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STAFF APPRAISAL REPORT

NEPAL

RASUWA-NUWAKOT RURAL DEVELOPMENT PROJECT - PHASE II (RASNUDEV)

June 20, 1986

South Asia Projects Department
General Agriculture Division II

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CURRENCY EQUIVALENTS

Currency Unit	=	Nepalese Rupees (NRs)
US\$ 1.00	=	NRs 18.0
NRs 1.00	=	US\$ 0.056 (approx.)
NRs 1 M	=	US\$ 55,555

WEIGHTS AND MEASURES

Metric System

Fiscal year

July 16 - July 15

ABBREVIATIONS AND ACRONYMS

AA	-	Agricultural Assistant
AADO	-	Assistant Agricultural Development Officer
ADB	-	Agricultural Development Bank, Nepal
ADB	-	Asian Development Bank (Manila)
ADO	-	Agricultural Development Officer
AHW	-	Animal Health Worker
AIC	-	Agricultural Input Corporation
APROSC	-	Agricultural Projects Services Center
ARU	-	Adaptive Research Unit
ASC	-	Agricultural Service Center
ATU	-	Appropriate Technology Unit
CDO	-	Chief District Officer
DADO	-	District Agricultural Development Office
DAP	-	District Annual Plan
DDG	-	Deputy Director General
DFO	-	District Forest Officer
DG	-	Director General
DIHM	-	Department of Irrigation, Hydrology & Meteorology
DLAH	-	Department of Livestock Development & Animal Health
DOA	-	Department of Agriculture
DP	-	District Panchayat
DTO	-	District Technical Office
FAO/CP	-	Food and Agricultural Organization/Cooperative Program
HMG/N	-	His Majesty's Government of Nepal
IAAS	-	Institute of Agricultural & Animal Science
ICP	-	Integrated Cereals Project
IDA	-	International Development Association
IPDD	-	Integrated Panchayat Development Design
IRDB	-	Integrated Rural Development Board
IRDP	-	Integrated Rural Development Project
JT	-	Junior Technician
JTA	-	Junior Technical Assistant

LDO	-	Local Deveopment Officer
LHF	-	Leasehold Forest
MOA	-	Ministry of Agriculture
MPLD	-	Ministry of Panchayat & Local Development
NPC	-	National Planning Commission
PC	-	Project Coordinator
PCO	-	Project Cordinator's Office
PDO	-	Panchayat Development Officer
PF	-	Panchayat Forests
PO	-	Production Officer
PPF	-	Panchayat Protected Forests
RDI	-	Rural Development Project I
RTC	-	Regional Training Centre, Trishuli
SFDP	-	Small Farmers Development Programme
SMS	-	Subject Matter Specialists
SPO	-	Sub-Project Office (SFDP)
TA	-	Technical Assistance
T&V	-	Training & Visit System (of Extension)
UG	-	Users Group
UNDP	-	United Nations Development Programme
VP	-	Village Panchayat
VSO	-	Voluntary Services Organization
IVS	-	International Voluntary Services
WUC	-	Water User Group

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RASUWA-NUWAKOT RURAL DEVELOPMENT PROJECT - PHASE II (RASNUDEV II)

Credit and Project Summary

Borrower: His Majesty's Government of Nepal (HMG/N)

Executing Agency: Ministry of Panchayat and Local Development (MPLD)

Amount: SDR 16.6 Million (US\$19.1 M equivalent)

Terms: Standard

Project Description: The proposed project is the second phase of the IDA financed Rural Development Project (Credit 617-NEP) covering the Rasuwa & Nuwakot districts in the Central Development Region of Nepal, which was completed in June 1984. The proposed project would aim: (a) to consolidate the investments made during the earlier phase of development by making all physical facilities fully operational, and by improving the qualities and coverage of agricultural support services and the services of the institutions responsible for rural infrastructure development and maintenance; (b) to further improve the agricultural production base and the socio-economic infrastructure (roads, bridges, drinking water); (c) to expand forestry plantation and soil conservation programs; and (d) to promote development of effective local level planning and implementation of rural development projects.

The project would be implemented over an eight year period and at full development would benefit some 20,000 farm families and generate incremental annual production of 22,000 Mt of foodgrains, 0.8 M litres of milk, 0.6 M3 of fuelwood, and some 250 tons of tropical and sub-tropical fruits, apart from additional sustained employment equivalent to about 5000 manyears annually. Unquantified benefits would also accrue from the development of rural infrastructure, forestry and soil conservation works, and human resource and institutional development.

The project does not face any unusual technical or engineering risks. It would be implemented under a more stable administrative environment as a result of HMG/N's commitment to the implementation of new administrative arrangements for decentralized rural development planning and implementation. Nevertheless, organizational, staffing and local funding problems could conceivably affect timely implementation. These risks, however, would be partly offset by the strong implementation support, technical assistance, and staff development provided under the project, and by the fact that the project is focussed on selected activities for which experience was gained under the first phase development program.

Estimated Cost: 1/

	(US\$ Million)		
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
Extension, Training and Research, Farms and ATU	2.1	0.6	2.7
Irrigation	2.4	1.2	3.6
Agricultural Credit	0.6	0.0	0.6
Agricultural Inputs	0.2	1.0	1.2
Livestock Development	0.7	0.2	0.9
Rural Infrastructure	1.5	0.9	2.4
Forestry	1.7	0.1	1.8
Soil Conservation	0.5	0.2	0.7
Implementation Support & Institutional Development	1.5	0.7	2.2
Technical Assistance, Overseas training and studies	<u>0.2</u>	<u>1.6</u>	<u>1.8</u>
Total Base Costs	11.4	6.5	17.9
Physical Contingencies	0.5	0.4	0.9
Price Contingencies	<u>2.9</u>	<u>1.8</u>	<u>4.7</u>
Total Project Costs	14.8	8.7	23.5

Financing Plan:

	US\$ Million			
	<u>IDA</u>	<u>UNDP</u>	<u>HMG/N</u>	<u>Total</u>
Local Costs	11.0	0.5	3.3	14.8
Foreign Costs	<u>8.1</u>	<u>.6</u>	<u>-</u>	<u>8.7</u>
TOTAL	19.1	1.1	3.3 1/	23.5
%	81.0	5.0	14.0	100.0

Estimated Disbursements: 2/

	(US\$ Million)							
	<u>FY87</u>	<u>FY88</u>	<u>FY89</u>	<u>FY90</u>	<u>FY91</u>	<u>FY92</u>	<u>FY93</u>	<u>FY94</u>
Annual	1.0	1.8	2.0	2.5	3.0	3.7	3.5	1.7
Cumulative	1.0	2.8	4.8	7.3	10.3	14.0	17.4	19.1
%	5.0	15.0	25.0	38.0	54.0	73.0	91.0	100.0

Economic Rate of Return: 21% 3/

1/ Including taxes and duties of US\$0.2 M (approximately).

2/ According to IDA Fiscal Year. Credit closing date 12/31/93.

3/ With 85% of project costs (excluding price contingencies) included as economic costs.

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RASUWA-NUWAKOT RURAL DEVELOPMENT PROJECT - PHASE II (RASNUDEV II)

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RASUWA-NUWAKOT RURAL DEVELOPMENT (PHASE II) PROJECT

(RASNUDEV)

STAFF APPRAISAL REPORT

I. INTRODUCTION

1.01 The IDA financed Rural Development Project (RDI), Cr. 617-NEP, covering the two hill districts of Rasuwa and Nuwakot in the Bagmati zone, was the first major rural development project designed to develop agriculture, as well as the socio-economic infrastructure outside the better endowed Terai and Kathmandu valley. It was completed in December 1983, two years after the originally scheduled date. The credit was fully disbursed in June 1984, a Project Completion Report has been prepared and a Project Performance Audit Report is under preparation (see paras 2.20-2.23 for details).

1.02 To consolidate the gains made under the first project (RDI), His Majesty's Government of Nepal (HMG/N) requested the Bank to assist with the preparation of a follow-up project. With UNDP funds, project preparation was undertaken by the Agriculture Projects Services Centre (APROSC) and was completed in July 1983. An IDA pre-appraisal mission visited Nepal in May-June 1984, when broad agreements were reached with HMG/N on the scope, components and size of the proposed project. This report is based on the findings of an appraisal mission, consisting of Mr. M.O. Farruk (mission leader), Ms. Chingboon Lee (IDA), Messrs. M. Sugimura, D. Kraatz (FAO/CP), and P. Mould (Consultant), which visited Nepal in January/February 1985.

II. SECTORAL BACKGROUND

The Agricultural Setting

2.01 With 93% of the labor force engaged in agriculture, the economy of Nepal is almost completely agrarian. Some 8.5 M people out of a national population of 15 M still live in the mountains and hills in the steeply dissected Himalayan Range. The resource base for agricultural production is relatively restrictive due to the rugged terrain. Only about one-sixth of the total land area is suitable for cultivation, of which some 15% is irrigated. The man-land ratio for the whole country is estimated at about five persons per ha of arable land compared to 9 persons per ha for the Hills. The distribution of land ownership is still skewed, despite the implementation of the Land Act and Rules of 1964. Tenant sharecroppers are estimated to number about 2 million, a vast majority of whom operate without security of tenancy rights.

2.02 The traditional methods of farming in the Hills are continuous and exhaustive cropping of limited areas of terraced hillside. The excessively rugged terrain and the sparse road network restrict the supply and use of chemical fertilizer inputs; consequently, productivity is relatively low and maintained from a small supply of livestock manure and mineral nutrients of the forests. Agricultural development is also handicapped by a relatively low production and processing technology base and extremely weak institutional arrangements for introducing and supporting new and improved production technology. Consequently, agricultural production during the last decade increased only by about 0.7% per annum, while population grew by about 2.7% per annum, thus leading to a progressively deteriorating food balance. It is estimated that 39 out of 75 districts are deficit in food production and by the year 2000, domestic production of cereals would meet only about 65% of Nepal's consumption requirements. The Hills will be deficit by 60% and the Terai (which is now in surplus) by 10%.

2.03 Crops Production. Food crops, mainly paddy, maize, wheat, millet, barley and potatoes, occupy some 2.2 million ha, or about 90% of total cropped area. Cash crops, mainly oilseeds, sugarcane, tobacco and jute, are grown on some 240,000 ha (10% of the total cropped area), primarily in the Terai. About 40% of all cereals grown in the Hills are maize, 28% are paddy and 13% millet. Legumes are virtually not grown. Current yields are very low with maize at 1.7 tons per/ha and decreasing; millet 1 ton/ha and decreasing and wheat 1.3 tons/ha with an upward trend. Cropping intensities vary between 110-130%. Average fertilizer consumption is about 28 kg/ha, equivalent to about 13 kg of nutrients per ha of cropped area, one of the lowest levels in the world. Nearly 70% of the applications are on paddy and wheat and 75% of the total consumption is in the Terai and Kathmandu valley. At the lower edges of the hills, where there is occasional road access, use of fertilizers is increasing, but most settlements on the less accessible slopes use compost and animal manure to augment soil fertility. Although horticulture offers scope for agricultural diversification and intensification, production is still sporadic and on a modest scale.

2.04 Livestock. Total livestock population is estimated at over 15 million head with cattle accounting for about 45%, buffaloes 25% and small ruminants, yaks/chauries comprising some 30%. Nearly 70% of the animals are in the Hills. Productivity of the animals is very low due to poor nutrition (available fodder supply can meet less than 70% of the nutritional needs), high incidence of debilitating disease and low genetic potential. Nevertheless, farmers continue to maintain a sizeable number of such low yielding animals as sources of milk, meat, manure and draught power. Livestock provides some 25-30% of household incomes.

2.05 Forest Resources. The present forest area of Nepal is about 4.3 M ha (3.9 M ha in the Mountains & Hills and 0.4 M ha in the Terai). ^{1/} These figures represent a 33% reduction in forest area between 1964 and 1980. The situation is, however, much worse than statistics suggest, because many areas in the Hills now classified as forest are, in fact, degraded wasteland with few or no standing trees. Fuelwood harvesting has increased progressively, greatly exceeding the sustainable yield, while uncontrolled overgrazing has all but destroyed regeneration. Projections show that with present usage and increasing demand from a growing population, accessible forests in the Hills will disappear within 14 years and those in the Terai within 25 years.

2.06 Agricultural Institutions. Agricultural development and policy are the concern of four ministries: the Ministry of Agriculture (MOA), the Ministry of Forests and Soil Conservation, the Ministry of Water Resources and the Ministry of Land Reform. MOA includes the Department of Agriculture (DOA) and the Department of Livestock Development and Animal Health (DLAH), which are responsible for promoting production through research, training and extension in their respective subsectors. The Directorate of Irrigation, Hydrology and Meteorology (DIHM) is responsible for development of large and medium size irrigation schemes. Each of these directorates is headed by a Director General. MOA also has overall responsibility for the Agricultural Input Corporation (AIC) and the Agricultural Development Bank, Nepal (ADB) (paras 2.10-2.11).

2.07 Agricultural Extension. Under the Director General of the DOA, four Deputy Director Generals (DDG) are responsible for Crop Development, Extension and Services, Horticulture and Fisheries, and Planning & Coordination. The extension wing is represented at the region by a Regional Director of Agriculture who supervises district level extension programs headed by an Agricultural Development Officer/Assistant Agricultural Development Officer (ADO/AADO). Each ADO/AADO is assisted by a number of Junior Technicians (JT) and Junior Technical Assistants (JTA), each receiving two years and one year training, respectively. DOA extension staff currently includes some 150 graduate staff and over 1,000 JT and JTA. A recent innovation has been the employment of Agricultural Assistants (AA) at the village level, who are selected from among progressive farmers and retired servicemen. AAs receive minimal training and serve on a part-time basis in areas adjacent to their homes for a nominal allowance ranging between Rs 50-150 per month. The performance of the AAs varies, depending on the extent of supervision by the JTAs, but on the whole this represents a relatively cost-effective way of providing extension at the farm level. In recent years, agricultural extension services

^{1/} Based on the 1980 UNDP/FAO satellite mapping with aerial survey support.

in the Terai have been reorganized along the principles of the "Training and Visit" (T&V) system through a number of IDA-assisted projects and with promising results. Of the 20 districts in the Terai, 14 are now covered by T&V. Agricultural extension services in the hills, however, would not be amenable to the principles of intensive training and visit system because of logistic constraints. The primary thrust in the Hills therefore has been the establishment of Agricultural Service Centers (ASCs), which serve as focal points for the provision of advisory services, inputs, demonstration, leader farmer training, mini-kit distribution, etc.

2.08 The effectiveness of agricultural extension activities are generally considered to be lacking. Shortage of competent agricultural extension staff, low productivity and lack of proper motivation, both resulting from the inadequacies of the pre-service and in-service training programs and unsatisfactory administrative, personnel and operational policies in the civil service system, are important impediments to the effectiveness of the system. However, the situation has been improving during the recent years as a result of technical and project assistance provided by IDA and other donor agencies (see para 2.18-2.19). The IDA-financed Agricultural Manpower Development Project (Credit 1534-NEP) will also specifically address the issue of increasing the output as well as the quality of training programs of the existing pre-and in-service training institutes.

2.09 Agricultural Research. Agricultural research is the responsibility of DOA and is administered by a Deputy Director General (DDG) working under the Director General of Agriculture. The research service operates a total of 52 centers located throughout the country: 7 in the Eastern Region, 25 in the Central Region, 10 in the Western Region and 10 in the Far Western Region. These consist of (a) research stations (for cereal crops); (b) research centers (for cash crops); and (c) research farms, the latter being mainly engaged in seed multiplication. Considerable progress in the development of appropriate farming recommendations under irrigated and rainfed conditions in the Terai has been made largely as a result of the Integrated Cereals Project (ICP) and the Cropping Systems Program (an integral part of ICP), financed by the USAID. However, development and testing of crop production technologies, specific to the different micro-climatic areas of the Hills have not received much emphasis except for the work that is being done at the two hill research centers at Lumle and Pakribas.

2.10 Agricultural Inputs. The Agricultural Inputs Corporation (AIC) is the sole government agency responsible for (a) importation and distribution of chemical fertilizers; (b) maintenance of a buffer stock sufficient for at least one cropping season; (c) collection, processing, storage and distribution of improved seed and assistance to DOA in conducting seed multiplication programs; and (d) distribution of locally manufactured and imported agricultural tools, implements and agricultural machinery. In

general, AIC suffers from lack of finance to import fertilizer on time and in adequate quantities. In recent years, about 40% of fertilizer imports, largely urea and complex mixtures, was obtained in the form of external commodity aid. Fertilizer prices are subsidized by over 50%, on the average, and selling prices are uniform throughout the country, reflecting transport subsidies as well. In 1982/1983 budgetary subsidies to AIC amounted to NRs 56 million, equivalent to about 3% of HMG/N regular expenditure and 2% of current revenue for that year. Most of AIC's fertilizer and other inputs are retailed through the cooperatives (para 2.12) and private sector involvement is minimal and sporadic. In recent times, however, AIC has been considering steps for increasing distribution through licensed private dealers.

2.11 Agricultural Credit. Institutional credit accounts for some 40% of total amount borrowed by farm families. The rest is provided by money-lenders, landlords and traders. The single major source of institutional credit is the Agricultural Development Bank, Nepal (ADBN). Nearly 70% of ADBN credit is provided directly to the individual farmers, while some 30% is on-lent through Cooperatives (Sajha, para 2.12 below). Lending by ADBN increased four-fold during the five-year period between 1972/73 (NRs 36 million) and 1981/82 (NRs 140 million). Further increases were registered during the subsequent years. Asian Development Bank has been providing assistance to ADBN for general agricultural lending as well for implementing the Small Farmer Development Program (SFDP), which is a supervised credit program focussing on the provision of credit to small farmer groups bearing joint and individual repayment obligation (see para 2.13).

2.12 Cooperatives. The Sajha development program was introduced in early 1976 to provide credit, agricultural inputs and marketing facilities, as well as to sell consumer goods (salt, kerosene, coarse cloth, diesel oil, rice and sugar). At present, one Sajha serves, on an average, three to four panchayats. At the village panchayat level, they also act as the local agent of the AIC. There are 1,170 registered societies, the majority of which suffer from poor management and lack of resources.

Agricultural and Rural Development Strategy

2.13 Nepal is on the threshold of implementing its Seventh Five-Year Plan (1985-1990). The Fifth Five-Year Plan (1975-80) marked the beginning of an era of increased resource allocations to the agricultural sector and emphasis on rural development through Integrated Rural Development Projects (IRDP). Consequently, during the last two plan periods, 27% and 30%, respectively, of total plan allocations were made to the agricultural sector and seven IRDPs, two Watershed Development projects, two Integrated Agricultural Development projects and one Rural Development Project

designed to meet specifically the credit needs of the small and marginal farmers/landless labors (SFDP) were initiated.

2.14 The quest for appropriate institutional arrangements and policies for effective rural development began in the mid-fifties with the introduction of the Village Development Programme under the Village Development Department. Since then a number of attempts have been made for devolution of planning and implementation activities. In 1962, the institution of the Panchayat System introduced a new structure of local government which made the Chief District Officer (CDO) responsible for planning and coordination of development programs in their respective districts. This was abandoned in 1970 and the district line departments again became individually (independently) responsible for development activities. In 1974, the concept of District Administration Plan was introduced with a view to prepare and implement integrated multi-sectoral development programs under the overall leadership of the CDOs, supported by a newly created position of Panchayat Development Officer (PDO). This arrangement brought rural development within the jurisdiction of the Ministry of Home and Panchayat, a role which the other line departments found difficult to accept. In 1978 another new institutional arrangement for RD programs, the Integrated Panchayat Development Design (IPDD), was introduced whereby the role of village and district Panchayats were enhanced and mechanisms for inter-ministerial coordination at the different levels of the government were introduced. In 1980 a new Ministry of Panchayat and Local Development (MPLD) was created with interministerial coordination of rural development projects and local infrastructure development as two of its primary functions.

