundaries, and the presence of seedlings in PF. However, in any areas where the boundary is not clear, demarcation should take place.

In contrast, demarcation is needed in those areas where cultivation is encroaching on the National Forest. Once encroachment takes place, it is virtually impossible to return the now barren land to the National Forest. Therefore, Rapti II should provide for demarcation of National Forest lands that are threatened by encroachment or that will likely be threatened in the near future. Rangers and assistant rangers would carry out field demarcation under direction of the DFC.

4.2.4.3 Improved Utilization (DOF). Improved utilization of forest products will obviously decrease the demands placed on the existing forests and improved utilization should be a part of Rapti II. The best program to date is the improved chulos approach which has the potential of significantly decreasing fuel consumption. The existing program is gaining wider acceptance and the program should be continued. Extension efforts (by the DFC and his staff) that point out the increased utilization realized when trees are cut by a saw rather than by axes will be of benefit, although the number of villagers that can afford to buy a saw may be low.

4.2.5 Involvement of Women in the Natural Resources/Forestry Sector (DOF and DSCWM)

Because women are responsible for the collection and use of fuel and fodder, they are likely to have more interest and motivation in reforestation projects than men and their involvement may be essential if the projects are to be successful. To involve women in Community Forestry, it is recommended that at least 25 percent of the members of the Panchayat Forestry Committee be women. This will give women a voice and role in the initial, and critical, stages of community forestry. Women should be encouraged to apply for naike and forest watchers positions, and any women applicants should be given preferential treatment. Privatization of nurseries could allow more women's involvement because private land near the home could be used to produce seedlings. Women should also be involved in the professional aspects of forestry and soil conservation, but such involvement will likely be slow.

4.3 District Level Programs

4.3.1 Divisional Nurseries (DOF)

It is recommended that the Rapti II program establish Divisional nurseries in Pyuthan, Rolpa, and Rukum Districts. And that additional divisional nurseries be established in Dang and Salyan districts. Initial size of the nursery should correspond to anticipated demand and all nursery operations would be carried out under the direction of the DFC. To the extent that panchayat nurseries cannot meet local demands, the Divisional nursery should ensure that adequate supplies of fodder and multi-purpose trees are available for private planting. Because of land ownership and possibly other constraints, privatization of Divisional nurseries may be difficult, but if opportunities arise for privatization, they should be pursued.

4.3.2 Divisional Plantations

The Rapti II program should continue the existing program of establishing new Divisional plantations and expanding existing plantations. Whenever possible, fringe plantations should be established. These plantations are located at the base of a forested slope and such plantations would likely be long and narrow. By protecting the plantation, the entire forested slope is also protected. When establishing plantations, the local panchayat Forestry Committee should be involved and the management plan should be a joint effort involving the Forestry Committee and the area ranger.

4.3.3 Seed Collection and Storage (DOF)

Seed collection and storage for panchayat and divisional nurseries should be centralized on a district basis and incorporated into the operations of the divisional nurseries. At the present time, this means that centralized seed collection and storage should take place in Dang and Salyan Districts where divisional nurseries now exist. As Divisional nurseries are established in the remaining districts, a seed collection and storage program should be established. It is of great importance that high quality seeds are collected properly, so that their viability is guaranteed. Naikes, forest guards, and private individuals can collect and store seeds under the direction of the DFC.

4.3.4 Dang-Deokhuri Multi-purpose Agro Forestry Plantation (DOF)

It is recommended that the Rapti II program support a large scale production-oriented agro-forestry project within natural forest lands in the Dang-Deokhuri area north of the East-West Highway and including both sides of the Chure Hills.

Although this area is highly degraded and threatened by encroaching cultivation, it still retains a high recovery potential and a large area of land could be placed under protection and management at a relatively low cost. The flat and fertile land at the base of the hills would be fenced and the boundary of the National Forest clearly marked. Such fencing would not only protect the flat land but would also protect the degraded forest found on the unoccupied hills to the north and south. A block of the flat land would be designated for agro-forestry, and local villagers would be allowed to plant crops provided that they also planted fuel, fodder and timber trees at a specified spacing intervals. Within about 3 years, the trees would shade the understory agriculture crop and yields would decrease. New blocks would be selected and the agro-forestry block converted to only forest, and the process repeated. Ideally, a rotation system could be developed whereby once the last block is ready for transfer to forest, the first block is ready for timber harvest and the cycle repeated.