2.15 Notwithstanding the above, the basic organizational problems afflicting rural development in Nepal were not resolved and all IRDPs were/are being implemented in an environment characterized by (i) unsatisfactory involvement in and priority given to IRD projects by most of the participating line ministries; (ii) staff shortages and excessive staff turnovers; (iii) delays in fund releases; (iv) lack of support to district level implementation agencies from central level bodies in terms of policy guidelines, design standards, and implementation, monitoring and evaluation procedures, and most importantly; (v) by the inability of the MPLD, as the Coordinating Ministry, to influence the programming, budgeting and implementation of projects by the participating line ministries (para 2.20).

2.16 The Decentralization Act of 1982 and The Decentralization Rules of 1984. The Decentralization Act and Rules became effective, intensively in 14 districts and broadly in the others, as of July 1985, and represent the current institutional arrangement for planning and implementation of IRDPs. The Act and the Rules accord the District Panchayats (DP) considerable administrative, supervisory and financial control over the

various line departments at the district level in matters of plan formulation and project implementation. The Local Development Officer, an employee of the MPLD, will act as secretary of the DP and through him the power of the DP will be exercised. The Act also provides for formulation of annual and five-year district development plans with active involvement of the ward, village and town panchayats and technical support from the Regional Office of the National Planning Commission (NPC).

2.17 Implementation of the Act should, in principle, overcome many of the organizational weaknesses impeding effective implementation of rural development programs (para 2.15). However, in light of earlier attempts at devolution which ran into serious procedural and operational difficulties, the success of the new arrangements will need a strong and sustained commitment from the government to improve rural development management.

IDA Sector Lending Strategy

2.18 The IDA lending strategy for the agriculture/rural development sectors had the following underlying imperatives: (i) to accelerate the production of essential foodgrains and fuelwood in order to cope with increasing deficits of these basic commodities; (ii) to prevent the progressive deterioration of the environment and agro-ecological conditions in the hills; (iii) to improve the socio-economic and physical infrastructure and the availability of basic amenities in the hills/rural areas; (iv) to improve the technological and institutional basis for agricultural/rural development; and (v) to promote development of local and national level institutions for planning, programming and implementation of sector development programs.

2.19 In line with the above strategy and objectives, the IDA lending program in the past was designed for (i) intensification and diversification of crop production in the Terai through fuller exploitation of the surface and groundwater resources, 1/ and strengthening of the institutional and manpower bases for agricultural support services 2/; (ii) integrated area development in the hills to improve agricultural productivity, rural infrastructure and basic social services, and to

1/ The Birganj and Narayani Irrigation Projects (Cr. 373-NEP and 856-NEP); the Sunsari-Morang Irrigation Project (Cr. 812-NEP); Bhairawa-Lumbini Groundwater Projects I and II (Cr. 654-NEP and 1316-NEP); and the Mahakali Irrigation Project I (Cr. 1055-NEP).

2/ Agricultural Extension and Research Project (Cr. 1100-NEP); Agricultural Extension and Research Project II (Cr. 1570-NEP); Cash Crops Project (Cr. 1399-NEP); Agricultural Manpower Development Project (Cr. 1534-NEP).

protect environment and ecology 1/; and (iii) forest replantation, protection and management through community participation. 2/

Review of Implementation of IDA Assisted Rural Development Projects

2.20 Rural Development Project (Credit 617-NEP) I. 3/ The project was the first large scale attempt at addressing the problems in the mid-Hills of Nepal (in the districts of Rasuwa and Nuwakot) and was also among the early RD projects to be assisted by the Bank. The project, which turned out to be complex with a large number of components, was to be implemented through a coordination mechanism, novel to the existing institutions and operational procedures. The project commenced on time and made considerable progress in most of its components up to 1979. At that time, HMG/N introduced new administrative arrangements for rural development (most important of which was the creation of the MPLD and a hierarchy of committees for project coordination, para 2.14). This, combined with the then prevailing political uncertainties, severely affected project implementation and the project lost momentum. The Coordinating Ministry, MPLD, failed to carry out effective coordination and the overall performance of most of the implementing agencies also gradually deteriorated. Frequent staff transfers, staff shortages, shortages of local funds, apathy of most line agencies towards a so-called "MPLD" project, all contributed to implementation delays, and the project had to be extended by two years.

2.21 Despite the implementation constraints, most of which were of an organizational nature, the project achieved most of its broad objectives, particularly in the case of the agricultural sector, rural infrastructure and forestry/soil conservation. The project introduced an extension organization in an area which had no such tradition. Important technological changes affecting cropping patterns and husbandry practices were introduced and use of improved seeds and fertilizers increased significantly. However, the improvements are believed to have taken place mainly on the more accessible areas and on irrigated areas, and only to a very small extent on the remote and rainfed areas (for which the

1/ The First Rural Development Project (Cr. 617-NEP); Second Rural Development Project, Mahakali Hills (Cr. 939-NEP); Hill Food Production Project (Cr. 1008-NEP).

2/ Community Forestry Development Project (Cr. 1008-NEP); Second Forestry Project (Cr. 1400-NEP).

3/ The Credit is fully disbursed now and a Project Completion Report has been prepared.

availability of sustainable and cost effective technology is much more limited).

2.22 The effects of the other components have been mixed. There is no doubt that the bridges constructed by the project have had a positive impact and have enabled year round communication between villages located on opposite banks of the rivers. Positive results can also be claimed for the drinking water supply component and for the improved trails and tracks. On the contrary, the impact of other social components such as those for cottage industry, health, and education, has been minimal, primarily because the project was unable to influence the major sectoral problems that beset the implementation of these components.

2.23 While the wheel of change has been set in motion, engendering economic and social advancement in the area, development in the project areas is only at a rudimentary stage. To further accelerate economic growth in keeping with local resources, additional investments would be required to intensify agriculture under irrigated and rainfed conditions, to protect the environment from further degradation, to expand and modernize the physical infrastructure, and to strengthen agricultural support services.

2.24 Second Rural Development Project (Mahakali Hills). This was prepared and appraised at a time (1978-79) when the implementation of the RDI was proceeding satisfactorily and the organizational and institutional constraints had not yet emerged. The project design, therefore, could not take into account the experiences of RDI, hence this too turned out to be a complex project with a large number of components involving some 18 implementing agencies. Moreover, the project area comprises three very remote districts with poor accessibility, particularly during the rainy season. To make things worse, a severe earthquake during the second year of the project forced HMG/N to give priority to reconstruction and implementation of the project was temporarily kept in 'abeyance'. All these contributed to substantial delays in project implementation and during the first five years of the project only about 25% of the credit had been disbursed. Since a large number of civil works (including some 95 buildings and three irrigation schemes) would have remained incomplete by the original credit closing date (February 28, 1985), the credit was extended by a year. Recently, however, project implementation has improved and by current credit closing date, disbursements are likely to reach about 60% of SAR estimates. Follow-up emphasis on the productive sectors and on consolidating previous activities will be important in sustaining the improvements.

Implication for Future Projects

2.25 Implementation experiences of the RD projects in Nepal, Bank financed as well as those of other donors, have the following implication for the design of future projects: (a) RD projects should be simple and focussed on key sector(s)/subsector(s) such as agriculture, including crops, horticulture, irrigation and livestock development; forestry, soil conservation and natural resource management; and rural infrastructure development in direct support of the above activities; (b) complex and centralized interministerial coordination requirements should be kept to a minimum; emphasis should instead be given to program coordination at the district level with the provision of effective central support; (c) proper financial and personnel management, including timely flow of funds to implementing agencies and timely posting and retention of qualified staff are crucial to proper project implementation; (d) project components need to be an integral part of the work program of the line ministries; (e) local level institutions, e.g., Users' Groups (para 6.06) must participate not only in the operation and maintenance of infrastructure, but also in their construction; (f) design of civil works should be kept simple and to standards that can be easily maintained with available local skills and materials; and (g) recommended production technologies should be consistent with the logistic situation of the respective areas and based on already available recommendations.

Rationale for a Second Phase of the RD I Project

2.26 Experience in Nepal and elsewhere has shown that the problems of rural development are far too complex and deep rooted to expect isolated or relatively short-term intervention to make a fully significant and sustainable impact. This is even more applicable in respect of the Hills of Nepal where intensive and sustained efforts would be required for correcting decades of land misuse and agro-ecological imbalances. While rural development in the country has experienced a number of shortfalls, it is imperative for the government to continue with its rural development program to augment food production, correct regional imbalances, and improve the economic and social conditions in rural areas. Also, resolution of some of the basic ecological and land use issues is not amenable to simple solution and various facets of the issues must be confronted simultaneously. The first RD project met its broad objectives, but more importantly, it has generated some fundamental institutional, technological and attitudinal conditions which provide the necessary pre-conditions for accelerated gains in agricultural production, forestry development, introduction of more rational land use system, and for institutional and infrastructural development in the two project districts. However, in order to consolidate first phase investments and enhance the benefits from them, further investments would be required for completing/rehabilitating some of the physical infrastructure including irrigation schemes, roads, bridges and buildings and for making all facilities operational through

appropriate staffing, operation and maintenance. These considerations provide the primary justification for the proposed follow-up project, which taking into account the development framework established under the first project would focus primarily on the directly productive components and their operation and maintenance, and relatively less on wholly new investments. In designing the project and determining its scope, full cognizance has been taken of the lessons learnt from the first project as will be evident from the following: (a) compared to the previous project, the proposed project will have fewer components; it essentially has only four major components each including activities that were successfully initiated during the first phase; (b) the project has been processed after detailed consultation with and agreement of the participating line ministries and agencies; (c) the project would be implemented by three well established ministries and their constituent departments/agencies, all of whom have gained substantial experience through the implementation of the first project; (d) all civil works would be similar to the kind of structures that were built during the first phase and would not require complex design or special construction and supervision skills; and (e) following the Decentralization Act, coordination of project would be at the district level with technical support and implementation assistance provided by a well staffed (local and expatriates) Project Coordination Unit, whose role and functions have been more clearly defined (para 6.03)

III. THE PROJECT AREA

General

3.01 The proposed project area includes the two hill districts of Rasuwa and Nuwakot in the Bagmati zone of the Central Development Region of Nepal. It includes 80 village panchayats (62 in Nuwakot and 18 in Rasuwa) and has a total population of about 230,000 (200,000 in Nuwakot and 30,000 in Rasuwa).

3.02 The topography of the project area is dominated by the Trishuli River Valley and to a lesser extent by the Tadi and Likhu river valley floors. Smaller river valleys of the Phalanku Kohla, Silanku Khola, the Samari Khola and the Kalphu Khola also add to this area of relatively flat land (locally known as khet) where most of the paddy is grown. Most of the project area is characterized by steep slopes rising from valleys, and small terraces which cover the hills from the valley floor to elevations up to 3000 m. The major river valleys are broken into numerous smaller micro-climatic areas by 'kholas' (small streams) and hills which face in all directions and are exposed to wide variations of sunlight, rain and wind. Average annual rainfall is between 1600-1800 mm (80% between June and September), but varies a great deal in different valleys. Geologically the project area consists of gneisses, schists, crystalline limestones and quartzites. Soils are principally silt-loams (50% of all

soils) with loams (15%) and clay loams (15%) also being important soil types. Soil reaction is moderately acid with medium levels of nitrogen and organic matter, and available levels of P₂O₅ and K₂ are medium to high.

3.03 The hydro-electric potential of the Trishuli Ganga and its tributaries is estimated at about 675,000 kw. One hydro-electric plant at Trishuli of 18,000 kw has been in operation since 1966; a second one at Devghat, using the tail waters of the Trishuli turbines and with a capacity of 14,000 kw, was commissioned in 1983-84. There are only two mini-hydro plants, one of which is not in operation for lack of essential maintenance and spare parts. Trishuli is connected with Kathmandu by a macadamized road of 72 km. A new road (114 km) connecting Trishuli with betrawati, Dhunche, Syafru and Somsang (in Rasuwa district) is under construction. It has already been constructed up to Dhunche- Syafru and the remaining stretch is expected to be completed by 1990. This would open up many of the agricultural areas and settlements in the Rasuwa district for accelerated development. Total length of small feeder roads (all weather non-macadam and jeepable fair weather tracks) in the project area is about 40 km.

3.04 The ethnic and caste composition of the project area population is quite diverse and all the nine major groups are present. However, nearly 80% of the population consists of four major castes -- Tamangs (44%), Brahman (18%), Chhetri (12%) and Newars (6%). In both Rasuwa and Nuwakot, Tamangs represent the largest group with 67% and 41% of the population, respectively. Gross annual incomes per household in Rasuwa and Nuwakot are estimated at NRs 4,700 and 5,530, respectively. Some 60% of it is contributed by crops/horticulture and about 25% by livestock.

3.05 Each village panchayat (VP) typically has 10-20 settlements. The lowest level settlement clusters are of 10 to 15 households. The geographic area of a village panchayat is quite extensive typically varying from 1,000 to 2,500 hectares and stretching from the valley floor at less than 1,000 m up to 2,400 m. The number of families range from 300-400 to 1,000. The upper part of Rasuwa has much smaller panchayats ranging from 100-300 families. Cultural diversity also varies from predominantly homogeneous single ethnic group/caste to multi-ethnic and multi-caste panchayats. Each panchayat is divided into 9 wards statutorily; a ward may be a single settlement or may comprise several villages.

Present Land Use and Crop Production

3.06 Present Land Use. Agricultural land occupies about 36% of total project area. The remainder is under forest (38%) and other forms of land, including perpetual snow and rock areas (26%). Total net cultivated area including grazing land is estimated at about 65,300 ha, of which

about 29,300 ha are in Rasuwa district and about 36,000 ha in Nuwakot district. Since over 80% of the agricultural lands in Rasuwa district is grazing land, the cultivated area for crop production is only about 5,200 ha. In Nuwakot district, about 31,800 ha are used for crop production and the grazing land is some 4,300 ha. Annex 1, Table 1 sets out the present land use in the project area. 1/

3.07 Cultivated lands, excluding grazing lands, are broadly classified into three types: level terraces, sloping terraces (known as "Pakho" or "Bari" land) and valley floors ("Khet" land), the latter including tars, alluvial fans and foot slopes. Level terraces are the most dominant type occupying some 72% of the total. "Khet" lands in the Rasuwa and Nuwakot districts are only about 3% (140 ha) and 18% (5,800 ha), respectively, of the total cultivated lands.

3.08 Nearly 60% of all agricultural land is located in the physiographic division known as "mid-mountains" (sub-tropical to warm temperate), 20% in "high mountains" (warm temperate to Alpine) and 20% in High Himal (Alpine to Arctic). Over 90% of agricultural land in the Rasuwa district fall in the last two categories, whereas most lands (93%) in Nuwakot fall into the first category. Available information puts some 8,000 ha under some form of traditional and/or improved irrigation in the two project districts. These are mostly located in the valley floors and, to a lesser extent, on the level terraces (Annex 1, Table 2).

3.09 Present Cropping Patterns Yield and Production 1/. The cropping patterns according to different land types, estimated cropped area and cropping intensities are shown in Annex 1, Tables 3 and 4. About 15 different cropping patterns have been identified in the project area and are grouped into maize based cropping, paddy based cropping and other cropping systems as summarized below:

1/ Source: Preliminary (1985) data from CIDA - Land Resource mapping project.

1/ The yield estimates are based on the following: (i) annual crop survey conducted during Phase I period; (ii) Phase I Project Component Analysis Series, Vol. 1,2 and 3; (iii) Official Crop Statistics (see Table 6); and (iv) Sample Survey for Central Development Region - Middle Mountain (CIDA - Land Resource Mapping Project).

Table 3.01: MAJOR CROPPING SYSTEMS

	<u>Rasuwa</u>	<u>Nuwakot</u>	<u>Total</u>	
	<u>-----</u> '000 ha	<u>-----</u> ha	<u>'000 ha</u>	<u>%</u>
Maize based cropping	6.0	30.8	36.8	57
Paddy based cropping	1.2	23.8	25.0	39
Other	<u>1.1</u>	<u>1.3</u>	<u>2.4</u>	<u>4</u>
<u>Total cropped area</u>	<u>8.3</u>	<u>55.9</u>	<u>64.2</u>	<u>100</u>

3.10 In maize based cropping, maize accompanied by interplanted millet is the dominant sequence and entails often no winter cropping. In paddy based cropping, paddy-wheat and double cropping of paddy predominate, with wheat as a winter crop. On level terraces, both maize-millet and paddy-wheat (irrigated) rotations are found whereas on sloping terraces which are entirely rainfed the cropping pattern is dominated by maize-millet (intercropped).

3.11 Annex 1, Table 5 gives estimated average yield and production, for major crops which are summarized below:

Table 3.02: AVERAGE CROP YIELD AND PRODUCTION

<u>Crops</u>	<u>Yield</u> (tons/ha)	<u>Production</u> ('000 tons)
Paddy	2.1	37.5
Maize	1.2	25.1
Wheat	1.2	7.3
Millet	0.9	13.5
Barley	<u>0.7</u>	<u>1.1</u>
(Total grain)	(1.4)	(84.5)
Potatoes	7.0	9.7
Others	0.5	0.9

3.12 Other Crops, Vegetables and Fruits. Less than 2% of the cropped area is devoted to sugarcane, soyabean, mustard, barley, black lentil, etc. A wide variety of winter and summer vegetables are grown in both project districts, primarily to meet family subsistence and for some cash sales. Given the climatic variations, subtropical (mango, guava, papaya,

oranges) as well as temperate (apple, pear, plum, peach) fruits are grown in the project area.

3.13 Livestock. The total livestock population in the project area is estimated at 152,000 cattle, 83,000 buffaloes, 165,000 goats and sheep and some 2,500 yak and chauries. On average each household in the project area owns 5-6 large and 4-5 small ruminants, but productivity of animals, as elsewhere in Nepal (para 2.04), is very low. Buffaloes are usually stall fed but cattle are grazed freely in forest areas and barren lands adjacent to households. Nearly 90% of milk production (some 12 M liters in Nuwakot and 2 M liters in Rasuwa) is consumed locally with the remainder being processed as curd and ghee (clarified butter).

3.14 Forestry Resources. Forest areas comprise about 100,000 ha (37% of the total area) in the project districts. However, in Rasuwa where the Langtang National Park is situated, nearly 45% of the total area is under forest. Forests up to 1,500 m generally have mixed stands of Sal (Shorea robusta) and species of Terminalia, Jamun, Lagostromia, Mitrangina, Chilaune and Chir pine. At elevations between 1,500-3,500 m, Chir pine, Hemlock, Fir, Oak and Coniferous species are dominant. Daphne (Lokta) and Nigalo are found at elevations over 5,000 m. As elsewhere in the mid-mountains, forestry resources in the project area have been over-exploited and are in a stage of degradation and rapid depletion. On an average, farmers in the project area have to travel between 3-4 hours to collect their fuelwood, fodder and small timber requirements.

IV. THE PROJECT

General

4.01 Project Objectives and Strategy. The proposed project, in line with the overall objectives of HMG/N for the development of the Hills would: (a) intensify agricultural and forestry development and further the impetus created by RDI in increasing production, employment and rural incomes in the two project districts; (b) ensure that investments made under RDI continue to yield the expected benefits; (c) expand and improve the quality and coverage of support services and improve support provided by institutions responsible for rural infrastructure; and (d) strengthen regional, district, panchayat and village level capabilities for preparation and implementation of rural development programs and for the maintenance of rural infrastructure. In pursuit of these objectives, the proposed project would focus on activities that are directly production oriented and would promote changes in existing land use and farming systems. The project would strengthen physical infrastructure and institutions that would directly support investments in agriculture. Special emphasis would be given to small farmers as primary beneficiaries of the project. Finally, the project would promote farmers' participation,

individually or in groups, in the production of inputs (seeds, planting materials, root stocks, etc.), distribution of other farm inputs and in the construction and maintenance of rural infrastructure. In determining the scope and content of the proposed project, full cognizance was taken of the implementation experience of the RD I (paras 2.20-2.23) as well as of the likely improvements in the administrative and implementation environment (paras 2.16, 2.17 and 6.01 & 6.02). Finally, components which were relatively better implemented during the earlier phase have been given priority under this project.

Summary of Project Components

4.02 The proposed project would be implemented over a eight-year period, beginning with the 1985-86 fiscal year and would consist of the following components: (a) agricultural development: strengthening of agricultural extension, research, credit and other key support services; construction of new irrigation schemes and rehabilitation/maintenance of existing ones; establishment of private fruit orchards; improvement of preventive and curative animal health services and the genetic potentials of large and small ruminants; (b) forestry and soil conservation: afforestation, protection, enrichment, and management of existing forests through community participation; establishment of preventive and curative measures for the protection of upper catchments, minor watersheds, and agricultural lands, infrastructure and settlements on the lower catchments; (c) rural infrastructure development: construction of new drinking water schemes, suspension bridges and motorable tracks; rehabilitation and maintenance of old and existing structures; strengthening of district level capabilities for operation and maintenance of physical infrastructure; (d) institutional development and implementation assistance: establishment and maintenance of a Project Coordinator's Office; strengthening of the planning, monitoring and implementation capabilities and the accounting/financial support services of the district offices; strengthening of regional offices of the Agriculture, Livestock and Irrigation Departments; and (e) technical assistance and overseas training: provision of 8 man years of senior and 38 man years of mid-level specialists/consultants, short term overseas training of key management and technical staff and funds for project/sector related studies.

Detailed Features 1/

Agricultural Development (Total outlay of US\$9.0 M; 50% of base costs)

4.03 During the first phase of this project, emphasis was given on increasing cereal production through improving the quality and coverage of agricultural extension services, increasing the supply of agricultural inputs and credit and by increasing the area under irrigation. To a lesser extent, the project also aimed at the development of tropical and sub-tropical fruit orchards and the production of winter vegetables and potatoes. In respect of these objectives, the project established 12 agricultural service centers (ASC) and staff training facilities, improved the physical facilities of the District Agricultural Development Office, increased the area under irrigation by some 1,400 ha, provided NRs 40 M as medium and seasonal credit, and distributed 12,000 tons of fertilizer, 800 tons of improved cereal seeds, 120,000 fruit plants and NRs 2.0 M worth of agrochemicals during the project implementation period. An evaluation study in 1982 estimated that compared to the base year of the project, paddy production in the area had increased by 34%, wheat by 17%, maize by 15%, millet by 14% and potato by 66%. Under the proposed project, these activities would be further intensified as described below.

4.04 Crop and Horticulture Development. Improvements in production of foodgrains and horticultural crops would be made through (i) irrigation development (paras 4.05-4.06); (ii) improvement of the quality of crop and horticultural extension services, farmer and agricultural staff training, adaptive research and the production of seeds and planting materials (paras 4.07-4.14); and (iii) improvement of the supply of fertilizer, agrochemicals and agricultural tools and agricultural credit (paras 4.15-4.16). Since the available package of feasible technology for the rainfed areas is limited, except for paddy, wheat and maize (see para 7.02), primary emphasis would be on the realization of the full potential of the existing and prospective irrigated areas. However, for the rainfed areas in the mid-mountains, the project would bring about modest increases in productivity of paddy, wheat and maize through general improvements in cultural practices, use of better quality seeds (improved or local as appropriate), and by improving soil fertility through modest increases in the use of chemical fertilizer (where possible), but more importantly, by promoting better composting, appropriate crop rotation and cultivation of legumes (as cash crops undersown in cereals and fodder legumes grown on terrace risers). Details of the crop development program are in Annex 2, Table 1.

1/ Detailed tables in Project File C.1. All costs in this section are base costs.

4.05 Irrigation Development. Irrigation development would include Hill Terrace Irrigation and Medium Irrigation Schemes. 1/ In the case of Hill Terrace Irrigation, the proposed project would complete/rehabilitate 18 schemes (net incremental command area of 300 ha) that were undertaken during the RDI project period. The extent and nature of work required would vary from scheme to scheme, generally including reconstruction of canals/headworks/crossings damaged by land slides, improving/protecting canals/headworks and other structures and, in some instances, extending/deepening the distribution system. Additionally, 28 small new schemes (5 in Rasuwa and 23 in Nuwakot) would be constructed (net incremental command area of 900 ha). Although called 'new', most of these would essentially be development/expansion of existing rudimentary systems built by farmers. The work would not involve any major designs or feasibility studies. A list of such potential schemes proposed by the District Technical Offices (DTO), was reviewed during appraisal. Final selection would be made during the first year of the project by the DTO in consultation with the respective panchayats, User Groups and the engineering staff of the Project Coordination Unit (paras 6.03 and 6.06). It was agreed during appraisal that HMC/N would give priority to those schemes that would benefit larger numbers of small farmers, are relatively more cost effective (average cost below NRs 10,000/ha) and are in areas where no assistance had been provided earlier. Also, an individual panchayat would be considered for a new scheme only after existing incomplete/deteriorated systems, if any, had been rehabilitated and put into operation. Under the Medium Irrigation Schemes program, the proposed project would construct, through the Directorate of Irrigation, hydrology and meteorology (DIHM), four gravity irrigation systems in the valleys and lower terraces (Boketar-Chawkitar, Simra, Thansingh and Ratomate) and rehabilitate the Labdu-Dnikure and Gadkhar schemes, both built under RDI project. The new schemes would give a net incremental command area of 750 ha. The proposed

1/ The four medium size schemes would be located on the small tributaries (streams) of the Trishuli River - the Phalangukhola, Tadi Khola and Likhu Khola. The Trishuli River originates in Tibet, joins the Gandaki River below the project area which then flows into the Narayani River down into the Indo-Gangetic Plain. The insignificant volume of water that would be withdrawn by the proposed new schemes would not impact in any meaningful way on the quality and quantity of the flows in the Trishuli, the Gandaki or the Narayani Rivers, and therefore the proposed irrigation component of the project will not have any adverse effects on the lower riparian countries, India and Bangladesh. Nepal has the unrestrictive right to use the water of the Narayani River Upstream of the Gandak Power Project pursuant to Section 9 of the Agreement dated December 4, 1959, as amended, entered into between Nepal and India.

rehabilitation/remodeling of the two existing schemes would involve extending the main canals, constructing bigger intakes, flood protection/river training works and upgrading of structures, thereby increasing the command area of Labdu-Dhikure by 100 ha and Gadhkar by 40 ha (approximate).

4.06 For the medium size schemes to be implemented by DIHM (para 4.05), preliminary surveys, designs and estimates have already been prepared by consultants and were reviewed during appraisal. However, more detailed engineering design and technical specifications would be required prior to the start of construction. Therefore, during the first two years DIHM would complete the necessary design works with assistance from PCU staff and construction would effectively start from the third year of the project. All irrigation schemes implemented under the proposed project, new or rehabilitated, would be owned, operated and maintained by the beneficiaries of the command area who would be organized into Water Users' Groups (WUG) (para 6.06). The District Technical Office (DTO) would provide the necessary technical and other support to the WUGs. The WUGs would also be responsible for mobilizing local resources for the O&M of the irrigation systems (para 5.11). An assurance was obtained during negotiations that prior to undertaking construction of project funded irrigation schemes, and other rural infrastructure works, User Group(s) in each respective panchayats would be formed. In order to maximize benefits from the irrigation schemes, an assurance was also obtained that by December 31, 1986, HMG/N would establish an "Irrigation Agronomy and Water Management and Utilization Unit," for the project area within the Department of Agriculture. Finally, in view of the importance of irrigation development as a source of rapid increases in agricultural productivity in the project area in the long run, a sum of NRs 2.0 m would be provided to DIHM for feasibility studies of potential medium and large schemes, which would be identified in consultation with IDA.

4.07 Agricultural Extension Services. The proposed project would strengthen and intensify the existing agricultural extension services, both at the district and panchayat levels, by providing funds for (i) establishing 8 additional agricultural service centers (ASCs), 3 in Rasuwa and 5 in Nuwakot, constructing additional office buildings and staff quarters at the District Agricultural Development Offices (DADO) at Trishuli and Dhunche; (ii) incremental staff salaries (see paras 2.08 and 6.07), essential furniture, equipment, agricultural tools, vehicles and motorcycles for DADOs and services centers; (iii) plant protection and seed dressing equipment at each VP; and (iv) extension activities such as farmer visits, demonstration and exhibition.

4.08 The Agricultural Service Centers (ASCs), of which there would be 21 at the completion of the proposed project, would be the focal point for

extension activities in the respective areas. 1/ Production officers, working under the DADO/AADO, would be responsible for guidance and overall supervision of the ASC staff. In some of the more important ASCs, the senior most MOA staff in the ASC would be designated as the officer in-charge of the center. Each of the two DADO office would also have three Subject Matter Specialists (SMS's) -- one each for agronomy, plant protection and extension to provide technical guidance and training to ASC staff. The extension staff, working directly and/or through panchayat level Agricultural Assistants (AAs), would provide farmers available technical recommendations on farming practices relevant to the different micro-climatic and agroecological zones. Production/demonstration/seed multiplication blocks of appropriate size, located at panchayats and/or lands adjacent to the ASCs would be an important means for dissemination of improved practices. Efforts would also be made for introducing the 'Tuki' system in respect of providing extension services (para 4.15) whereby progressive farmers would be selected and trained as model farmers for dissemination of improved cropping practices. Additionally, JT/JTAs would organize periodic group discussions with farmers at the ASCs as well as in the panchayats. Extension efforts would be coordinated with live-stock, forestry and soil conservation programs with a view to promoting appropriate changes in land use and farming systems.

4.09 Agricultural Training. The proposed project would upgrade and strengthen the existing Regional Training Center (RTC) and the satellite training centers at Kakani and Dhunche -- all established under RDI Project, and improve the scope and content of the currently offered training courses. Refresher, orientation and seasonal training would be provided to senior officers, JT/JTAs and to farmers and AAs. The facilities at the ASCs would also be used, particularly for the training of AAs. Course materials would be focussed on specific aspects of agricultural production relevant to the project area. The RTC currently has two Assistant Training Officers and a JT, which is totally inadequate. Under the project, a full time Agricultural Training Officer (G/II/T) would be appointed to be the officer in-charge of the center. Additionally, he would have two more Assistant Agricultural Officers (G/III/T) and JTs and other support staff. They would form the core staff of the RTC, but the SMSs at the headquarters, specialists from research stations, and senior extension staff at the DADO office would be extensively used as trainers, as is presently in practice. Annex 2, Table 2 provides an indicative training program for field staff and farmers.

1/ The following places were identified at appraisal for establishing new service centers: Jibjbe, Kalikasthan, Timure (Rasuwa); Balakumar, Budhasingh, Chaturale, Kumari and Shikre (Nuwakot). Land for these facilities are available.

4.10 In support of the above program, the project would provide funds for (i) constructing additional staff housing and improving the existing training facilities; (ii) salaries and allowances of incremental staff; (iii) purchasing of training equipment, vehicles and furniture; and (iv) direct costs of course/training administration, i.e., production of audio-visual and other training materials, travelling and daily allowances and fees for trainers.

4.11 On-farm Adaptive Research. The proposed project would establish a small on-farm Adaptive Research Unit (ARU) in Kakani, under the supervision and control of the Agronomy Division DOA which is adequately staffed. The objectives of ARU would be to refine existing broad recommendations on the following lines to suit specific conditions of the different agro-climatic zones: (i) an improved maize variety with short duration and an improved potato variety suitable for the high mountain region under rainfed conditions; (ii) a profit maximizing fertilizer recommendation for improved varieties of paddy, wheat and maize under rainfed/irrigated conditions for different soil types; (iii) the use of chemical fertilizers for traditional varieties of major crops grown under rainfed conditions; and (iv) improved millet, barley, buckwheat, pulses and oil seeds.

4.12 The ARU would function in close collaboration with other similar programs including the Integrated Cereals Project (ICP) and the activities of the hill research centers at Lumle and Pakribas (para 2.09). Actual field trials would be carried out by the JT/JTAs stationed at relevant ASCs under guidance and supervision of the technical staff of ARU. The proposed project would provide funds for: (i) staff salaries for an agronomist, a horticulturist, a farm management specialist, an assistant soil scientist and other supporting staff; (ii) construction of office building, staff quarters; and (iii) for the purchase of one 4 WD vehicle, and materials for field trials. Details are given Annex 2, Table 3.

4.13 Improvements of Kakani, Dhunche (for Temperate/Subtemperate Zones) and Trishuli (for Tropical/Subtropical Zones) Agriculture/Horticulture Farms. Production of vegetable/potato seeds and fruit plants (for temperate and tropical regions) have been the primary focus of the activities of these farms. Limited programs for trial and verification of new varieties are undertaken and the farms also provide facilities (built under RDI) for farmer training. The full potential of these farms as centers for diffusion of innovation in their respective agroecological zones is, however, not being realized. Under the project, these would function as the field units of the proposed Adaptive Research Unit (para 4.11) and better linkages with the national/regional research centers would be established. The quality of seed/seedlings produced on the farms would be improved and the quantity and varieties propagated rationalized. In support of the above program, the proposed project would provide funds for (i) additional professional and non-professional support staff; (ii) improving physical facilities including land development, protective

fencing, provision of irrigation systems, construction of staff quarters; (iii) the purchase of vehicles, equipment and furniture; and (iv) annual operating and maintenance costs.

4.14 Orchard Development. Under the RD I, assistance had been provided to the Kakani, Dhunche and Trishuli horticulture farms (para 4.13) for improving the production and distribution of fruit plants (para 4.03). However, the distribution of planting materials was not followed up with sufficient extension and other support (i.e. credit, marketing, etc.), hence farmer adoption was somewhat sporadic. Under the proposed project, the extension staff of the DADO and the relevant horticulture staff in three farms would work in close collaboration to improve the quality, scope and intensity of technical and advisory services in respect of orchard development. Furthermore, credit would be provided through ADBN (see para 4.16) for establishing ten temperate fruit orchards in the high mountain region, 60 tropical/subtropical fruit orchards in the mid-hills and valley, and 24 small fruit preservation/processing units (for which there is a strong demand among the growers). Individual orchards would be about 0.5 ha in size but larger community/group owned orchards would also be eligible for assistance. The main thrust of the program would be to assess the technical and economic viability of commercial production and marketing of temperate and tropical fruits in the project area.

4.15 Agricultural Inputs Supplies. The proposed project would provide NRs 18.4 M to AIC as working capital for the importation and distribution of incremental fertilizer (approximately 3,100 tons) and agro-chemical requirements of the project area; NRs 1.7 M for the construction of additional godowns (one 500 mt at Bidur and one 100 mt at Dhunche) and expansion/improvement of existing offices; NRs 0.8 M for vehicles and equipment and NRs 1.16 M for incremental salaries and wages, and operating costs. In the project area AIC would intensify its current policy of encouraging privatization of agricultural inputs retailing (see para 2.10). Measures to be taken would include simplification of the procedures for granting of retailing licenses, using AAs as commission agents (the so-called 'Tuki' system as already successfully practice in some areas) and giving volume discounts to User Groups for input retailing.

4.16 Agricultural Credit. Under the RD I, agricultural credit operations in the project area increased substantially. A total of NRs 38 M was provided by ADBN directly to individual farmers and cooperatives. Of this amount, NRs 14 M was provided as short-term production credit, and the remainder consisted of medium- and long-term credit mainly for live-stock purchase, horticulture, farm equipment and machinery, etc. Overall recovery rate has been estimated at about 60%, which is better than the national average. Under the proposed project, incremental seasonal credit requirements for farm inputs (fertilizer, agrochemicals) would be provided by ADBN out of its own resources (see para 2.11); however, the project would provide NRS 4.3 M covering ADBN medium-term credit for (i) orchard

establishment and maintenance (NRs 1.6 M); (ii) establishment of fruit preservation units (NRs 0.4); (iii) purchase of milch animals and small ruminants (NRs 1.5 M), (para 4.17); (iv) purchase of agricultural/dairy equipments (NRs 0.4 M); and (v) support to the Animal Health Workers Programme (NRs 0.4 M). Additionally, NRs 7.3 M would be provided for establishing and operating ten new small farmers development sub-projects (8 in Nuwakot, 2 in Rasuwa) under its ongoing SFDP program. Interest rates for lending institutions are fixed by the Nepal Rastra Bank which provides refinancing to ADBN at rates ranging from 6-8%, depending on the purpose of the loan. Interest rates charged by ADBN to individuals for short and medium term loans ranges from 10% to 15%, depending on the purpose of the loan. Longer term loans (tree crop development) normally carry interest rates of 10%, medium term loans (livestock and irrigation development) are lent at 12% and for short term lending an interest rate of 15% is charged. Interest rates for loans from ADBN to Sajha Cooperatives are 4% less than those made direct to individuals. Interest on loans from cooperatives to individuals bear the same interest rates and those made direct by ADBN to individuals.

4.17 Livestock Development. Under RD I, preventive and curative veterinary services were improved through establishing 11 livestock service centers, providing additional staff, medicines, drugs and drenches and improving the physical facilities at the two district veterinary hospitals. Additionally, improved sires (77 Murrah buffaloes, 64 Jersey bulls and 74 improved billies) were distributed for upgrading of the local stock. The proposed project would further intensify and expand these activities while concentrating on improving the quality, coverage and effectiveness of these programs (para 4.18-4.21). In view of agro-ecological and socio-economic variations within the project area, some locations have relatively greater potentials for rapid productivity improvements in the short- and medium-term. Twenty such panchayats/areas would be identified where special programs covering animal health, nutrition, feed and fodder development and breed upgrading would be implemented through intensive technical and advisory provision of services and special livestock credit (para 4.16).

4.18 The district veterinary hospitals at Trishuli and Dhunche and the existing livestock sub-centers would be strengthened not only for providing veterinary services but also for animal production extension, particularly for feed and fodder development. Each livestock sub-center would be staffed with at least 1 JT, 2 JTA (one of whom would deal with feed and fodder) and 4 stockmen. Project funds would cover (i) expansion of the physical facilities at the two hospitals, construction of four new livestock centers, and 6 dipping tanks; (ii) salaries and allowances for incremental technical and support personnel; and (iii) purchase of vehicles, surgical and other equipment, and medicines, drenches and vaccines. It is estimated that during the eight-year project implementation

period, approximately 25% of the total livestock population would benefit from the improved curative and preventive health care services.