The villagers would serve as tenant farmers not owning the land, but having exclusive rights to the crops produced. Any removal of fodder, fuel, and timber would be under the direction of the DFC and in accordance with the management plan. The forest on the hillside would be allowed to recover and a management plan prepared and implemented. Finally, this area is highly visible and would serve as an excellent education and extension tool. While this project would be under the direction of the Dang District DFC, coordination and services of several JT's and JTA's would be beneficial for increasing production of agricultural crops, selecting appropriate crops and cropping methods, improved seeds, fertilizer programs, etc.

This agro-forestry concept is based on existing agro-forestry plantations in Tamagarhi, Bara District and the Sagarnath Forestry Development Project in the Sarlahi District. Both of these projects were started in the late 1970's and have been quite successful. These projects demonstrate that agro-forestry has many advantages over either system alone. Intercropping has a positive benefit on tree growth and a 100 percent increase in height, and a 5-fold increase in biomass production is often obtainable when compared to a forest plantation without intercropping. Other advantages include elimination of the fire danger and the threat of grazing during the intercropping period.

The scope of this paper allows for only limited detail concerning the proposed agro-forestry system. Relatively wide spacing, such as 2 by 4 meters will be necessary for the trees. Each farmer would be assigned up to 1 hectare of land per year and he or she would be required to plant 1250 trees on that hectare. Seedlings would be provided free of charge from a project nursery and would be planted free of charge. Trees species likely to be considered for planting include Sissoo, Eucalyptus, Khair, Teak, Bakaino and possibly others as listed in the Appendix. The crops can be economically produced for about three years at which time the shade from the trees is of sufficient intensity to decrease yields. During the wet season, maize or groundnuts are commonly grown in an intercropping system, while mustard oil seed is grown during the dry season. Approximately 500 hectares could be placed under the agro-forestry system per year and because of the location of the villages along the highway, the distance from a farmer's home to his or her field is close and convenient for farming. Estimated total annual production for this project is 750 tons of maize and 150 tons oilseed for an estimated annual gross income of Rs.2,250,000. In addition, approximately 500 families will have access to farm land and employment opportunities will be created (such as naikes).

4.3.5 Stabilization

4.3.5.1. Biological Stabilization Programs (DSCWM). Rapti II should continue the existing program of biological stabilization of roadsides, but this program and nursery operations should be transferred from the DOR to the DSCWM and conducted under the direction of the DSCO and his staff of overseers, rangers, and naikes. The DOR should prioritize stabilization sites and provide

the DSCWM with any other details to ensure an effective and coordinated program. The current trail stabilization program should also be continued. Both programs should work with the local panchayat Forestry Committee in preparing management plans for these areas. Both programs should also place more emphasis on the use of grasses for surface stabilization. It appears that a number of native grasses are capable of providing a rapid and effective surface stabilization and are better suited for biological stabilization than trees.

The existing canal rehabilitation program and the terrace improvement program should be continued with emphasis placed on integrating stabilization with fodder, fuel and agricultural production. Junior Technicians, who are concerned with Agriculture issues within the DSCWM, should be utilized to promote and implement this program through the use of fodder and multi purpose trees. These programs have the potential of making a significant contribution to the agro-forestry concept and the existing level of effort should be expanded in Rapti II. The recently started water source protection program should be continued, although this program is aimed at protection rather than production.

4.3.5.2 Critical Area Stabilization (DSCWM). Continuation of this program under Rapti II is recommended, but some changes appear necessary for a more effective program. Site selection should be changed from selecting the highly degraded areas to selecting the areas in danger of severe degradation but still retaining a high capacity for rapid recovery. Stabilization efforts should emphasize the use of grasses as they are usually one order of magnitude more effective in surface stabilization than shrubs and trees. However, grasses should not be planted to the exclusion of fuel and fodder trees. All stabilization efforts should be coordinated through the local panchayat and the affected wards, and a management plan, which clearly describes the protection program and the distribution of benefits, should be jointly prepared by the DSCO and the staff, the village panchayat, and the ward. Mechanical (or physical) stabilization should be limited as most of the previous efforts appear to be of questionable benefits. However, in some areas of rapid down cutting, gabions may be necessary.