4.19 Animal Health Workers (AHW). Recently the livestock department introduced a program for training selected livestock owners/farmers in elementary health care, disease identification, first aid, and treatment for common and simple ailments. Last year about 15 such people were trained under the scheme but in the absence of adequate financial support and technical follow-up, the trained AHWs have remained largely ineffective. The proposed project would, on a pilot scale, strengthen and expand the program. About 100 leading livestock owners/farmers would be trained at the district veterinary hospitals in Dhunche and Trishuli (in batches of ten) for about 4 weeks covering the subjects/topics that are normally dealt with in the training of the livestock assistants. Upon completion of the training, they would be given small 'treatment kits' containing instruments for minor surgery, syringe, first aid and other medicines for treating common illness, and for vaccination. They would be allowed to charge farmers appropriate fees for their services and also be entitled to get their supplies of drugs, etc., from the district hospitals/livestock service centers at nominal costs. Finally, ADBN would, upon recommendation from the relevant district veterinary officer, provide short-term credit to selected AHWs for starting formal practice in preventive and curative veterinary health care through opening of small outpatient clinics/dispensaries. The objective of the program, which would be closely monitored and supervised by the livestock department, would be to create a cadre of self-sustaining Village Animal Health Workers (AHW). Funds provided under the project would cover the costs of training of the selected individuals, supplying the treatment kit and its subsequent replenishment and for the ADBN credit.

4.20 Feed and Fodder Development. The pasture development farm at Rasuwa, established under RD I, would be improved and expanded to increase its production of grass seeds, napier grass cuttings and other herbacious fodder. It would also promote cultivation of legumes and forage crops (in cooperation with the Department of Agriculture) and planting of fodder trees (in cooperation with the Forestry Department) on private and public lands. Four additional range units (each having a JT, one JTA and one Stockman) would be established and the operation of the Chandanbari and Langtang fodder development sub-centers, established under RD I, would be strengthened. Some 500 ha of range lands in various locations in the upper and lower mid-hills would be sown with grass seeds such as perennial rye, oats and white clover, alongside a program for training and educating livestock farmers in the techniques of seeding, protection, regeneration and management of seeded rangelands. Additionally, experimentation with urea treatment of straw would be initiated, and chaffing machines and mineral blocks would be distributed in order to improve the nutrient value of roughages and other on-farm feed.

4.21 Breed Improvement. The proposed project would provide funds for (i) the purchase and distribution of 75 murrah buffalo bulls, 150 improved rams/bucks/goats, 5 yaks, and (ii) developing breeding herds of promising local breeds of cows and other ruminants. Sire distribution and its follow-up would be better organized and supervised and emphasis would be on the development of breeder farmers in strategic locations. As in RD I, the animals would be given to panchayats free of cost, which would be responsible for their upkeep and maintenance, but veterinary services would be provided by the nearest livestock sub-center. Most murrah bulls would be procured from Janakpur livestock farm and/or from India. Funds would also be provided for the purchase of 50 animals of exotic breeds of ewe/ram and 95 local sheep for the Pansykhda sheep and goat farm in Nuwakot in order to replace the old stock.

4.22 Appropriate Technology Unit (ATU). The ADBN has been successfully operating three Appropriate Technology Units (ATU) in three different areas in Nepal with the purpose of field testing and disseminating technologies that would make the most use of available natural resources in the rural areas. Its current activities cover such diverse fields as development of small water turbines for grain milling and power generation (2-4 kw units), bio-gas plants for fuel and light, wood-saving stoves, beehives, solar dryers, pedal pumps for irrigation, etc. The proposed project would provide funds to ADBN for establishing and operating an Appropriate Technology Unit at Trishuli (or at any other suitable place in the project area). The work program of the Unit would be developed in consultation with the Project Coordination Unit (para 6.03). Details are given in Annex 2, Table 4.

4.23 Strengthening of Regional Offices. In order to ensure effective technical support to and supervision of the district offices, the project would provide funds for strengthening the Central Regional Offices of the Departments of Agriculture (DOA), Livestock Development and Animal Health (DLAH) and Irrigation (DIHM). Funds provided would cover incremental staff salaries and allowances, essential vehicles, equipment and furniture.

Forestry, Soil Conservation and Watershed Management. (Total outlay of US\$2.4 M; 14% of base costs)

4.24 Forestry Plantation and Management. To promote afforestation, the project would (i) establish and maintain 3,000 ha Panchayat Forests (PF), 250 ha of Leasehold Forests (LHF), private/homestead plantings on 500 ha and public plantings on 1,000 ha; (ii) protect and maintain 3,000 ha of degraded forests as Panchayat Protected Forests (PPF); (iii) promote the usage fuel saving stoves; (iv) carry out enrichment planting on and protection of 1,200 ha of public forests; (v) construct demarcation on 375 km; and (vi) maintain some 750 ha of RD I project plantings. Funds provided would cover the following: (i) direct costs of plantation

development, i.e., cost of raising seedlings, labor for planting, initial maintenance, guarding; (ii) construction of new office buildings, expansion/remodelling/completion of existing ones; (iii) purchase of vehicles, motorcycles, survey equipment and planting tools; and (iv) incremental staff salaries and allowances.

4.25 Seedlings (approximately 16 M) would be raised on the existing central nurseries (5 in operation) and on smaller nurseries to be established on suitable locations based on plantation sites. Development of private/panchayat nurseries would be promoted through supply of polybags, seeds, root stocks and technical advice. At least 30% of the seedlings raised would be of fodder species. Training on forest development, protection, and utilization would be organized for school students, teachers, panchayat leaders and others. Such training would be practically oriented, simple and would emphasize dissemination of knowledge on forest maintenance, protection, suitability of various plant species under the respective ecological conditions.

4.26 Trees planted in PF would be mainly species suitable for fuelwood production and preference would be given to faster growing species. Fodder grasses and legumes would be produced in PF, usually from indigenous species naturally regenerating, but high yielding species would also be undersown, depending on the availability of seeds. All seed would be provided through the DFO, who would either arrange for its collection from trees locally or would obtain it from seed stores maintained by the Community Forestry and Afforestation Division (CFAD) of the Ministry of Forests. Development of LHF would be on a pilot basis. Each participating panchayat would be leased about 20 h. of public land for planting, primarily with fodder tree and herbaceous fodder plants and grasses. Planting on private lands would be implemented through provision of seedlings and technical advice. Species planted would primarily be fruit and fodder trees. Project objective would be to cover some 50% of all households in the project area. Finally, some 1,000 ha of public lands would be reforested by DFO through hired labor and would include areas which, due to topography and location reasons, would not be suitable for development through community participation.

4.27 Forest Management and Protection. Activities under this component would include rehabilitation of degraded forests (protection, regeneration and enrichment planting) through establishment of PPF (covering areas that are close to villages and which could be restored by simple protection and enrichment planting), demarcation, and enrichment planting by the DFOs. Most remnant forests vary in location, species content and condition and, therefore, management practices would vary. On an average, however, a 10% new planting would be required in these areas although in some, such as Sal forests at lower attitudes, a substantial coppice crop could be obtained only through protection measures.

4.28 Implementation. In implementing the aforementioned programs, the following procedures, which are being followed at present in respect of other community forestry programs, including the IDA-financed Community Forestry Development Project (Cr. 1008-NEP), would be adopted. Village panchayats would prepare proposals for participation in PF, PPF, and LHF, which would be approved by the respective district panchayats and the DFOs. Once land had been declared legally unencumbered, areas to be planted/protected would then be identified and demarcated by agreement among village panchayats, Forest Department and the Land Survey Department, or according to land ownership records. In accordance with the forest rules, a Forest Management Plan providing guidelines for plantation management, protection and distribution of produce, would then be prepared and formal agreements between the participating panchayats and the DFO negotiated and executed. Assurances were obtained during negotiations that HMG/N would (a) provide the participating panchayats legally unencumbered lands for the development of Panchayat Forests, Panchayat Protected Forests and Leasehold Forests, by December 31 of each calendar year of the project implementation period commencing on December 31, 1986; and (b) prepare and furnish to the IDA by July 31, 1987, for its approval, draft Forest Management Plans providing guidelines to District Panchayats in the project area for the protection and maintenance of forest plantations and distribution of produce.

4.29 Soil Conservation and Watershed Management. The proposed project would implement a program for (i) protecting 500 ha of upper catchments and minor watersheds of the Tadi, Likhu and Samarikhola through conservation of natural vegetation and construction of structures at strategic places; (ii) intensive watershed conservation on some 470 ha covering highly degraded minor watersheds, drinking water and irrigation sources; (iii) rehabilitation of 500 ha of erosion prone areas designed to protect agricultural lands, settlements, major roads/hydro schemes/canals and other infrastructure; and (v) strengthening of conservation education, extension and training. Demonstration aspects of all departmentally implemented conservation works, greater dependence on curative measures and biological control and coordinated program development with the forestry, roads, irrigation, MPLD and other relevant departments would be the basic strategy for implementing this component. Funds provided under the project would cover the costs of civil works (for soil conservation, offices, staff quarters etc.), salaries and allowances for incremental staff, costs of raising seedlings, purchase of vehicles and equipment and maintenance and operating costs.

4.30 HMG/N with assistance from the FAO made an assessment of the watershed condition of the project area, including general indications for

priority action, in 1983. ^{1/} During the first year of the project, a semi-detailed watershed management plan would be prepared by the planning wing of the Department of Soil Conservation based on the above study and other pertinent information. The plan would identify, on the basis of bio-physical status, priority areas for soil conservation and provide preliminary estimates. Schemes for implementation under the project would then be selected based on factors such as cost effectiveness of individual schemes, the urgency of intervention, number and type of beneficiaries, the extent of local contribution and land availability. An assurance was obtained during negotiations that a semi-detailed watershed management plan for implementing the soil conservation works in the project area would be prepared and submitted to IDA for its approval by September 30, 1987.

Rural Infrastructure Development (Total outlay of US\$2.4 M; 14% of base costs)

4.31 Village Drinking Water Supply. Under RD I, 133 drinking water schemes were started of which 105 were completed. In order to ensure maximum benefit from previous investments, priority would, therefore, be given to the completion of schemes that were unfinished or are in need of rehabilitation. A total of 56 such systems (Rasuwa 24, Nuwakot 32), including one in the Dhunche district HQ, would be included for completion/rehabilitation. On average, such work would cost about NRs 60,000 per scheme. In addition, the project would construct and maintain 45 new systems (Rasuwa 15, Nuwakot 30). A typical village water supply system would be normally gravity fed and cost about NRs 190,000 and would serve about 125 households. New drinking water schemes would be constructed only in those panchayats where previous schemes have been completed and are adequately maintained by the panchayats/users. Selection and ranking of schemes for implementation would be determined by the district panchayat based on proposals made by village panchayats and based on further investigation by DTOs. Selected schemes would be finally designed and costed by DTOs who would also supervise construction and provide the skilled labor input. In properly designed and constructed systems the maintenance requirements would be limited to periodic cleaning of reservoir and break-pressure tanks and intakes. The necessary labor input for such maintenance, including regular inspection, would be the responsibilities of the Panchayats/User groups. More complicated repairs and those requiring new parts would usually be beyond the local capabilities and would be done through assistance by DTO, with likely financial support from the DP. The project would strengthen the maintenance capabilities of

^{1/} A Watershed Management Plan for the Trishuli Watershed; FAO/HMGN, 1983.

the respective DTOs (para 6.05) and also provide training to villagers on routine maintenance and repair of these installations.

4.32 Suspension Bridges. Under RD I, 8 suspension bridges and 39 small wooden bridges were constructed. The program generated substantial socio-economic benefits and the proposed project would further expand and consolidate this program. Funds would be provided for the rehabilitation of some 20 bridges, which have been damaged primarily because of natural causes (land slides, scouring of foundations) and to some extent by inadequate preventive maintenance; construction of 18 new ones (9 in each of the two districts) and; maintenance of the new ones constructed during project implementation. During appraisal, a tentative list of existing bridges for rehabilitation and sites for the new ones prepared on the recommendations from the various village panchayats was agreed upon. These would be finalized in consultation with the panchayats during project implementation. The Suspension Bridge Division (SBD) of MPLD and the PCU would provide technical guidance and supervision to the respective DTOs in respect of finalization of sites, designs, specifications and estimates. Standard designs and specifications have been developed in the course of implementation of RD I and only simple modifications and surveys would be required to suit specific site needs.

4.33 Motorable Track Development. The project would rehabilitate the Sera-Chahare (10 km), Chaughada-Apraha (6 km), Trishuli-Samari (4 km) motorable tracks and finance the completion/rehabilitation of the Betrawati-Pairabesi (4 km), and Labdhu-Kharenitar (8 km) tracks. Rehabilitation would include the repair of flood or traffic-damaged structures, provision of culverts for irrigation canal crossings, landslide protection, drainage works, surface grading and widening where necessary. Additionally, the project would construct the following new tracks: (i) Dhaibung-Jibjibe in Rasuwa (3 km); (ii) Trishuli-Deorali in Nuwakot (10 km); and (iii) Dhunche Service road in Rasuwa (1 km). The first two of these would connect important agricultural production areas to the existing district road network, thereby serving as outlet for substantial quantities of agricultural produce as well as transport of inputs and building materials and other goods and services. Dhunche service road would connect important project-related offices and a dispensary to the new district road. All tracks would be constructed to truckable standards and would have at least 4 m width and a gradient not exceeding 10%. Appropriate slope stabilizations, retaining walls and other protection structures would also be provided. Survey, design, supervision, construction and provision of special equipment such as rock drills, compaction rollers, as well as blasting material, gabion wire, hume pipe and other materials would be the responsibility of DTOs.

Institutional Development and Implementation Support (Total outlay of US\$2.2 M; 12% of base costs)

4.34 In addition to strengthening of the participating line departments (Agriculture, Livestock, Irrigation, Forestry and Soil Conservation), the proposed project would provide funding for incremental technical, managerial, financial and other staff, as required, for the Local Development Offices and the District Technical Offices of the two project districts. Appropriate technical assistance (para 4.35) and training would be provided to improve staff capabilities and also to streamline operational methods and procedures. The assistance would support HMG/N in its current program for decentralization of administration at the district level (para 2.16). In addition to these, the project would provide funds for continuing the operation of the Project Coordination Unit (PCU; para 6.03), which was established during the RD I project and which would be responsible for assisting the district level entities in the implementation of the proposed project. Funds provided would cover (i) salaries of the incremental professional, technical and support staff; (ii) purchase of essential equipment, vehicles, furniture; (iii) construction of offices, residences; and (iv) operating and maintenance costs.

Technical Assistance, Overseas Training and Studies (Total outlay of US\$1.8 M; 10% of base costs)

4.35 The project would provide funds for 8 manyears of senior specialist staff/consultants (both resident and visiting) and 38 manyears of mid-level professionals (international volunteers) to assist in project implementation where expertise would not be locally available and/or trained manpower is in short supply. Volunteers from a number of agencies such as the Peace Corps, the VSO, IVS and the UN are already involved in a number of externally funded HMG/N projects in Nepal, and with satisfactory results. Preferably, TA staff would be made available during the first four years of project implementation and would be attached to the PCO. HMG/N would ensure that adequately qualified Nepali staff would be posted to counterpart positions, and who would take over from the T.A. staff at the end of their respective tenures. International volunteers would be given specific assignments, most of which would involve working closely with field level officials in line agencies or District Panchayat offices. Details are in Annex 2, Table 5.

4.36 The following TA staff requirements were identified at appraisal and agreed with HMG/N during negotiations: (a) Senior Specialists: Planning Monitoring and Evaluation Advisor--39 mm; Civil/Irrigation Engineer--39 mm; (b) Short-term Consultants: training, adaptive research, water management, vocational training--6 mm; financial management and accounting--14 mm; (c) International Volunteers: Planning aides--75 mm; Agronommist/Adaptive Research--72 mm; Vocational Trainer--72 mm; Silvi-pasture/Fodder Specialist--72 mm; Sub-engineers/Overseers--160 mm.

Terms of reference for the above TA personnel have been prepared and were agreed with HMG/N during negotiations.

4.37 Funds would be provided for short-term overseas training of key management and technical staff, including 4 Local Development Officers (LDOs), 4 Planning Officers and 2 Engineering staff. Trainees would be sent to attend structured and formal courses/programs at appropriate overseas institutions, although up to 10% of total funds for overseas training would be available for short-term familiarization visits. Assurances were obtained during negotiations that (i) trainees for overseas training would be individuals with experience and qualifications satisfactory to IDA; (ii) trainees would be trained in institutions and programs acceptable to IDA; and (iii) upon completion of the training, the returnees would be provided with adequate jobs to serve for at least five years in rural development projects in Nepal.

4.38 Funds would be provided for undertaking studies designed to identify key project/sector related issues (socio-economic, organizational, technical, financial), as well as to generate information on the impact of the project in relation to its objectives. Except for the mid-term review, most of the studies would be micro-level investigations covering topics such as (i) farmers' response to agricultural support services. (ii) changing cropping patterns, yields, farm income in the irrigated and non-irrigated areas; (iii) field level implementation constraints; (iv) nature of employment generation by project works; (v) constraints to adoption of new technology. In addition to these, a review of HMGN's cost recovery and input pricing and distribution policies would also be made (para 5.12).

V. PROJECT COSTS, FINANCING, PROCUREMENT AND DISBURSEMENT

Project Costs and Financing

5.01 Total project costs based on February 1985 prices and updated to reflect November 1985 prices and an eight year implementation period are estimated at NRs 423 M (US\$23.5 M), including price and physical contingencies (US\$5.7 M) and a negligible amount of taxes and duties (US\$0.2 M). The foreign expenditure component is estimated at US\$8.6 M, equivalent to about 37% of total project costs. Details, summarized below, are in Annex 3, Tables 1 & 2 and in Project File C.1.

Table 5.01: SUMMARY OF PROJECT COST (BY COMPONENTS)

	(NRs '000)			(US\$ '000)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
A. AGRICULTURAL DEVELOPMENT								
1. STRENGTHENING EXTENSION SERVICES	16,110.5	4,206.3	20,316.7	895.0	233.7	1,128.7	21	6
2. TRAINING	11,311.3	1,631.4	12,942.6	428.4	91.9	520.3	13	4
3. IRRIGATION	43,126.0	21,235.0	64,361.0	2,395.9	1,179.7	3,575.6	33	20
4. AGRICULTURE AND HORTICULTURE FARMS	6,636.4	3,153.6	9,790.0	369.8	175.2	545.0	32	3
5. LIVESTOCK DEVELOPMENT	12,375.3	3,614.8	15,990.0	487.5	200.8	688.3	23	5
6. AGRICULTURAL CREDIT	11,661.5	-	11,661.5	647.9	-	647.9	-	4
7. AGRICULTURAL INPUTS	3,660.4	18,618.8	22,279.2	203.4	1,034.4	1,237.7	84	7
8. ON - FARM ADAPTIVE RESEARCH	1,580.0	1,197.8	2,777.8	87.8	66.5	154.3	43	1
9. APPROPRIATE TECHNOLOGY UNIT	1,680.0	245.0	1,925.0	93.3	13.6	106.9	13	1
Sub-Total AGRICULTURAL DEVELOPMENT	108,161.3	33,926.3	142,087.6	6,009.0	2,995.8	9,004.8	33	30
B. RURAL INFRASTRUCTURE, DRINKING WATER SUPPLY, BRIDGES, ROADS								
C. FORESTRY, SOIL CONSERVATION AND WATER MANAGEMENT								
1. FOREST PLANTATION AND COMMUNITY FOREST DEVELOPMENT	29,118.7	2,445.1	31,563.7	1,617.7	135.8	1,753.5	8	10
2. SOIL CONSERVATION	9,054.6	3,473.9	12,528.5	503.0	193.0	696.0	28	4
Sub-Total FORESTRY, SOIL CONSERVATION AND WATER MANAGEMENT	38,173.3	5,919.0	44,092.2	2,120.7	328.8	2,449.6	13	14
D. IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT								
1. STRENGTHENING OF DTD	8,239.1	4,311.8	12,550.9	457.7	239.5	697.3	34	4
2. STRENGTHENING OF LDO	5,634.5	3,334.2	8,970.7	313.0	185.3	498.4	37	3
3. COORDINATORS OFFICE	6,701.3	2,698.1	9,399.4	372.3	149.9	522.2	29	3
4. STRENGTHENING OF DDM	4,816.0	1,676.5	6,492.5	267.6	93.1	360.7	26	2
5. STRENGTHENING OF DOA	814.5	502.5	1,317.0	45.3	27.9	73.2	38	0
6. TECHNICAL ASSISTANCE, OVERSEAS TRAINING AND STUDIES	4,440.0	27,920.0	32,360.0	246.7	1,531.1	1,777.8	86	10
Sub-Total IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT	30,645.4	40,445.1	71,090.5	1,702.5	2,246.9	3,949.5	57	22
Total BASELINE COSTS	205,483.4	115,636.6	321,120.0	11,415.7	6,424.3	17,840.0	36	100
Physical Contingencies	9,540.2	6,661.7	16,201.9	530.0	370.1	900.1	41	5
Price Contingencies	53,297.3	32,878.0	86,175.3	2,961.0	1,826.6	4,787.5	38	27
Total PROJECT COSTS	268,321.0	155,176.2	423,497.2	14,906.7	8,620.9	23,527.6	37	132

5.02 Physical contingencies (US\$0.90 M) were estimated at 7% for civil works and 5% for other expenditures (excluding salaries, wages and allowances). Prices Contingencies (US\$4.8 M) are about 27% of base costs and reflect expected inflation rates which currently are estimated to be as follows: 1986-87:7.0%; 1987-88: 7.3%; 1988-89 to 1989-90: 7.6%; 1990-91: 6.0%; 1991-92 to 1992-93: 4.5% 1/

5.03 The proposed IDA credit of US\$19.1 M would be to HMG/N on standard terms and conditions and would cover 81% of total project costs (74% of local and 93% of foreign costs). UNDP is expected to finance part of the costs of recruiting senior specialist staff, consultants and international volunteers, overseas training and project related studies, amounting to US\$1.1 M, equivalent to about 5% of total project costs, (7% of foreign and 3% of local costs). IDA credit and UNDP grant together would thus finance 86% of total project costs, including 100% of foreign exchange costs (US\$8.6 M) and 78% of local costs. HMG/N contribution would be US\$3.3 M (Rs 59 M), equivalent to 14% of total project costs (including applicable taxes and duties). The signing of the UNDP TA agreement and appointment of an executing agency acceptable to the borrower, UNDP and the Association would be conditions of IDA credit effectiveness. Table 5.02 summarizes the financing plan. Since most of the project beneficiaries would be small farmers producing for subsistence, no cash contribution from them other than the amounts they would be borrowing from ADB/N for crop input, purchase of improved animals for milk, meat, wool and drought power, and for agricultural tool/equipment purchase, would be expected. However, they would make substantial contribution in kind (in the form of family labor) for on-farm development works and O & M of irrigation and physical infrastructure.

Table 5.02: PROPOSED FINANCING PLAN

	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
	-----US\$ M-----		
HMG/N	3.3	-	3.3 (14%)
IDA	11.0	8.1	19.1 (81%)
UNDP	<u>0.5</u>	<u>0.6</u>	<u>1.1</u> (5%)
Total	14.8	8.7	23.5

1/ Calendar year equivalents: 1986 & 1987: 7%; 1988: 7.5%; 1989: 7.7%; 1990: 7.6%; 1991 to 1993: 4.5%.

5.04 Except for ADBN and the AIC, IDA and UNDP funds would be channelled to the participating line ministries through the Ministry of Finance of the HMG/N through the normal budgetary procedures. However, HMG/N would enter into a subsidiary Loan Agreement with ADBN and a Financial Agreement with AIC, with terms and conditions satisfactory to IDA, for providing project funds to these two entities. Execution of the above agreements and its ratification by HMG/N, the ADB and the AIC (as the case may be) would be a condition of disbursement against expenditures incurred by these two agencies in respect of implementation of their respective activities under the project. Assurances were also obtained during negotiations that (a) annual HMG/N budgets would include adequate allocations covering project expenditure in the two districts, and (b) budgetted funds for each trimester would be released by no later than the first fortnight of each trimester. During negotiations it was also agreed that a Special Account in the Nepal Rastra Bank would be opened and maintained by HMG/N on terms and conditions satisfactory to IDA and with in an authorized allocation of an amount equivalent to US\$350,000.

Procurement

5.05 Procurement arrangements are summarized in the table below:

Table 5.03: PROCUREMENT ARRANGEMENTS

<u>Cost</u>	-----US\$ M-----				
	<u>ICB</u>	<u>LCB</u>	<u>Other</u>	<u>NA</u>	<u>Total</u>
Civil Works (including building, irrigation, roads, bridges, drinking water schemes and soil conservation works)		10.0 (9.0)			10.0 (9.0)
Vehicles, Equipment and Furniture	1.1 (1.0)	0.6 (0.6)			1.7 (1.6)
Forestry Development Costs (plantation establishment and maintenance)			2.4 (2.2)		2.4 (2.2)
Breeding Stock			0.15 (0.13)		0.15 (0.13)
Fertilizer and Agrochemicals	1.7 (1.6)				1.7 (1.6)
Feed/Fodder Development, Technology Testing & Materials for Extension & in Service/Farmer Training				1.4 (1.3)	1.4 (1.3)
Agric. Credit				0.9 (0.8)	0.9 (0.8)
Salaries and O&M Costs				3.0 (1.4)	3.0 (1.4)
T.A./Studies/Overseas Training *				2.2 (1.1)	2.2 (1.1)
TOTAL	2.0 (2.6)	10.6 (9.6)	2.5 (2.3)	7.5 (4.6)	23.5 (19.1)

* US\$ 1.1 M to be financed by UNDP.

(Figures in parentheses show the amount to be financed by IDA):

5.06 All civil works (US\$10.0 M) would be simple structures of standardized designs, widely dispersed geographically and over time, thus rendering them unsuitable for International Competitive Bidding (ICB).

Construction of buildings, roads, bridges, drinking water supplies, soil conservation structures and irrigation works would, therefore, be awarded to local contractors following Local Competitive Bidding (LCB) procedures, which were found at appraisal to be satisfactory to IDA. Provided, however, that civil works contracts estimated in the aggregate to cost US\$2.4 M or less may be procured through force account or user groups. However, in order to ensure quality in construction, assurances were obtained during negotiations that all civil works under the project would be undertaken by qualified and experienced contractors registered by the Ministry of Works & Transport of HMG/N, or by bonifide and properly constituted User or Beneficiary Groups. Vehicles, Equipment and Furniture (US\$1.7 M) would be grouped in appropriate bidding packages to facilitate competitive bidding. Procurement would be by ICB in accordance with Bank guidelines, except where individual items are valued at less than US\$30,000 and the total order does not exceed US\$150,000, in which case procurement would be by LCB procedures. Following standard practices, breeding stock (US\$.15 M) would be purchased from local and Indian markets at prevailing market rates and would not be suitable for usual bidding procedures. AIC currently imports fertilizers and agro-chemicals through ICB. Project requirements (US\$1.7 M) would be too small to justify independent importation and therefore as far as practicable these would be bulked with the normal AIC procurement of these commodities. Nearly 50% of the total expenditures for plantation works for forestry and soil conservation (US\$2.4 M) would be for hired labor, 35% for planting materials, and 15% for transportation costs. None of these would be suitable for competitive bidding, and hence these would be procured through contract labor and/or under force account as per schedule of rates annually published by HMG/N and in accordance with procurement procedures satisfactory to the Association. The balance of project costs (US\$7.6 M) would be for staff salaries, vehicle operating and maintenance costs, adaptive research costs, in-country training, agricultural credit, and technical assistance, and overseas training which would not be suitable for any form of competitive bidding.

5.07 Contract Review. Bidding documents, including text of the Invitation To Bid, specifications, procedures for advertisement, draft contract documents and all such other pertinent information would be submitted to IDA for review and comments for civil works contracts costing US\$100,000 or more, and for vehicles, equipment and other goods costing US\$50,000 or more. Prior to award of contract, bid evaluations for such contracts would also be submitted to IDA for its review and concurrence. It is estimated that the total value of procurement under the above would be about US\$2 M and 0.5 M respectively. Contracts below these amounts would be subject to post-award review by IDA.

Disbursements

5.08 Disbursements under the proposed IDA credit would be completed by December 31, 1993, and the proceeds would finance the various categories of expenditure as follows: (a) 90% for civil works (US\$9.0 M); (b) 100% of foreign expenditure for directly imported vehicles, equipment, furniture and construction materials, or 100% of local expenditures (ex-factory costs) and 70% of local expenditures for other items procured locally (US\$1.6 M); (c) incremental staff salaries and allowances, and operating and maintenance costs disbursed at a declining scale of 80% of total expenditures in FY86, FY87, and FY88, 70% in FY89, and FY90, 50% in FY91, 40% in FY92 and 20% in FY93, (US\$1.5 M); (d) 100% of foreign expenditures, 100% of local expenditures (ex-factory costs and local breeding centres, as the case may be) for fertilizer, agrochemicals, agricultural equipment, and breeding stocks and 70% of local expenditures for other items procured locally (US\$1.5 M); (e) 90% of the medium term credit disbursed by ADBN for the livestock and horticulture components, and for operating the project's SFDP programme and the ATU (US\$1.0 M); (f) 90% of total costs for forestry plantation, soil conservation activities, and improved stove programme (US\$1.8 M); (g) 90% of the costs for extension activities, i.e. minikit, demonstration and materials for adaptive research and the costs of in-country training of farmers, extension workers and other project staff (US\$1.2 M); and (h) 100% of total costs for studies, and technical assistance (US\$1.1). The remaining US\$0.4 million would be under the unallocated category of the credit. Disbursements against expenditures for the categories (c), (e), (f), (g) and (h) would be made against certified statements of expenditures, the documentation for which would not be submitted to IDA for review, but would be retained by HMG/N and made available to IDA supervision missions for their review. Disbursement against all other categories would be fully documented. Retroactive financing of up to US\$300,000 would be provided to cover the following expenditures incurred after July 16, 1985: (i) salaries, allowances of incremental staff and other operational costs; (ii) purchase of vehicles, equipment and furniture; (iii) feasibility study and design of irrigation schemes and other civil works; and (iv) staff training.

5.09 Accounts and Audit. Under HMG/N rules, it is the responsibility of the Ministry of Finance to maintain, through the officers of the Financial Comptroller General, all government accounts, while the Auditor General is responsible for auditing of all such accounts. HMG/N seeks to ensure that all accounts are maintained according to sound accounting principles and the scope of the audit is sufficient to evaluate the regularity, propriety, economy, efficiency and effectiveness of public expenditure. However, the performance of HMG/N in respect of the IDA audit and accounting requirements has been weak and in case of most of the projects, the audited accounts have frequently been substantially in arrears. This is partly because expenditures related to IDA-financed projects are audited by the Auditor General as part of the implementing

government department's overall financial records and the Auditor General does not release the full audit report until it is cleared through several steps, including presentation of the main report to the National Panchayat. In order to ensure that covenants related to audit in IDA assisted projects are complied with on time, IDA has been assisting project accounting staff in preparing separate project accounts in such detail as required for audit, soon after the end of each fiscal year, and presenting these to the Auditor General. IDA has also proposed the format and content of the auditors report on such accounts which can be completed and forwarded to IDA without waiting for the full audit report of the concerned department's overall annual financial accounts. Similar procedures are being instituted for a separate annual audit of all withdrawal applications based on Statement of Expenditures (SOEs). Assurances were obtained during negotiations that HMG/N would cause the participating line departments, the AIC and ADB/N. (i) to maintain separate records and accounts for all project expenditures in accordance with sound accounting principles, (ii) to have such accounts audited by an independent auditor acceptable to IDA, in accordance with sound auditing principles, (iii) forward to IDA, such accounts together with certified copies of the Auditor's reports on such detail as shall be requested by IDA, within nine months after the end of each fiscal year; (iv) to include in the annual audit reports, submitted to IDA, a separate opinion from the Auditor as to whether the disbursements made on the basis of SOEs were in respect of goods and services received and incurred for the purposes of the project. The project would provide additional staff and in-service training to existing accounting staff in the two project districts to improve financial management.

Fiscal Impact and Cost Recovery

5.10 Fiscal impact. Since the beginning of the 80's, Nepal has been experiencing an unfavorable budgetary situation with deficits running between 11%-12% of GDP. Nepal is consequently faced with the problem of maintaining a reasonable level of development expenditures while reducing the growth of regular expenditures, and at the same time, increasing mobilization of public resources. During project implementation, HMG/N would be required to provide, on an average, about NRS 8.0 M annually as incremental local funds, equivalent to less than one tenth of one percent of current levels of regular public expenditures and revenues, respectively. During the post-project phase, after eight years of project implementation, the average annual recurrent cost for maintaining project related services and O&M costs for the physical infrastructure would amount to about NRS 7 M. This level of incremental public expenditure would be justified in view of the project's expected contribution to improving agricultural productivity, employment and rural income of the poor and in preventing further deterioration of the environment in the project areas. However, it is expected that during implementation efforts would be made by the government to keep overall incremental salary and

wage costs at a minimum by giving priority to redeployment/reallocation of existing personnel in meeting the project's incremental staff requirements. Secondly, steps for mobilization of resources at the panchayat/village levels would also be intensified in order to reduce the O&M burdens of the public sector. Furthermore, dialogue with HMG/N on the broader issues relevant to national policies cost recovery policies, input and price subsidies would be initiated during the implementation of the project (paras 5.11-5.12).

5.11 Cost Recovery. The stated objective of HMG/N is to generate increased amounts of financial resources at the local levels with a view to ploughing those back into the local economies, either for new investments or for operation and maintenance of physical infrastructure. Consequently, there is provision for levying irrigation water charges (currently fixed at about NRs 62 per ha per crop for the hill and small irrigation schemes, and NRs 100 per ha per crop in the larger command areas). The District Panchayats are also empowered, under the decentralization by-laws, to collect tolls on roads, bridges, irrigation canals etc. Notwithstanding the above, cost recovery measures are not diligently enforced; the underlying principles, policies and guidelines for the levy and collection of relevant charges are ambiguous and often conflicting. The current levels of irrigation water charges were established in 1975 and the rates do not recover the operation and maintenance costs. Moreover, only small amounts are collected, and the system is not flexible enough to take into account unforeseen circumstances such as land slides, drought, power failure, etc.

5.12 Broad issues such as collection of water charges, beneficiary and user taxes, and input subsidies need to be addressed and resolved at the national policy level. Nevertheless, the proposed project, while promoting development of cost recovery in the first instance relevant to the project area and designed to generate sufficient local resources and beneficiary participation for the operation and maintenance of the irrigation systems, drinking water supply, roads, bridges and other physical infrastructure, would also initiate dialogue with HMG/N on the broader policy issues. During negotiations IDA and the HMG/N delegation reached agreement on the need for formulating and implementing more broadly appropriate national policies and methods for cost recovery and reduction of input subsidies. Assurances were obtained that (i) by September 30, 1987, HMG/N would, in accordance with terms of reference acceptable to IDA, complete a review of its cost recovery policies (i.e. water charges on small and medium irrigation schemes, benefit taxes on rural infrastructure) and input subsidies, and furnish the findings and recommendations of the review to IDA for its comments; and (ii) by December 31, 1987, prepare and furnish to IDA, on the basis of the above study and taking into account IDA's comments, detailed proposals and an action plan, including guidelines, principles, policies and implementation schedules, for establishing irrigation water charges, benefit taxes and for phased elimination

of farm input subsidies as well as for the development of broader channels of input supplies.

VI. PROJECT ORGANIZATION AND IMPLEMENTATION

Broad Framework

6.01 The Decentralization Act of 1982 and the Decentralization Rules and Regulations of 1984, which became effective from July 1985, provide an institutional framework and working procedures for peoples' participation (through village, town and district panchayats) in the planning and implementation of development activities, and for coordination of these activities at the district level. Implementation of the Act should, in principle, overcome many of the organizational weaknesses impeding effective rural development. Therefore, the organizational framework and implementation arrangements recommended for the proposed project are essentially in line with the provisions of the Decentralization Act and Rules.

6.02 The proposed project would be implemented by the relevant line departments and agencies operating at District and Sub-District levels under the overall guidance and supervision of the District Panchayat (DP). The central and regional head offices of the respective line ministries would provide technical supervision (in regard to programming, budgeting and implementation) and exercise control over fund release. Within the two project Districts, the LDO, as DP Secretary, would have overall responsibility for coordinating both planning and implementation, with support and policy guidance provided by a Project Coordinator's Office (PCO), acting as the field arm of the MPLD and the Integrated Rural Development Board (IRDB).

The Project Coordinator's Office (PCO)

6.03 PCO established under the RD I project would be strengthened for providing overall coordination, supervision, monitoring/evaluation and implementation support to the district line agencies. PCO would be headed by a Project Coordinator (PC) of confirmed Class I status and be located at Betrawati, in Rasuwa District. ^{1/} The project coordinator would have no direct administrative control over the LDOs or any of the other line department officials at the project districts; nevertheless, he would have considerable influence on them through his participation in the District Plan Formulation and the District Supervision Committees established under

^{1/} A Project Coordinator of the required qualifications has already been appointed.

the Decentralization Act (para 6.04). PCU would have the following functions: (a) Planning: to assist in developing district-level planning capabilities and to ensure that all project activities are incorporated in the District Annual Plan (DAP) for each district; (b) Monitoring: to help establish a system for physical and financial monitoring within each district and its effective use for management purposes and to prepare annual progress reports; (c) Evaluation: to help DP conduct routine crop and household surveys and ad hoc surveys of project components and areas according to sound evaluation principles (para 4.38); (d) Training: to help provide in-service, job-related training, designed in accordance with principles of skills-gap analysis, model training programs and materials, and to assist project agencies in organizing appropriate training; (e) Supervision: to ensure quality control of rural works under the project, including certification of major works (para 5.06), and field visits by multi-disciplinary, District Supervision Committees and other teams to review progress and problems. (f) Liaison: to establish effective working relationships with all project agencies, their respective central and regional offices and with IDA (for preparation and submission of reimbursement claims and progress reports) and to effect inter-district coordination, as required.

6.04 PCO would be organized into seven sections, namely: (a) Coordinator's Office, (b) Financial Management, (c) Planning, Monitoring and Evaluation, (d) Training and Communications, (e) Engineering Services, (f) Administration, (g) Kathmandu Liaison Office. All except (e) and (g) would be headed by a Gazetted class III/NT official. The Engineering Services Section would be headed by a Divisional Engineer (G/II/T officer) and the Liaison Office by an NG/I/NT officer (details are presented in Annex 3, Table 4). A condition of IDA credit effectiveness would be that the Project Coordinator's Office established during RDI would be reorganized in a manner satisfactory to the IDA and would be assigned with adequate powers functions, funds and staffing as would be necessary to ensure its effectiveness. Assurances were also obtained during negotiations that (i) the head of the PCO (Project Coordinator) would at all times be an Officer of HMG/N with qualifications and experience satisfactory to IDA, and that the PC shall, at all times, be assigned with such powers, functions, responsibilities, funds and staffing as shall be required for achieving its purposes; and (ii) the Project Coordinator would actively participate in the meetings and deliberations of the District Plan Formulation and District Supervision Committees of the District Panchayats in the project area.