4.4 Multi-District Programs And Support

4.4.1 Extension (DOF and DSCWM)

Both the DOF and the DSCWM should intensify their extension activities to increase citizen understanding of resource management for sustained yields. This can be partially accomplished by better utilization of existing extension materials which include posters, pamphlets, reforestation symbols, calendars, films, shirts for the forestry staff, demonstration etc. Rangers, assistant rangers, naikes, guards, watchers, overseers, junior technicians, and assistant junior technicians, should include extension techniques. Vigorous extension efforts should be directed at various groups including women, school children, ward leaders, etc.

The existing in-country Pradhan Pancha forestry tour has been very successful and should be continued and expanded to include (as space is available) ward leaders, Forestry Committee members, and representatives from women's organization, youth organization, and other organizations as well. While this program is now organized by the PCO, as the program matures it could be handled by individual districts.

Schools have been largely ignored in the extension provided thus far and it is recommended that the concept of planting, protecting, and managing lands for the production of fodder, fuel, and timber be thoroughly integrated into the education process at all grade levels during Rapti II. One approach is to establish a small (less than 5 hectare) plantation adjacent to as many schools as possible. A "forestry committee" would consist of the older students, teachers and the area ranger. Once a comprehensive management plan is written, the students would plant fodder and multi purpose trees and the plantation protected. Products would be harvested according to the management plan and sold to the community; the funds thus generated would be used by the students or school in some manner. The plantation could be established in phases (perhaps at three 5 year intervals) to allow frequent planting, and the 15 year old trees harvested for timber and new trees planted. This would give student an opportunity to participate in the full range of forest activities and to benefit from the products. The DSCO and his staff should also be involved to promote the stabilization aspects of reforestation. Another approach is a school nursery where the students, with help from a naike, would raise and sell seedlings.

4.4.2 Facilities and Maintenance (DOF and DSCWM)

Each district should have the basic facilities from which to operate an effective natural resources/forestry program. DFC facilities, DSCWM facilities, and ranger accommodations are important to the success of the project and provision of the needed facilities should be considered for inclusion under Rapti II. Equipment, vehicles, and especially maintenance must also be a part of Rapti II as these items are required for efficient and timely operations. Funding by AID of any recurrent costs should be provided on a descending percentage basis over the life of the project to ensure that the various departments become accustomed to including them in their plans and budgets.

4.4.3 Revised Financial Disbursement Program (HMG)

The timely release of approved funds for natural resources/forestry programs is essential if these programs are to be successful and meet their objectives. The Rapti Phase II project should encourage revision of the current budgetary system.

4.4.4 Incentive Program (HMG)

District Forestry Officers, District Soil Conservation Officers, and other personnel often suffer from a lack of motivation due to poorly defined incentives for those who do a good job. A national program that clearly states policies regarding promotions, transfers, and rotation policy between the hill districts and terai districts, field allowances for hill posts, training, etc. needs to be developed to provide a highly motivated staff that will carry out the essential task of restoring productivity to the public lands in Nepal. Rapti II should provide any requested technical assistance to help formulate a better incentive program.

4.4.5 Integration with Livestock Programs (SFDP and WDO)

The deforestation problem in the Rapti Zone is essentially a livestock problem and cannot be solved without an integrated program. One integration method is through the livestock loan program that is now conducted through SFDP and the WDO. When a user group or individual applies for a livestock loan, loan approval should be contingent on the requirement that sufficient fodder be planted, protected, and managed to feed the purchased livestock. The need for fodder should be obvious to the user group, and if this requirement is approached in a positive manner by those administering the loan, it should not complicate or delay loan approval. Fodder plants would be provided by the panchayat nursery and a management plan could be prepared through the community forestry program. Some type of simple enforcement mechanism would be required to insure that the fodder species are being protected and managed according to plan.

Encouraging the planting of a fodder crop, preferably some type of legume, during the interval between wet season and dry season crops could greatly decrease the fodder demand now placed on the forests. Some fodder species such as legumes can be very productive with minimal irrigation, and the legumes will decrease fertilizer requirements of subsequent crops. Unfortunately, this system is limited to irrigated land and the fodder crop will require some type of protection from the livestock that roam freely during crop intervals.

As mentioned throughout the recommended program section, considerably more attention must be placed on the propagation and utilization of fodder and multipurpose species by the DOF, the DSCWM, DLD. Organized and coordinated extension efforts, integration with privatization programs, involvement of women, and adequate supplies of suitable species are necessary if the supply of quality fodder is to be increased.

4.4.6 Training (DOF and DSCWM)

Training should remain an integral part of the natural resources/forestry program throughout Rapti II. It is recommended that an annual Zone-wide seminar-workshop be held for DFC's, Rangers, and the DSCO. The purpose of this meeting is to exchange technical

information, review extension efforts, and to organize and coordinate activities for the up coming year. In addition, each district would have trimestrial reviews under the Forest and Industry Committee of the District Panchayat, and DOF and DSCWM personnel would work together during these meetings. Annual plans for both programs are also prepared with this committee, so training/coordination can be facilitated at the district level as well.

Zone and/or district level workshops are also recommended for naikes for the purpose of exchanging technical information concerning propagation techniques, seed collection, field trials, supply-demand problems, and other subjects relating to the production and distribution of seedlings. This exchange of information will help achieve more efficient operations and will help prevent mistakes from reoccurring. It is recommended that such workshops be organized every other year starting in 1987.

It is recommended that district workshops be organized on an annual basis to review programs, discuss problems, and to plan for the next year. The DFC, rangers, assistant rangers, naikes, forest guards, and forest watchers should be included. The workshops should be preceded by meetings with Panchayat Forest Committees.

Existing programs of offering short-term (6 months or less) training in foreign countries has been successful both in terms of training and motivation. These programs should be continued in Rapti II. As previously mentioned, the Pradhan Pancha forestry tours should be continued. Initial training for naikes, forest watchers, and forest guards is essential and should obviously continue throughout Rapti II.

4.4.7 Monitoring and Evaluation

Probably the best method of monitoring achievements and evaluating programs is through annual reports prepared by the DFC and the DSCO. These annual reports should be based on the basis of the program for the up coming year, and targets and programs should be flexible to ensure that programs relate to changing conditions and opportunities. They should be supplemented by use of the nationally established monitoring system under the Community Forestry Project.

Insufficient monitoring currently exists in Rapti Zone to evaluate the success and failures of the seedling distribution program. Some type of simple monitoring program is needed that collect survival and growth information on a species basis and on a plantation type (panchayat, private, divisional, etc.) basis. This monitoring could be under the direction of the Regional Forestry Directory to ensure consistency of methods and sampling and to provide data that is accurate and free of bias. Results should be thoroughly discussed at the previously mentioned workshops. Other monitoring programs are needed for community forestry, success of private plantings, agro-forestry programs, stabilization efforts, citizen involvement and attitude change, etc.

Such monitoring efforts have been described in detail in the Smith 1986 report entitled "A Preliminary Monitoring and Impact Assessment Plan and Sample Monitoring Report for the Rapti Development Project."

4.5 Summary of Inputs, Outputs And Benefits Recommended Inputs and Probable outputs

4.5.1 Inputs. Personnel requirements for implementation of the above projects can be largely met by increasing the DFO staff and the DSCWM staff to the level authorized by HMG. Currently, only about 60 percent of these positions are filled. The remaining unfilled positions should be filled as soon as possible if this project is to achieve the anticipated outputs. These unfilled positions include rangers, assistant rangers, overseers, junior technicians, etc. The existing forestry consultant employed by USAID, the training and extension coordinator (contract), and the five forestry Peace Corps volunteers (one per district) should be retained throughout the Rapti II program, subject to reevaluation of need and to budget availability. Additional personnel requirements are associated with the proposed Dang-Deukhuri Multi-Purpose Agro-Forestry Plantation. This effort is expected to require two Gazetted Class 3 Forestry Officers, 5 Rangers, 12 Assistant Rangers, and 1 Forestry Peace Corps Volunteer. The Community Forestry program will require naikes, forest guards, and forest watchers that should be hired on an as needed basis. It is hoped that HMG will begin to help Forest Committees better manage generation and collection of short-term benefits so that the Committees can begin to assume the costs of these personnel.

4.5.2 Outputs. Presented in Table 3 are the projected targets and estimated costs for the DOF portion of Rapti II. Approximately 60 percent of the DOF budget is allocated for the forestry programs in the Dang District. Of the 5 districts in the Zone, this district has both the greatest reforestation needs and the greatest ability to produce forest products due to fertile soils, adequate precipitation, and accessibility. Salyan and Pyuthan Districts are both budgeted to receive approximately 12 percent of the allocated funds while the two remaining and more remote districts will each receive approximately 10 percent. This distribution of funds is consistent with the needs and especially the development potential in these Districts.