Reorganization of the DTO

6.05 The DTOs of the two districts would be reorganized into three functionally separate sections: (i) civil works (bridges, tracks, buildings); (ii) minor irrigation and drinking water supply; and (iii) operation and maintenance. These technical sections would be supported by an

administration section and an accounts section and a drawing/record keeping office. Each technical section of the DTO would be headed by an engineer, except for the maintenance section in Rasuwa which would be headed by senior overseer for the time being. The most senior of the engineers in the DTO would be designated as the officer-in-charge. However, overall technical supervision of the DTOs would be provided by the Divisional engineer in the PCU, who would also be assisted by the engineering adviser provided under the TA program. The operation and maintenance program would be implemented in collaboration with the maintenance teams (brigades) to be formed at the various panchayats (para 6.07). These were agreed with MPLD during appraisal.

Village Panchayats and Users' Groups

6.06 In line with provisions of the Decentralization Act and Rules, greater use of these entities would be made for planning, supervision and implementation of project activities at the local level, as well as for operation and maintenance of physical infrastructure. The VPs would be responsible for identifying and prioritizing development schemes in their respective areas, estimating total resource requirements and mobilizing local resource contributions. Wherever possible, User Groups would be formed and they would assist the VPs in the above activities. The respective District Panchayats, with the help of the two districts' planning, engineering, financial and other relevant staff would provide the required assistance to the VPs/user groups in these matters.

Trained Manpower and Project Staffing

6.07 The availability of trained agricultural staff, both for officers and JT/JTA level staff, has increased substantially during the last two decades. Currently available trained agricultural staff is estimated at some 1,650 officers and over 5,000 JT/JTAs, compared to 770 officers and 2,450 JT/JATs in 1980 and 56 officers and 214 JTs in the year 1962. Institutional capacity for formal, in-service and non-formal training in different areas of agricultural expertise has also increased, and at present the total output of diploma and certificate level graduates are estimated at 150 and 800 (450 JTAs and 350 JTs) per annum, respectively. Notwithstanding these impressive gains, implementation of agricultural/rural development projects in Nepal has suffered due to delays in the deployment of incremental project staff and, more importantly, because of the low productivity and motivation among a good many of the available staff (arising from unsatisfactory quality and content of pre- and in-service training, low levels of salaries, allowances, benefits and performance incentives, and inadequacies in the administrative and operational environment). HMG/N, however, is fully aware of these problems and recently has taken a number of steps to meet the short-term requirements of the externally funded projects as well as to bring about long-term improvements. These include (i) creation of a special pool of staff at

the central level to be made available to projects; (ii) implementation of a number of programs, including an IDA financed Agricultural Manpower Development project, for increasing the quality and relevance of training in the existing institutes; and (iii) intensification of overseas training program for higher level technical and management staff with bilateral assistance (currently about 50 overseas trained staff return to Nepal annually). Furthermore, recently IDA has completed a comprehensive review of the public administration improvement and training needs based on which HMG/N is expected to embark on a major programme for enhancing the quality and number of trained manpower in the coming years.

6.08 Project incremental staff requirements are shown in Annex 3, Table 5. During appraisal HMG/N agreed to provide project requirement of staff on a priority basis, starting with filling up of the existing vacancies in the established posts in the two project districts. It was also agreed that in meeting the project's incremental staff requirements, priority would be given to reallocation of existing staff within the respective ministries, particularly those that are found to be non-optimally utilized in their current assignments. The balance of the requirements would be met through new recruitment. The staff training facilities and programs initiated in the first phase of the project would be further improved and strengthened to improve the productivity and performance of lower and mid-level staff (para 6.09). The provision of technical assistance staff including international volunteers would also contribute in these respects. Assurances were obtained during negotiations that (i) key project staff in the two districts and in the PCO would be appointed, deployed and maintained in a manner that shall contribute to timely implementation of the project and achievement of the objectives; 1/ (ii) the LDOs in the two project districts would be at least confirmed Class II Gazetted Officers with other qualifications and experience satisfactory to IDA; and (iii) incremental posts created under the proposed project and determined during the mid-term review (para 6.12) to be essential for post-project development in the two project districts would be absorbed in the regular budget of the HMG/N beginning its 1990-91 fiscal year.

Staff Development

6.09 Under the proposed project, the following training would be provided at the following levels:

1/ HMG/N staff are normally required to serve in one particular assignment for at least 466 working days. During negotiations it was understood that stricter adherence to this provision in respect of project staff would be expected.

- (a) Agency Level: Routine, mainly technical, job-related training, particularly to enable junior staff (e.g., JTA, AA and overseers) to deliver effective services to farmers and villagers;
- (b) District Level: (i) Short-term courses, seminars and workshops for officials involved in project activities (e.g., monitoring, evaluation, accounting, organization and effective use of training). These would be organized either by the LDO's office (Training Section) or by PCU. Use would be made both of their own manpower or of consultants as resource persons to give the training; (ii) Seminars and workshops for peoples' representatives and officials together about the project and various aspects of the main processes, such as planning, supervision, organizing rural works using voluntary labor and organizing operation and maintenance of rural facilities. Some of these deliberations would be conducted at village level and the VP Secretaries would be expected to play an organizing and training role.
- (c) Central Level: Short-term courses, seminars and workshops for officials and panchayat leaders on more technically advanced aspects of project planning and implementation.
- (d) Overseas: Medium duration courses for senior officials to upgrade basic skills where suitable courses are not available in the country. Such training could be in collaboration with Nepali institutions.

Monitoring and Reporting

6.10 Project monitoring would be based on trimesterly reports prepared by project agencies in accordance with a system, including formats, approved by IRDB/PCU and acceptable to IDA. The system to be used would closely follow the proposals of the MPLD's IRDP Monitoring Task Force, but modified in the light of the Decentralization Rules and in order to generate more meaningful information for project management. The LDO office with the help of PCU, would organize training courses for the planning and monitoring staff of project agencies to facilitate the introduction of the system. Each LDO's office would have a team of two supervisors and 13 enumerators within its planning section, (8 in Nuwakot and 5 in Rasuwa) who would be responsible for conducting monitoring surveys. The LDOs would have responsibility for consolidating reports at the District level. PCU would provide help to agencies, as necessary, to ensure accurate completion and timely submission of reports. PCU would also check and consolidate agency reports from both Districts and submit them to MPLD, NPC, IDA and other project agencies.

6.11 PCU staff to be engaged, part time, on evaluation would be the Planning Officer, 2 Research Assistants (for field visits) and the Planning, Monitoring and Evaluation Advisor. PCU would also: (i) provide operational guidance to LDO staff; (ii) provide supervisor and enumerator training; (iii) prepare terms of reference for evaluation studies/surveys (para 4.38); and (iv) undertake technical reviews of draft reports and organize seminars/workshops to discuss the findings of evaluation surveys.

6.12 Assurances were obtained during negotiations that (i) HMG/N shall carry out a mid-term review of project implementation, the terms of reference of which would be submitted to IDA for its approval by January 31, 1989; and (ii) the review would be completed and its findings furnished to IDA by December 31, 1989.

Status of Preparation

6.13 All implementing agencies are established regular departments of HMG/N and the only ad-hoc body, the Project Coordination Unit, has been in existence since the implementation of RD I. While there are some vacancies in the mid-level positions, all project entities have the required staff to implement the first year's program and prepare for the subsequent years. Adequate financial provisions have also been made in the 1986-87 budget of the government. For the larger irrigation schemes, preliminary design, surveys and cost estimates have been prepared. For other civil works, i.e., bridges, minor irrigation schemes, drinking water supply, etc., the standard design and estimates based on the implementation of such works during the Phase I project are available. UNDP project document covering the Technical Assistance, overseas training and studies component has been drafted. TORs for Technical Assistance staff have also been drafted and were reviewed with HMG/N during negotiations. Institutions for overseas training of Nepalese staff have also been tentatively identified.

VII. PRODUCTION, YIELDS, FARM INCOME AND COST RECOVERY

Sources of Increased Production

7.01 The proposed project would bring an additional 2,000 ha of currently rainfed (or partially irrigated) crop lands under irrigation, improve productivity on some 8,000 ha of existing irrigated areas through better water utilization and higher cropping intensity, and improve cropping practices on some 15,000 ha of rainfed areas (para 7.02). In the newly irrigated areas, rainfed maize and millet would be gradually replaced by more profitable paddy and wheat grown under irrigated conditions. Some increases in the net cropped area in the existing irrigated areas are also expected.

7.02 Current and projected per ha yield increases under the project are summarized in Table 7.01 below. Incremental yields on newly irrigated lands are expected to be substantial but only modest increases would be possible on currently irrigated areas because yields on those areas are already quite high. It has been assumed that on irrigated lands, roughly 10 kg output increase per 1 kg of additional nutrient would be achieved. Although the potential for increasing crop production in the rainfed areas in the two project districts is relatively limited compared to the irrigated areas, the current levels of production of rainfed paddy, wheat and maize would be increased with the use of available improved varieties, moderate increases in the use of chemical fertilizer, better composted farm manure and improved husbandry practices.

Table 7.01: PRESENT AND PROJECTED CROPS YIELDS PER HA

<u>Crop</u>	<u>Present</u>		<u>With Project at Full Development *</u>	
	<u>Irrigated</u>	<u>Rainfed</u>	<u>Irrigated</u>	<u>Rainfed</u>
Early Paddy	2.9	-	3.5 (21%)	
Monsoon Paddy	2.2	1.7	3.0 (36%)	2.0 (18%)
Maize	1.5	1.2	2.0 (33%)	1.6 (33%)
Wheat	1.5	1.0	2.0 (33%)	1.5 (50%)
Pulses/oilseeds	0.7	0.5	0.8 (14%)	0.5 (0)
Millet	-	0.9	-	0.9 (0)
Potato	7.0	-	7.5 (7%)	-

* % increase in parenthesis. Full development yields would occur in the 3rd year of a farmer's participation.

7.03 Overall Incremental Production. Based on the yield assumption in Table 7.01 above, the incremental production of various crops is estimated as follows:

Table 7.02: OVERALL INCREMENTAL CROP PRODUCTION

Crop	Irrigated Crops		Rainfed Crop Development	Total
	Rehab. & New Schemes	Intensification Existing Areas		
----- (tons) -----				
Paddy	6,030	6,920	1,050	14,000
Wheat	1,700	1,250	675	3,625
Maize	(670)	280	4,800	4,410
Millet	(720)	-	-	(720)
Pulses/Oil Seeds	110	-	-	110
Net Incremental	6,450	8,450	6,525	21,425

7.04 Orchard Development. Expected production benefits from the development of temperate fruit orchards have not been quantified because the program would be experimental and on a pilot scale. Fruit production from the proposed development of tropical/sub-tropical fruit orchards has been estimated by using a 0.5 ha mango orchard model, some 60 of which would be established under the proposed project. 1/ Overall incremental production is expected to reach full development in the project year 18, producing about 250 tons of fresh fruit (mango) (also see para 7.08). There would be, however, about 65 tons of annual reduction of maize and millet production, as the orchards would be established by converting about 35 ha of crop land.

7.05 Forest Products. The main forestry produce that would result from project's new plantation (4,750 ha), enrichment planting (1,200 ha), and maintenance and protection of degraded forests (3,000 ha) and Phase I plantings (750 ha) would be fuelwood, small timber/poles, twigs and leaf and grass fodder. Based on a mortality rate of 50% and an average plant rotation of 16 years, the following incremental production has been estimated.

1/ Although the estimation of fruit production was made by assuming that all fruit would be mango for the purpose of project analysis, planting of other fruits like litchi, banana, pineapple, guava, etc., which are becoming popular in the area, would also be promoted under the program.

Table 7.03: PER HA AND TOTAL INCREMENTAL PRODUCTION OF FORESTRY PRODUCE

		<u>per Ha</u> <u>m³</u>	<u>Total</u> <u>000' m³</u>
New Plantings <u>a/</u>	Yr 16:	90 m ³	430
Protection/Regeneration and Enrichment Planting <u>b/</u>	Yr 16-30:	6 m ³	77
Phase I Planting <u>c/</u>	Yr 8:	90 m ³	90
Total Fuelwood			<u>599</u>
Leaf Fodder, etc.	Yr 3-30	4 tons/ha	450,000 tons

a/ Includes Panchayat forests, leasehold forests, and private and public plantings

b/ Includes PPF, and enrichment planting, demarcation by Forestry department.

c/ Output from only 1/3 of Phase I plantings have been included as project induced production.

7.06 Livestock Production. Improvements in curative and preventative veterinary services would benefit some 25% of the large and small ruminants in the project area. This would result in some 5% increase in the production of milk (as a result of increase in the number of female animals in lactation, improved calving ratio, and freedom from debilitating disease), and 10% increase in the value of the livestock (due to reduction in mortality, increased body weight, improved offtake). Likewise the breed and feed improvement program in the 20 panchayats (pockets) would improve the productivity of local buffaloes in the long run. It is estimated that average annual incremental milk production between years 4-20 would be around 0.8 M liters. Additionally, an increase in the marketed value of small ruminants to the extent of about NRs 4 M per year would also accrue.

Farm Budget Analysis

7.07 Nearly 75% of the households in the project area have farm sizes below 1 ha and since the primary focus of the project would be the small farmers, farm budget analysis was done on the basis of 0.8 ha farm models. Based on the predominant cropping practices, the following approximately representative farm models were analyzed: (i) valley floors; (ii) mid-hills (paddy based); and (iii) mid-hills (maize based). The results, which are summarized below, show that net farm income at full development of project participation would increase by about 25% in the case of a typical rainfed mid-hills farm and by over 80% for a representative irrigated valley farm.

TABLE 7.04: FARM BUDGET ANALYSIS FOR A TYPICAL 0.8 HA FARM

	Without Project			With Project c/		
	Net Returns (NRs)			Net Returns (NRs)		
	per farm	p/ha area	p/ha cropped	per farm	p/ha area	p/ha cropped
I. Valley floors						
Financial	3394	4243	2425	6379	7974 (87%)	3189 (31%)
Economic	4322	5402	3087	7949	9936 (84%)	3975 (29%)
II. Mid-Hills a/						
Paddy-based						
Financial	2574	3218	2340	3331	4164	3028 (29%)
Economic	3309	4136	3008	4232	5290	3847 (28%)
Maize-based						
Financial	1646	2058	1496	1956	2445	1778 (19%)
Economic	1964	2455	1785	2383	2979	2166 (21%)
III. Mid Hills b/						
Paddy-based						
Financial	2553	3191	2321	3260	4075	2964 (28%)
Economic	3209	4011	2917	4033	5041	3666 (26%)
Maize-based						
Financial	1688	2110	1535	1976	2470	1798 (17%)
Economic	1994	2492	1813	2397	2996	2125 (17%)

a/ Nuwakot

b/ Rasuwa

c/ Percentage increase in parenthesis.

Marketing and Prices

7.08 Marketing of agricultural produce in the hills is generally constrained by a lack of organized markets and by poor accessibility due to rugged terrain. HHC/N, through the Nepal Food Corporation, administers a price support policy for major foodgrains, but normally market prices are higher than support prices. There are, however, no restrictions on

private trade, prices and interregional movements of produce, which has helped in the development of a fairly active private sector involved in the marketing, transportation and storage of agricultural produce. The project area has a number of established produce markets, and is well connected with Kathmandu, the major urban center. The main tourist route to the border of China (Langtang) also passes through the project districts. These provide a ready market for the disposal of surplus agricultural and horticultural produce in the project area. During the first phase project (RD I), a number of market sheds were constructed to promote organized markets, and roads/tracks/bridges were built to connect important centers of production to the district roads, a program which would be continued under the proposed project as well (para 4.32 and 4.33). All these would help improve further the marketing infrastructure in the project area and facilitate disposal of incremental marketable surplus. Given the possibility of widening foodgrains and fuelwood deficits in the country during the next decade, the projected increase in the international prices of paddy and coarse grains in real terms (according to IBRD projections), and HMG/N's commitment for maintaining remunerative prices for agricultural produce, prices of the project induced commodities are expected to be relatively stable in real terms in the longer term (1985-95).

VIII. BENEFITS, ECONOMIC RATE OF RETURN AND RISKS

Overall Benefits

8.01 The project area includes some 45,000 farm families in the two project districts. Since agriculture is the main occupation of the people, and as the project assistance would give priority to the needs of the small and marginal farmers, they would be the major beneficiaries of the proposed project. It is estimated that approximately 50% of the farm families would directly benefit from farm production, livestock and forestry activities. The following summarizes some of the major quantifiable and non-quantifiable benefits.

8.02 Production Benefit. At full development in year 10, (except for fruits when full development will be reached in year 18) annual incremental production of foodgrains (21,400 m.t.), milk (0.8 m liters), fuelwood (.6 M m³), fruits (250 tons - in year 18) and leaf/fodder grasses would increase the availability of these commodities in the two hill districts. Incremental foodgrain production would reduce imports and at border prices provide gross foreign exchange savings (earnings) of nearly US\$3.5 M per year from year 10 of the project. The value of the incremental fuelwood and leaf fodder is estimated at about NRs 42 M per annum at 1985 market prices. At full development in year 10, the combined net incremental income from agriculture and forestry sources are likely to be on the order of NRs 150 M per year.

8.03 Employment Benefits. The more intensive land and input use associated with the introduction of irrigated agriculture and improvements in husbandry practices would lead to the creation of some 5,000 man/years of additional farm labor annually from year 6. All construction and forestry plantation work would be labor intensive and it is estimated that project works would generate some 15,000 manyears of additional employment during the project implementation period.

8.04 Enviornmental Benefits. Implementation of the project would have a number of beneficial effects on the environmental and agro-ecological conditions in the project area. Forest plantation, protection, and management of existing forests, and soil conservation measures would protect the hillsides as well as the agricultural lands, physical infrastructure and settlements by reducing the rates of surface run-off, soil erosion and sedimentation. Benefits from these, though not quantified, would be quite substantial. More importantly, implementation of these components would lay the foundations for long-term changes in the environmental conditions through fostering appropriate land use and farming systems.

Economic Analysis

8.05 Economic Rate of Return. Based on the assumptions detailed below (para 8.06) the best estimate of the ERR for the whole project is about 21%; those for the more narrowly defined agricultural development, livestock development and forestry components are 30%, 30% and 31% respectively.

8.06 Assumptions and Derivation of Values for ERR Estimates.

- (a) Project Life: 30 years with no residual value
- (b) Oppportunity Cost of Capital (OCC): 13.5%
- (c) Standard Conversion factor (SCF): 0.9
- (d) Construction Conversion factor (CCF): 0.86
- (e) Cost Stream: (i) all identifiable taxes, duties and subsidies on goods and services were excluded; (ii) price contingencies were excluded but physical contingencies included; (iii) all investment and recurrent costs during the project implementation period were included; however, for research, training, technical assistance, rural infrastructure and soil conservation components, for which no direct benefits were quantified, it was assumed that the benefits from these would not be limited to this project alone and that the overall contribution of these activities to the

project's incremental benefits would be sufficient to account for only 50% of the respective investment costs ^{1/}; (iv) the replacement costs for vehicles and equipment during post project phase were included; (v) all project costs were adjusted by the SCF and construction costs by the CCF; (v) economic farm labor wages were estimated as the average of peak and slack period wages, adjusted by the SCF; and (vi) O&M costs, (salaries, wages, allowances, and vehicle, equipment and other operating costs) from year 9-30 were estimated at 50% of such costs in project year 8.

- (f) Benefit Stream: (i) includes the economic values of the net incremental production of foodgrains, fruits, livestock products and forestry produce; non-quantifiable benefits accruing from forestry and soil conservation works, technical assistance, training, infrastructure development and research were not included; (ii) economic prices for internationally traded commodities were derived from IBRD projected 1992 prices, expressed in 1985 constant dollars; all local costs for handling, in-country transportation, storage, etc., were adjusted by the SCF; and (iii) economic prices for locally traded commodities were derived by adjusting projected average market prices by the SCF.

Project Risks and Sensitivity Analysis

8.07 The proposed project would be implemented in an area and by institutions which have had considerable experience of implementing a similar but a more complex project in the immediate past (para 2.20). Moreover, the project is in line with the sectoral/subsectoral objectives of the government, and the population of the project area, through participation in the previous project, have become more aware of the challenges and opportunities facing them. Therefore, the project would have full political commitment of the government, as well as the cooperation of the project area population.

8.08 Engineering risks would be minimal because all civil works relating to the various components would be built to simple standards, using mostly local labor, equipment and materials. Production technologies to be promoted for agriculture, livestock and forestry development are relatively simple and well known to the participating farmers, hence no major problems in their adoption are anticipated. However, projected yields in the irrigated areas (which would depend on proper utilization of water and timely availability of improved seeds, fertilizer and agrochemicals) and

^{1/} If 100% of investment costs for research, training, rural infrastructure, soil conservation and technical assistance are included, the ERR decreases to 17%.

in the rainfed areas (depending on timely and adequate precipitation) could conceivably be affected by climatic conditions and inadequacies of the support services. However, strengthened agricultural extension services and improvements in the credit and input supply arrangements under the project would help to minimize such problems. Moreover, in estimating incremental production, lower than optimum yields have been assumed to account for such conditions. Yields from the community forestry plantations could be affected by lack of proper maintenance and protection by participating panchayats. However, based on past experiences in the community forestry programs in Nepal, it appears that the hill population are showing a growing concern with their ever deteriorating environment, and this has been reflected in their increasing willingness to make a contribution to its restoration. Project implementation procedures (para 4.27) are geared to help ensure that participating panchayats would effectively protect and maintain the plantations and in return share the benefits accruing from them.

8.09 Apart from the above technological and engineering risks, organizational, staffing and flow of funds problems could, as in the past, affect timely implementation of the project and realization of its benefits. Although the administrative environment for project implementation is expected to be much more stable and certain as a result of the commitment of HMG/N to the implementation of the Decentralization Act and Rules (paras 2.16-2.17 and 6.01), it is by no means certain that the new arrangements would be effective in overcoming the usual impediments to project implementation. But these risks would be partly offset by (i) providing strong implementation support through a restructured and adequately staffed PCU (paras 6.03-6.04), and appropriate technical assistance and staff development (paras 4.34-4.36 and 6.08); (ii) strengthening the district level planning and implementation capabilities as well as central level supervision and guidance (para 4.34); and (iii) better ensuring adequate project staffing, reducing staff turnover and appointing senior and appropriately qualified staff to the key management positions (paras 6.04-6.06). Project assistance for improving financial administration of the district level entities are expected to help alleviate the problems of delays in fund release by HMG/N and reimbursement by IDA. Finally, the proposed mid-term review (para 6.12) would provide an opportunity to introduce measures to deal with any serious project impediments and thereby ensure proper execution of the project.

8.10 Sensitivity Analysis. In order to assess the effect of the above project risks on the project's economic viability, sensitivity tests on the ERR was done. The results are summarized in Table 8.01 below.

TABLE 8.01: ECONOMIC ANALYSIS AND SENSITIVITY TESTS

(a) Tests on ERR

	<u>Components</u>			
	<u>Overall</u>	<u>Agriculture</u>	<u>Forestry</u>	<u>Livestock</u>
	-----%			
(i) Base Case	21	29	31	30
(ii) Benefits - 15%	17	23	28	25
(iii) Costs + 15%	17	24	29	25
(iv) (ii) + (iii)	13	19	26	20
(v) Benefits -2 yr lag	14	18	34	19
(vi) Cost + 15% & benefits 2 year lag	12	15	22	17

(b) Switching Values 1/

	<u>Benefits</u>	<u>Costs</u>
(i) Whole Project	-25	+34
(ii) Agric. Component	-39	+63
(iii) Forestry Component	-70	+237.9
(iv) Livestock Component	-44	+77

1/ Percentage change in benefits/costs that would reduce NPV to zero at the estimated OCC (i.e., IRR becomes zero).

IX. CONDITIONALITIES AND ASSURANCES

9.01. The following assurances were obtained during negotiations:

- (a) (i) prior to undertaking construction of project funded irrigation schemes and other rural infrastructure works, Users' Group(s) would be established; and (ii) by December 31, 1986, HMGN would establish and, thereafter maintain within its Department of Agriculture an Irrigation Agronomy and Water Management and Utilization Unit; (para 4.06)
- (b) HMGN would (i) make available to Panchayats unencumbered lands for forestry plantations under the project by December 31 of each calendar year of project implementation, and (ii) prepare and furnish to IDA by July 31, 1987, for its approval, draft Forest Management Plans for the project area plantations; (para 4.28)

- (c) a semi-detailed Watershed Management Plan for implementation of the soil conservation works in the project area would be prepared and furnished to IDA for its approval by September 30, 1987 (para 4.30);
- (d) (i) trainees for overseas training programs would be persons with qualifications and experience satisfactory to IDA and would be trained in institutions/programs acceptable to IDA; (ii) returnees would be provided with adequate jobs to serve in rural development projects in Nepal for at least five years (para 4.37);
- (e) (i) annual HMG/N budgets would include adequate allocations covering project expenditure in the two project districts; and (ii) budgetted funds for each trimester would be released to implementing agencies by no later than the first fortnight of each trimester (para 5.04);
- (f) all civil works under the project would be undertaken by qualified and experienced contractors registered with HMG/N's Ministry of Works and Transport, or by a properly constituted User Group; (para 5.06);
- (g) participating line departments, AIC and ADB/N would: (i) maintain separate records and accounts for all project expenditures in accordance with sound accounting principles; (ii) such accounts would be audited by an independent auditor acceptable to IDA, in accordance with sound auditing principles; (iii) forward to IDA, such accounts together with the auditor's reports within nine months after the end of each fiscal year; and (iv) include in the annual audit reports submitted to IDA, a separate opinion from the auditor as to whether the disbursements made on the basis of SOEs were in respect of goods and services received and incurred for the purposes of the project (para 5.09);
- (h) (i) by September 30, 1987, HMG/N would, in accordance with terms of reference acceptable to IDA, review its cost recovery policies including collection of irrigation water charges (for medium and small irrigation schemes), benefit taxes on rural infrastructure, and farm input subsidies, and furnish the findings of the review to IDA for its comments; (ii) by December 31, 1987, HMG/N would prepare and furnish to IDA, on the basis of the findings of the aforementioned study and taking into account IDA comments thereon, detailed proposals and an action plan for implementing more broadly appropriate national policies and methods for cost recovery, reduction of input subsidies and development of broader channels of input supply to farmers (para 5.12).

- (i) the head of the PCO shall at all times be an officer with qualification and experience satisfactory to IDA, and would participate in the meetings of the District Plan Formulation and the District Supervision Committees of the project area District Panchayats (para 6.04);
- (j) (i) Project staff would be appointed, deployed and maintained in a manner that shall contribute to timely implementation of the project and achievement of its objectives; (ii) incremental Project staff which would be required for carrying out post-investment project activities shall, commencing on the Borrower's Fiscal Year 1990-91, be included in the Borrower's regular staff budget; and (iii) the Local Development Officers required for carrying out the Project shall be qualified experienced officers of at least confirmed Class II Gazetted rank (para 6.08);
- (k) terms of reference for carrying out a mid-term review of project implementation would be furnished to IDA by January 31, 1989, for its approval and the said mid-term review would be completed and the results furnished to IDA by December 31, 1989 (para 6.12).

9.02 The following are the conditions of effectiveness of the IDA credit:

- (a) the UNDP Project Agreement would have been duly signed by the parties thereto; (para 5.03)
- (b) an executing agency acceptable to the Borrower, UNDP and the Association shall have been duly appointed as executing agency for the Project components financed out of the proceeds of the UNDP Grant; (para 5.03) and
- (c) that the PCO has been reorganized in a manner satisfactory to IDA and has been assigned with adequate powers, funding and staff (para 6.04).

9.03 A condition of disbursement would be that no disbursements against expenditures for the provision of agricultural credit by ADBN and the importation and distribution of agricultural inputs by the AIC shall be made until the subsidiary Loan Agreement and the Financial Agreement have been signed by HMGN and ADBN and AIC, respectively, and have been duly ratified by the parties concerned (para 5.04).

9.04 With the above conditions and assurances, the proposed project would be suitable for an IDA credit of US\$19.1 M (SDR equivalent of 16.6 M).

NEPAL

RUSUNA-NUNAKOT RURAL DEVELOPMENT PROJECT (PHASE II)

Summary of Districtwise Land Use (Agriculture/Forestry) 1/

	<u>Rusuna District</u>			<u>Nunakot District</u>			<u>Total</u>		
	<u>Mapped Area</u>	<u>Gross Area 2/</u>	<u>Net Area 2/</u>	<u>Mapped Area</u>	<u>Gross Area 3/</u>	<u>Net Area 3/</u>	<u>Mapped Area</u>	<u>Gross Area</u>	<u>Net Area</u>
----- Na -----									
1. Agricultural Land Use ^{4/}									
Cultivated Lands:									
Level Terraces	7,320	4,620	3,780	43,840	28,580	22,930	53,160	33,200	26,710
Sloping Terraces	2,880	1,550	1,290	6,550	3,800	3,050	9,430	5,350	4,340
Valley Floors	180	160	140	7,760	6,610	5,800	7,940	6,770	5,940
Grazing Lands	<u>24,070</u>	<u>24,070</u>	<u>24,070</u>	<u>4,250</u>	<u>4,250</u>	<u>4,250</u>	<u>28,320</u>	<u>28,320</u>	<u>28,320</u>
(sub-total)	(34,450)	(30,400)	(29,280)	(64,400)	(43,240)	(36,030)	(98,850)	(73,640)	(65,310)
2. Forestry Land Use									
Coniferous	10,080	-	-	1,980	-	-	12,060	-	-
Hardwood	7,390	-	-	19,900	-	-	27,290	-	-
Others	25,150	-	-	5,870	-	-	31,020	-	-
Shrub	9,670	-	-	21,220	-	-	30,890	-	-
(sub-total)	(52,290)	-	-	(48,970)	-	-	(101,260)	-	-
3. Other Land Use									
Sand, Gravel, Boulders	-	-	-	1,440	-	-	1,440	-	-
Rock	23,630	-	-	3,290	-	-	26,920	-	-
Perpetual Snow and Ice	40,800	-	-	-	-	-	40,800	-	-
Others	<u>10</u>	-	-	<u>1,110</u>	-	-	<u>1,120</u>	-	-
(sub-total)	(64,440)	-	-	(5,840)	-	-	(70,280)	-	-
Total (1) + (2) + (3)	151,180	-	-	119,210	-	-	270,390	-	-

1/ Compiled from preliminary district's land use data prepared by CIDA - Land Resources Mapping Project, Kathmandu (1985)

2/ "Mapped Area" multiplied by land use intensity factor

3/ "Gross Area" multiplied by internal area loss factor

4/ See Tables 4 and 5 for details

NEPAL

RUSUWA-NUWAKOT RURAL DEVELOPMENT PROJECT (PHASE II)

Agricultural Land Use by Physiographic Region and by Land Type in Rusuwa/Nuwakot Districts 1 /

<u>Land Type</u>	<u>Physiographic Regions 2/</u>			<u>Total</u>
	<u>Mid Mountains</u>	<u>High Mountains</u>	<u>High Himal</u>	
Rusuwa District	----- ha (gross area) 3/ -----			
Level Terraces	1,600	3,020	-	4,620
Sloping Terraces	-	1,550	-	1,550
Valley Floors	60	100	-	160
Grazing Land	890	9,740	13,440	24,070
Total (Rusuwa)	2,550	14,410	13,440	30,400
Nuwakot District				
Level Terraces	27,540	1,040	-	28,580
Sloping Terraces	3,800	-	-	3,800
Valley Floors	6,610	-	-	6,610
Grazing Land	2,320	1,820	110	4,250
Total (Nuwakot)	40,270	2,860	110	43,240
Total (Rusuwa + Nuwakot)				
Level Terraces	29,140	4,060	-	33,200
Sloping Terraces	3,800	1,550	-	5,350
Valley Floors	6,670	100	-	6,770
Grazing Land	3,210	11,560	13,550	28,320
Total	42,820	17,270	13,550	73,640
(%)	(58)	(23)	(19)	(100)

1/ Compiled from preliminary districts land use data prepared by CIDA - Land Resources Mapping Project, Kathmandu (1985)

2/ Physiographic regions are classified mainly by geological and geomorphological basis. They are however roughly associated with the following range of climatic conditions.

Mid Mountains = Sub Tropical to Warm Temperate

High Mountains= Warm Temperate to Alpine

High Himal: Alpine to Arctic

3/ 'Mapped area' multiplied by land use intensity factor (see Table 2)

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RUSUNA-NURAKITI RURAL DEVELOPMENT PROJECT (PHASE II)

Present Cropping Patterns and Estimated Land Use in Nuwakot District 1/

	Net Cultivated Area				Cropped Area							Cropping Intensity %
	Level Terraces	Sloping Terraces	Valley Floors 2/	Total	Paddy	Maize	Millet	Wheat	Potatoes	Others 3/	Total	
----- Ha -----												
1. Paddy based cropping												
Paddy-Fallow	470	40	370	880	880	-	-	-	-	-	880	
Paddy-Paddy	500	-	1,840	2,340	4,680	-	-	-	-	-	4,680	
Paddy-Oilseed	40	-	70	110	110	-	-	-	-	80	190	
Paddy-Paddy-Oilseed	20	-	-	20	40	-	-	-	-	10	30	
Paddy-Wheat	7,380	60	1,130	8,570	8,570	-	-	4,820	-	-	13,390	
Paddy-Paddy-Wheat	50	-	260	310	620	-	-	260	-	-	880	
Paddy-Wheat-Maize	20	-	490	510	10	250	-	490	-	-	1,250	
Paddy-Fallow-Maize	1,230	-	330	1,560	1,560	950	-	-	-	-	2,510	
(sub-total)	(9,710)	(100)	(4,490)	(14,300)	(16,970)	(1,200)	(-)	(5,570)	(-)	(90)	(23,830)	165
2. Maize based cropping												
Maize 4/ - Millet 5/	11,580	2,950	700	15,230	-	15,230	13,700	-	-	-	28,930	
Maize-Cereal	210	-	-	210	-	210	-	-	-	100	310	
Maize-Pulses	120	-	110	230	-	230	-	-	-	170	400	
Maize-Potatoes	560	-	-	560	-	560	-	-	560	-	1,120	
(sub-total)	(12,470)	(2,950)	(810)	(16,230)	(-)	(16,230)	(13,700)	(-)	(560)	(270)	(30,760)	190
3. Others												
Cereal-Fallow	570	-	-	570	-	-	-	-	-	570	570	
Miscellaneous	180	-	500	680	-	-	-	-	-	680	680	
(sub-total)	(750)	(-)	(500)	(1,250)	(-)	(-)	(-)	(-)	(-)	(1,250)	(1,250)	100
4. Total (1) + (2) + (3)	22,930	3,050	5,800	31,780	16,970	17,430	13,700	5,570	560	1,610	55,840	175
5. Grazing Lands	-	-	-	4,250								
6. Total Agricultural Lands (4) + (5)	-	-	-	36,030								

1/ Estimates based on preliminary district land use data prepared by CIDA-Land Resources Mapping Project, Kathmandu (1985)

2/ Valley floors includes taras, alluvial fans and footslopes

3/ Includes barley, buckwheat, pulses etc.

4/ Includes some millets

5/ Includes some maize

NEPAL

MUSNA-MUNAKOT KURAI DEVELOPMENT PROJECT (PHASE II)

Present Cropping Patterns and Estimated Land Use in Rasuwa District 1/

Dominant Cropping Patterns	Net Cultivated Area				Cropped Area							Cropping Intensity (%)
	Level Terraces	Land Type		Total	Paddy	Maize Ha	Millet	Wheat	Potatoes	Others 3/	Total	
		Sloping Terraces	Valley 2/ Floors									

1. Paddy based cropping												
Paddy - Fallow	80	-	-	80	80	-	-	-	-	-	80	
Paddy - Paddy	-	-	10	10	20	-	-	-	-	-	20	
Paddy - Wheat	440	-	20	460	460	-	-	240	-	-	700	
Paddy - Fallow - Maize	250	-	30	280	280	160	-	-	-	-	440	
(sub-total)	(770)	(-)	(60)	(830)	(840)	(160)	(-)	(240)	(-)	(-)	(1,240)	150
2. Maize based cropping												
Maize 4/ Fallow	60	290	30	380	-	270	110	-	-	-	380	
Maize 4/ Millet 5/	1,250	120	-	1,370	-	1,370	1,200	-	-	-	2,570	
Maize - Cereal	370	310	30	930	-	930	-	-	-	840	1,770	
Maize - Potatoes	640	-	-	640	-	640	-	-	640	-	1,280	
(sub-total)	(2,320)	(920)	(80)	(3,320)	(-)	(3,210)	(1,310)	(-)	(640)	(840)	(6,000)	180
3. Others												
Potatoes - Fallow	60	120	-	180	-	-	-	-	180	-	180	
Miscellaneous	630	250	-	880	-	-	-	-	-	880	880	
(sub-total)	(690)	(370)	(-)	(1,060)	(-)	(-)	(-)	(-)	(180)	(880)	(1,060)	100
4. Total (1) + (2) + (3)	(3,780)	1,290	140	5,210	840	3,370	1,310	240	820	1,720	8,300	160
5. Grazing Lands	-	-	-	24,070								
6. Total Agricultural Lands (4) + (5)	-	-	-	29,280								

1/ Estimated based on preliminary district land use data prepared by CIDA - Land Resources Mapping Project, Kathmandu (1985)

2/ Valley floors includes tars, alluvial fans and footslopes

3/ Includes barley, buckwheat, pluses, oil seeds, sugarcane etc.

4/ Includes some millet

5/ Includes some maize

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BASIMA-NUNIKOT RURAL DEVELOPMENT PROJECT (PHASE II)

Estimated Present Cropped Area, Yield and production in Project Area

	Cropped Area 1/			Yield 2/ (ton/ha)	Production (ton)
	Rasusa	Nunukot	Total		
		ha			
Early paddy, irrigated	10	2,670	2,680	2.9	7,770
Monsoon paddy, "	260	7,860	8,120	2.2	17,860
Monsoon paddy, rainfed	570	6,440	7,010	1.7	11,917
Total paddy	(840)	(16,970)	(17,810)	(2.1)	(37,547)
Maize, irrigated	30	570	600	1.5	900
Maize, rainfed	3,340	16,860	20,200	1.2	24,240
Total maize	(3,370)	(17,430)	(20,800)	(1.2)	(25,140)
Wheat, irrigated	120	2,770	2,890	1.5	4,340
Wheat, rainfed	120	2,800	2,920	1.0	2,920
Total wheat	(240)	(5,570)	(5,810)	(1.2)	(7,260)
Millet, rainfed	1,310	13,700	15,010	0.9	13,510
Barley, rainfed	840	670	1,510	0.7	1,060
Total grain	6,600	54,340	60,940	(1.4)	44,517
Potatoes	820	560	1,380	7.0	9,660
Others 3/	880	940	1,820	0.5	910
Total cropped area	8,300	55,820	64,120		
Net cultivated area 4/	5,210	31,780	36,990		
Net irrigated area	260	7,860	8,120		
...					