With respect to particular projects, the Dang-Deukhuri Multi-Purpose Agro-Forestry Plantation will require approximately 43 percent of the DOF budget. Although this project will be costly, the benefits of increased (and integrated) forest and agriculture crops production, protection of a valuable resource that may be soon lost, local capacity building, creating many jobs for the local people, providing agriculture land to landless farmers and farmers with small holdings, and of providing a highly visible example of multi-purpose forestry more than justify the cost.

The second largest item is Community Forestry (panchayat nurseries, PF, and PPF) which will require approximately 31 percent of the budget. Extension and other programs, such as incentives, livestock, women's participation, and private forests also need financial support when detailed budgets are prepared.

Table 4 presents the projected targets and estimated costs for the DSCWM portion of the natural resources/forestry program. Because these programs are protection oriented rather than production oriented, total expenditures are substantially less than for the DOF program. For the most part, the funds are relatively evenly split among the various stabilization projects; all appear of equal importance and value. The need for stabilization is of approximate equal magnitude in all the Districts, and the disparity between funds allocated to the Dang Districts as compared to the other Districts is not as great here as it was in the DOF budget. District budgets reflect accessibility and what the program can realistically accomplish given the constraints.

Unit costs are presented in Table 5 and represent the figures used to obtain many of the costs in Tables 3 and 4. A 15 percent contingency was added to each District's budget to cover unforeseen expenses. Plantation maintenance, fire protection, extension, natural forest management planning, gully control, terrace improvement, watershed protection, and school plantation or nurseries were estimated on a lump sum basis and not on a unit cost basis. Vehicles costs are also included in the budget. Vehicles and equipment will be required for the DFC and the DSCO and include trucks, motorcycles, bicycles, and horses depending on the need and traveling conditions within the district. In addition, the agro-forestry project will need vehicles and equipment to facilitate transportation between the different production blocks.

The targets presented in Tables 3 and 4 were based on anticipated program accomplishments obtain through discussions with the DFC and the DSCO, absorptive and production capabilities of each district, and from information provided by the Chief of the Community Forestry and Afforestation Division. Targets for community forestry may appear low in view of the importance of this program, but after careful consideration of all issues involved, of this program, the targets presented in Table 4 are realistic.

It must be reemphasized that while projected targets presented in Table 3 and 4 represent realistic estimates at this point in time, the project must not be tied to these targets. Annual readjustments should be made during the District planning cycle. The project must be flexible in terms of targeted outputs to take advantage of opportunities and to adjust for unexpected difficulties. Additionally, costs are based on gross unit costs to date and will understandably vary with specific situations over time.

Costs for participant training and technical assistance are found in a separate report accompanying the Sheladia analyses.

Table 6 presents a summary of inputs and outputs for the Natural Resources/Forestry programs. Such information will be of use in preparing detailed budgets.

4.5.3 Benefits

The most important benefits of the natural resources/forestry program in Rapti II will likely be the education and attitude changes that should take place. Assuming 10 members per forest committee, at least 2000 farmers will be directly involved in forest management and sustained yield of forest products. Additional thousands will be involved in tree planting and harvesting fuel and fodder according to a management plan. It is anticipated that these programs will foster an appreciation for natural resources and the conviction that planting plus protection plus management will yield benefits that are not obtained under traditional systems that results in resource degradation.

The agro-forestry project will demonstrate that trees and crops can be compatible and that a sustained rotational system developed that meets the basic needs of food, fuel, fodder, and timber. This highly visible project will also serve as an excellent extension and demonstration tool as it will be the first one of its kind in western Nepal, and will foster cooperation between the DOF and the DOA.

Quantative benefits not presented in Tables 3, 4, and 6 are estimated as follows

<u>Category</u>	<u>Product:</u>	<u>Yield/hectare/year</u>
Managed forest (1)	fuel/timber	4.5 tons (dry weight) (2)
	fodder	8.8 tons (wet weight) (3)
Agro-Forestry	fuel/timber	6 tons (dry weight) (2)
	fodder	14 tons (wet weight) (3)
	crops (maize or groundnut)	1.5 tons
	oil seed	0.3 tons

In addition, the DOF Programs will produce and plant approximately 26,700,000 seedlings, the agro-forestry project will produce and plant approximately 5,000,000 seedlings, and the DSCWM will produce and plant approximately 5,500,000 seedlings. Approximately 17.1 percent (or 19,500 hectares) of degraded forest and shrub land in the Rapti Zone will be stabilized, protected and managed for sustained yield of forest products. Other benefits including soil protection, increased water yields, reduced erosion, higher wildlife populations, watershed protection, local capacity building, a more productive life for the citizens, employment opportunities and a highly motivated and trained natural resources/forestry staff that can continue and expand these programs following termination of Rapti II.

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1) includes panchayat forests, panchayat protected forest, leased forest, private forest, and divisional plantation

2) production is dependent on species, and growth rate is not consistent; the production figures represent the average growth over a 6-year period

3) growth rate is not consistent and this figures represent an average; yield assumes that 25% of the plantated trees are fodder species.

Table 4

DSCNM Project Targets for Rapli II

District	Nursery No.	Trail, Canal, Roadside Stabilization, Ha.		Gully Control (Vegetative & Physical)	Terrace Improvement	Watershed Protection & Improvement	Building Construction	Estimated Cost Rs. (1)
		Fenced	Unfenced					
Dang	13	150	300	6	Undefined	Undefined	3	5,400,000
Salyan	12	125	250	5	"	"	3	4,500,000
Pyuthan	11	125	250	5	"	"	2	4,500,000
Rukum	9	100	200	4	"	"	2	3,600,000
Rolpa	9	100	200	4	"	"	2	3,600,000
Totals	54	600	1,000	24	-----	-----	12	21,600,000 (US \$1,028,571)

Percentage
of Total
Cost

11%

22%

22%

25%

12%

(1) Annual Adjustments for Inflation will be necessary.

APPENDIX

Common Tree Speies

Multi-Purpose Tree Species

1. Chiuri	-	Bassia Butyracea
2. Lapsi	-	Choerospondias Axilliris
3. Koiralo	-	Bauhinia Veriegata
4. Timilo	-	Fiens Aurculata
5. Bamboos	-	Dandrocalamus Spps.
6. Sissoo	-	Dalbergia Sisso
7. Ritha	-	Sapindus Mukorossi
8. Okhar(Walnut)	-	Juglans Regia
9. Kimbu(Malburry)	-	Morus Alba

Fodder-Firewood Tree Species

1. Bhimal	-	Grewia Oppositifloia
2. Kutmiro	-	Litsea Polyantha
3. Khanyo	-	Ficus Semicordata
4. Baisa	-	Salix Spps.
5. Khari	-	Celtis Australis
6. Ipil Ipil	-	Leucaena Leacocephala
7. Lakuri	-	Fraxinus Floribunda
8. Bakino	-	Melia Azedarach
9. Siris	-	Albizzia Spps.
10. Kabro	-	Ficus Infectoria
11. Utis	-	Alnus Nepalensis
12. Dudilo	-	Ficus Nemoralis
13. Badar	-	Artocarpus Lakoocha
14. Jingan	-	Lanea Grandis

Timber and Industrial Tree Species

1. Khair	-	Acacia Catechue
2. Teak	-	Tectona Grandis
3. Masla	-	Eucalyptus Spp.

TABLE 5
UNIT COSTS

<u>Item</u>	<u>Unit</u>	<u>Cost Rs.</u>
Panchayat Nursery	EA	14,000
District Nursery	EA	50,000
Panchayat Forest	HA	1,600
Panchayat Protected Forest (Plantation Portion)	HA	1,600
Panchayat Protected Forest (Non Plantation)	HA	0
Demarcation	KM	1,200
Departmental Plantation	HA	5,000
Seedling Cost	per seedling	0.50
 Buildings		
Seedhouse and Training Center	EA	250,000
Ranger Office	EA	250,000
DFC/DSCO Office	EA	400,000
DFC/DSCO Residence	EA	350,000
Agro-Forestry	HA	5,000
Private Plantations	HA	0

100

TABLE 6

 INPUTS AND OUTPUTS FOR THE NATURAL RESOURCES/FORESTRY SECTOR

Component	Inputs	Responsible Party	Outputs
Ward & Village Panchayat Level			
1. Community Forestry			
	Extension		
	MGT. Plan Assistance	Area Ranger /PCV	10,100 Ha P.F.
	Demarcation	Area Ranger /DFC	40 Nurseries
	Local Participation	Private Citizens/VP	2,000 Ha. PPF (Plantation)
	Local Paid Labor	Private Citizens/VP	20,000 Ha. PPF (Administrative Transfer)
	Technical Assistance	TA Contract	500 Km. Demarcation
	Training	District/Multi-District	25,000 Seedlings/Nursery
	Seed & Materials	District/DFC	Fuel Fodder, Timber
	Seedlings	Panchayat Nursery/Contractor	Employment opportunities
2. Leased Forests			
	Extension		
	Promotion	DFC/Area Ranger /PCV	350 Ha. Leased Forest
	MGT. Plan Assistance	Area Ranger /DFC	Plantation
	Seedlings	Panchayat Nursery	Fuel, Fodder, Timber
	Planting	Lesser	
	Projection	Lesser	
3. Private Forests			
	Extension		
	Promotion	DFC/Area Ranger /PCV	350 Ha. of Private
	MGT. Plan Assistance	Area Ranger /DFC	Plantation
	Seedling	Panchayat Nursery	Fuel, Fodder, Timber
	Planting	Owner	
	Protection	Owner	
4. Management & Utilization			
	MGT. Plans	DFC/Contractor	350 Ha. of Private
	Demarcation	Area Ranger /Contractor	Plantation
	Utilization	Area Ranger /PCV	Decreased Fuel Consumption
5. Involvement of Women			
	Extension	Area Ranger /PCV	25% increase of Women in Forestry Committee
	Preferential Treatment	Area Ranger /DFC	Increase in Women Naikes and Watchers

TABLE 6

Continued

Component	Inputs	Responsible Party	Outputs
District Level Programs			
1. Divisional Nurseries	Seeds and Materials Paid Local Labor Training	District Private Citizens District/Multi-District	100,000 Seedlings/Nursery Training and Estension Employment opportunities
2. Divisional Plantations	Seedlings Fencing Local Paid Labor	Divisional Nursery Area Ranger/Contractor Private Citizens	Employment opportunities 1,100 Ha. of Plantation Fuel, Fodder, Timber
3. Seed Collection	Training Local Labor	District/Multi-District Private Citizens/Contractor	Employment opportunities Quality Seeds for Nurseries
4. Agro. Forestry	Extension Crop Systems Forest MGT. Seedlings Ag. Seeds Fencing Equipment Seeds & Materials Local Participation Training	Ag. Extension Agent Area Ranger/DFC Project Nursery AII/Private Citizens DFC/Contractor DFC District Private Citizens District	4,000 Ha. Agro-Forestry Plantation Chure Hills National Forest Crops Fodder, Fuel, Timber Employment opportunities
5. Stabilization	Seeds & Materials Seedlings Fencing Local Paid Labor Extension Training	District/Contractor DSCO DSCO/Contract Private Citizens DSCO Staff District	54 Nurseries 600 Fenced Plantation 1000 Ha. Unfenced Piantation 24 Bully Control Projects Employment opportunities

TABLE 6

Continued

Component	Inputs	Responsible Party	Outputs
----- Multi-District Programs -----			
1. Extension	Tours Training Materials School Plantations/Nurseries Seeds & Materials Seedlings Training	DCO District/Multi-District District/Division Area Ranger/DFC DFC DFC Area Ranger/Schools	Motivation Education
2. Facilities & Maintenance	Materials Local labor	Contractor Private Citizens	Employment opportunities 5 Seed Houses/Training Centres (DOF) 18 office & Residential Buildings (DOF) 12 Office & Residential- Buildings (DSCWM)
3. Revised Financial Disbursement Tech. Asst. Training		USAID & Ministry of Finance	Timely Release of Funds
4. Incentives	Programs	HMG	Improved Program
5. Integration with Livestock	Extension Livestock Fodder Livestock Loan Requirements Fodder Seedlings	LDO DFC, AG. Extension SFDP and WDO District Nurseries	Increased Fodder Production
6. Training	Materials Teachers Facilities	District/Multi-District /Zonal/Divisional	Education, Motivation, increased Productivity
7. Monitoring and Evaluation	Personnel	USAID	Program Evaluation Data on tree survival and Growth Guidelines for Species Selection