1/ Estimated based on Tables 2, 3 and 4

2/ Rounded figures; Mission estimates based on (i) Annual crop survey conducted during Phase I period.
(ii) Phase I Project Component Analysis Series, Vol. 1, 2 and 3,
(iii) Official Crop Statistics (See Table 5)
(iv) Sample Survey for Central Dev. Region/Middle Mountain (CIDA - Land Resources Mapping Project)

3/ Oilseed, pulses, etc.

4/ Exclude grazing lands

NEPAL

Rasuwa-Muvskot Rural Development Project Phase II (RASNUDEV II)
Phasing of Crop Development Programs

	<u>Yr 1</u>	<u>Yr 2</u>	<u>Yr 3</u>	<u>Yr 4</u>	<u>Yr 5</u>	<u>Yr 6</u>	<u>Yr 7</u>	<u>Yr 8</u>	<u>Yr 9</u>	<u>Yr 10</u>
	ha - cumulative									
I. Rainfed Crop Development										
Monsoon Paddy		250	500	800	1200	1800	2600	3500		
Maize	250	750	1500	2500	4000	6500	8000	12000		
Wheat		200	350	450	650	1100	1300	1350		
Subtotal (Rainfed)	250	1200	2350	3750	5850	9400	11900	16850		
II. Irrigated Crop Development										
A. Expansion of existing and construction of new schemes										
1. DIHM Schemes										
Rehab. Labdu-Dhikure		50	100							
Rehab. Gadhkar				20	40					
Boketar-Chowkita						60	100	120		
Simra							15	90	240	
Thansingh							75	120	140	
Ratomato								75	150	250
Subtotal (Incremental Irrigated Area by DIHM)		70	140	140	140	200	330	545	790	890
2. Hill Terrace/Minor Schemes by DTO										
Rehab Phase I Schemes		50	100	150	200	250	300	300	300	
New Schemes		-	-	60	120	270	460	720	900	
Subtotal (Incremental Irrigated Area by DTO)		50	100	210	320	520	760	1020	1200	1200
Total incremental Irrigated Area by DIHM & DTO		120	260	350	460	720	1090	1565	1990	2090
B. Crop intensification on existing areas										
Early Paddy		500	750	1000	1500	2200	2200	2200	2200	
Monsoon Paddy		750	1200	2200	4000	5500	5000	7000	7000	
Maize	60	100	250	400	500	550	560	560	560	
Wheat	100	300	500	900	1500	2200	2500	2500	2500	
Subtotal (intensification on existing Area)	160	1650	2700	4500	7500	10450	11260	12260	12260	

NEPAL

Rasua-Nuwakot Rural Development Project Phase II (RASNUDEV II)TRAINING PROGRAM FOR EXTENSION STAFF AND FARMERS

<u>Type of Training</u>	<u>Frequency</u>	<u>Location</u>	<u>Participants</u>	<u>Duration</u>	<u>Trainers</u>
Quarterly Preparation ^{1/}	4 x year	RTC Trisuli	JT/JTA	2 days	DADO/Trainin Officers/ Experts/ Research Sta- tion Staff
Pre Season	2 x year	Sub Center	Agriculture Assistants	2 days	JT/JTA
Monthly	10 x year	Sub Center	Agriculture Assistants/JTA	1 day	JT
Farmers Training ^{2/}	4 x year	RTC Trisuli FTC Kakani FTC Dhunche	Farmers (25-30 per batch)	5 days	Training Center Staff
Special ad hoc Courses ^{3/}	3 x year	RTC Trisuli	JT/JTA	5 days	DADO/Training Officer/ Experts
Special ad hoc Courses ^{3/}	2 x year	RTC Trisuli FTC Kakani FTC Dhunche	AA	5 days	Training Officers/ Selected JT

-
- 1/ The first and third sessions should be treated as pre season training to finalize technical details of programs for the ensuing cropping season. The second and fourth sessions should be utilized to review activities.
- 2/ Should cover specific crops/plant protection/horticulture development/vegetable and new set of farmers should be invited for each batch.
- 3/ Special courses for plant protection/water management/horticulture development/vegetable cultivation/special crops.

NEPAL
 RADWA - NUMHOT RURAL DEVELOPMENT PROJECT - PHASE II (RADRDEV II)
 Table 25. ON - FARM ADAPTIVE RESEARCH
 Detailed Cost Table
 (NRs '000)

ANNEX 2
 Table 3

	Unit	Quantity								Unit Cost	Base Costs								Parameters					
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	Phy. Cont. Rate	For. Exch. Rate	Gross Tax Rate	Summary Account		
									Total									Total						
I. INVESTMENT COSTS																								
A. Civil Works																								
Office Buildings	sq m	-	50	50	-	-	-	-	100	1.35	-	75.0	75.0	-	-	-	-	-	150.0	0.07	0.35	0	CHDLB	
Staff Quarters	sq m	-	50	150	100	-	-	-	300	1.55	-	75.0	225.0	150.0	-	-	-	-	450.0	0.07	0.35	0	CHDLB	
Sub-Total Civil Works											-	150.0	300.0	150.0	-	-	-	-	600.0					
B. Vehicles																								
4 WD Pickup	no	-	1	-	-	-	-	1	2	200.05	-	200.0	-	-	-	-	-	200.0	400.0	0.05	0.75	0	VEH	
Sub-Total Vehicles											-	200.0	-	-	-	-	-	200.0	400.0					
C. Materials for Field Trials																								
Materials	LS	-	20	30	36	45	60	60	60	311	1.85	-	36.0	54.0	64.8	81.0	108.0	108.0	108.0	539.8	0.05	0.75	0	EXP
Sub-Total Materials for Field Trials											-	36.0	54.0	64.8	81.0	108.0	108.0	108.0	539.8					
Total INVESTMENT COSTS											-	386.0	354.0	214.8	81.0	108.0	308.0	108.0	1,539.8					
II. RECURRENT COSTS																								
A. Staff Salaries and Allowances																								
Asst. Agronomist	no	-	1	1	1	1	1	1	1	7	25.05	-	25.0	25.0	25.0	25.0	25.0	25.0	175.0	0	0	0	SAL	
Asst. Horticulturist	no	-	1	1	1	1	1	1	1	7	25.05	-	25.0	25.0	25.0	25.0	25.0	25.0	175.0	0	0	0	SAL	
ASSIST. SOIL SCIENTIST	no	-	1	1	1	1	1	1	1	7	25.05	-	25.0	25.0	25.0	25.0	25.0	25.0	175.0	0	0	0	SAL	
Farm Manager	no	-	1	1	1	1	1	1	1	7	25.05	-	25.0	25.0	25.0	25.0	25.0	25.0	175.0	0	0	0	SAL	
Clerk	no	-	1	1	1	1	1	1	1	7	12.05	-	12.0	12.0	12.0	12.0	12.0	12.0	84.0	0	0	0	SAL	
Driver	no	-	1	1	1	1	1	1	1	7	15.05	-	15.0	15.0	15.0	15.0	15.0	15.0	105.0	0	0	0	SAL	
Peon	no	-	2	2	2	2	2	2	2	14	8.05	-	16.0	16.0	16.0	16.0	16.0	16.0	112.0	0	0	0	SAL	
Sub-Total Staff Salaries and Allowances											-	143.0	143.0	143.0	143.0	143.0	143.0	143.0	1,001.0					
B. Operation and Maintenance																								
OM for Vehicles	lump sum	-	-	-	-	-	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	210.0	0.05	0.35	0	OPER	
Sub-Total Operation and Maintenance											-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	210.0					
C. OFFICE SUPPLIES AND CONSUMABLES																								
Office Expenses and Consumables	lump sum	-	-	-	-	-	-	-	-	-	-	-	2.0	5.0	-	-	-	-	7.0	0.05	0.35	0	OSC	
Sub-Total OFFICE SUPPLIES AND CONSUMABLES											-	2.0	5.0	-	-	-	-	-	7.0					
Total RECURRENT COSTS											-	175.0	178.0	173.0	173.0	173.0	173.0	173.0	1,218.0					
Total											-	561.0	532.0	387.8	254.0	281.0	481.0	281.0	2,777.8					

NEPAL
 BARDHAM - NAWAKOT RURAL DEVELOPMENT PROJECT - PHASE II (RABUNDEV II)
 Table 26. APPROPRIATE TECHNOLOGY UNIT
 Detailed Cost Table
 (NRs '000)

ANNEX 2
 Table 4

	Quantity									Unit Cost	Base Costs								Parameters						
	Unit	1	2	3	4	5	6	7	8		Total	1	2	3	4	5	6	7	8	Total	Pwr. Rate	Cont. Exch.	Far. Tax Rate	Gross Rate	Summary Account
I. RECURRENT COSTS																									
A. EXTENSION ACTIVITIES																									
Selecting, Testing and Demonstration	-	-	-	-	-	-	-	-	-	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	700.0	0.05	0	0	0	EXACT	
Trained to Farmers	-	-	-	-	-	-	-	-	-	-	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	105.0	0.05	0	0	0	EXACT	
Observation/Study Tour	-	-	-	-	-	-	-	-	-	-	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	350.0	0.05	0	0	0	EXACT	
Publicity/Publications	-	-	-	-	-	-	-	-	-	-	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	70.0	0.05	0	0	0	EXACT	
Sub-Total EXTENSION ACTIVITIES											175.0	175.0	175.0	175.0	175.0	175.0	175.0	175.0	1,225.0						
B. OFFICE SUPPLIES AND CONSUMABLES	-	-	-	-	-	-	-	-	-	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	700.0	0.05	0.35		0	OSC	
Total RECURRENT COSTS											275.0	275.0	275.0	275.0	275.0	275.0	275.0	275.0	1,925.0						
Total											275.0	275.0	275.0	275.0	275.0	275.0	275.0	275.0	1,925.0						

Unit	Quantity									Unit Cost	Base Costs									
	1	2	3	4	5	6	7	8	Total		1	2	3	4	5	6	7	8	Total	
I. INVESTMENT COSTS																				
A. TECHNICAL ASSISTANCE																				
1. SENIOR SPECIALISTS																				
PLANNING, MONITORING AND EVALUATION ADVISER ENGINEER	NM	3	12	12	12	-	-	-	-	39	200.05	600.0	2,400.0	2,400.0	2,400.0	-	-	-	-	7,800.0
	NM	3	12	12	12	-	-	-	-	39	200.05	600.0	2,400.0	2,400.0	2,400.0	-	-	-	-	7,800.0
Sub-Total SENIOR SPECIALISTS												1,200.0	4,800.0	4,800.0	4,800.0	-	-	-	-	15,600.0
2. SHORT TERM CONSULTANTS																				
TRAINING, ADAPTIVE RESEARCH, WATER MGMT., VOC. TRNG. ACCOUNTING SUPPORT	NM	-	2	2	2	-	-	-	-	6	300.05	-	600.0	600.0	600.0	-	-	-	-	1,800.0
OTHER LOCAL CONSULTANTS	LS	2	3	3	3	3	-	-	-	14	20.05	40.0	60.0	60.0	60.0	60.0	-	-	-	280.0
	LS	-	-	-	-	-	-	-	-	-	-	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	400.0
Sub-Total SHORT TERM CONSULTANTS												90.0	710.0	710.0	710.0	110.0	50.0	50.0	50.0	2,480.0
3. INTERNATIONAL VOLUNTEERS																				
PLANNING AIDES	NM	3	24	24	24	-	-	-	-	75	26.05	80.0	480.0	480.0	480.0	-	-	-	-	1,500.0
AGRONOMIST	NM	-	24	24	24	-	-	-	-	72	20.05	-	480.0	480.0	480.0	-	-	-	-	1,440.0
VOCATIONAL TRAINER	NM	-	24	24	24	-	-	-	-	72	20.05	-	480.0	480.0	480.0	-	-	-	-	1,440.0
SILVIPASTURE SPECIALIST	NM	-	24	24	24	-	-	-	-	72	20.05	-	480.0	480.0	480.0	-	-	-	-	1,440.0
SUB-ENGINEERS	NM	4	36	48	48	24	-	-	-	160	20.05	80.0	720.0	960.0	960.0	480.0	-	-	-	3,200.0
Sub-Total INTERNATIONAL VOLUNTEERS												140.0	2,640.0	2,880.0	2,880.0	480.0	-	-	-	9,020.0
Sub-Total TECHNICAL ASSISTANCE												1,430.0	8,150.0	8,390.0	8,390.0	590.0	50.0	50.0	50.0	27,100.0
B. SHORT TERM OVERSEAS TRAINING																				
												100.0	700.0	700.0	700.0	700.0	-	-	-	2,900.0
C. PROJECT RELATED STUDIES AND MID-TERM REVIEW																				
												-	300.0	300.0	300.0	300.0	300.0	-	-	1,500.0
Total INVESTMENT COSTS												1,530.0	9,150.0	9,390.0	9,390.0	1,390.0	350.0	50.0	50.0	31,500.0
II. RECURRENT COSTS																				
A. SALARIES AND ALLOWANCES																				
ADMIN. OFFICER	NY	15	1	1	1	1	1	1	1	22	15.05	225.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	330.0
TYPYST CLERK	NY	0.5	1	1	1	1	1	1	1	7.5	10.05	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	75.0
LOCAL TRAVEL	LS	-	-	-	-	-	-	-	-	-	-	20.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	330.0
Sub-Total SALARIES AND ALLOWANCES												250.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	735.0
B. OFFICE SUPPLIES AND CONSUMABLES																				
	LS	-	-	-	-	-	-	-	-	-	-	5.0	10.0	15.0	15.0	20.0	20.0	20.0	20.0	125.0
Total RECURRENT COSTS												255.0	65.0	70.0	90.0	95.0	95.0	95.0	95.0	860.0
Total												1,785.0	9,215.0	9,460.0	9,480.0	1,485.0	445.0	145.0	145.0	32,360.0

NEPAL
RASUNA - MUMKOT RURAL DEVELOPMENT PROJECT - PHASE II (RASUDEVI II)
SUMMARY ACCOUNTS COST SUMMARY

ANNEX 3
Table 1

	(NRs '000)			(US\$ '000)			Z Foreign Exchange	Z Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
I. INVESTMENT COSTS								
A. CIVIL WORKS								
1. BUILDINGS	10,610.8	5,630.9	16,241.7	589.5	312.8	902.3	35	5
2. IRRIGATION	40,165.0	21,235.0	61,400.0	2,231.4	1,179.7	3,411.1	35	19
3. ROADS AND BRIDGES	19,072.0	10,269.5	29,341.5	1,059.6	570.5	1,630.1	35	9
4. DRINKING WATER SUPPLY	9,431.5	5,078.5	14,510.0	524.0	282.1	806.1	35	5
5. SOIL CONSERVATION	3,304.6	1,779.4	5,084.0	183.4	98.9	282.4	35	2
Sub-Total CIVIL WORKS	82,583.9	43,993.3	126,577.2	4,588.0	2,444.1	7,032.1	35	39
B. VEHICLES	652.3	12,393.7	13,046.0	36.2	688.5	724.8	95	4
C. EQUIPMENT	433.6	7,547.8	7,981.4	24.1	419.3	443.4	95	2
D. FURNITURE	1,392.0	348.0	1,740.0	77.3	19.3	96.7	20	1
E. FEASIBILITY AND OTHER STUDIES	4,485.0	-	4,485.0	249.2	-	249.2	-	1
F. CREDIT FUNDS	11,661.5	-	11,661.5	647.9	-	647.9	-	4
G. FEED AND FODDER DEVELOPMENT	1,101.0	-	1,101.0	61.2	-	61.2	-	0
H. BREEDING STOCK	1,092.0	728.0	1,820.0	60.7	40.4	101.1	40	1
I. AGRICULTURAL INPUTS	1,510.7	16,899.6	18,410.2	83.9	938.9	1,022.8	92	6
J. FOREST PROTECTION AND PLANTATION MANAGEMENT	23,931.9	-	23,931.9	1,329.6	-	1,329.6	-	7
K. EXTENSION ACTIVITIES	4,943.0	-	4,943.0	274.6	-	274.6	-	2
L. TRAINING	7,392.6	2,900.0	10,292.6	410.7	161.1	571.8	28	3
M. TECHNICAL ASSISTANCE	2,080.0	25,020.0	27,100.0	115.6	1,390.0	1,505.6	92	8
Total INVESTMENT COSTS	143,259.5	109,830.4	253,089.9	7,958.9	6,101.7	14,060.5	43	79
II. RECURRENT COSTS								
A. SALARIES AND ALLOWANCES	47,712.9	-	47,712.9	2,650.7	-	2,650.7	-	15
B. BUILDING, VEHICLES, EQUIPMENT OPERATION AND MAINTENANCE /a	5,950.2	3,262.8	9,213.0	330.6	181.3	511.8	35	3
C. IRRIGATION SCHEMES OPERATING AND MAINTENANCE	1,161.0	-	1,161.0	64.5	-	64.5	-	0
D. STOVES IMPROVEMENT PROGRAM	714.3	-	714.3	39.7	-	39.7	-	0
E. OFFICE SUPPLIES AND CONSUMABLES	4,790.6	2,543.4	7,334.0	266.1	141.3	407.4	35	2
F. OTHER EXPENDITURE	1,895.0	-	1,895.0	105.3	-	105.3	-	1
Total RECURRENT COSTS	62,224.0	5,806.2	68,030.2	3,456.9	322.6	3,779.5	9	21
Total BASELINE COSTS	205,483.4	115,636.6	321,120.0	11,415.7	6,424.3	17,840.0	36	100
Physical Contingencies	9,540.2	6,661.7	16,201.9	530.0	370.1	900.1	41	5
Price Contingencies	53,297.3	32,878.0	86,175.3	2,961.0	1,826.6	4,787.5	38	27
Total PROJECT COSTS	268,321.0	155,176.2	423,497.2	14,906.7	8,620.9	23,527.6	37	132

/a ESTIMATED AT ABOUT 30% OF INVESTMENT COSTS IN BUILDING, VEHICLES AND EQUIPMENT.

NEPAL
BASUMA - MINAKOT RURAL DEVELOPMENT PROJECT - PHASE II (RABUNDEV II)
PROJECT COST SUMMARY

	(NRs '000)			(US\$ '000)			X Foreign Exchange	Z Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
A. MINAKOT								
1. AGRICULTURAL DEVELOPMENT								
STRENGTHENING EXTENSION SERVICES	10,137.4	2,444.9	12,602.3	563.2	134.9	700.1	20	4
TRAINING	8,740.2	1,544.3	10,304.4	484.7	85.9	572.6	15	3
IRRIGATION	37,496.0	18,845.0	56,361.0	2,083.1	1,048.1	3,131.2	33	18
AGRICULTURE AND HORTICULTURE FARMS	4,456.2	2,138.4	6,594.5	247.6	118.8	366.4	32	2
LIVESTOCK DEVELOPMENT	4,584.1	2,441.0	7,045.0	361.3	135.6	496.9	27	3
AGRICULTURAL CREDIT	8,781.0	-	8,781.0	487.8	-	487.8	-	3
AGRICULTURAL INPUTS	2,988.7	17,282.0	20,250.7	164.9	960.1	1,125.0	85	6
Sub-Total AGRICULTURAL DEVELOPMENT	79,183.5	44,737.4	123,940.9	4,394.6	2,483.4	6,880.0	36	39
2. RURAL INFRASTRUCTURE, DRINKING WATER SUPPLY, BRIDGES, ROADS								
18,235.3	9,829.8	28,065.0	1,014.2	544.1	1,560.3	35	9	
3. FORESTRY, SOIL CONSERVATION AND WATER MANAGEMENT								
FOREST PLANTATION AND COMMUNITY FOREST DEVELOPMENT	18,044.8	1,339.6	19,384.4	1,002.5	74.4	1,076.9	7	6
SOIL CONSERVATION	4,859.2	1,991.9	6,851.0	276.0	110.7	386.6	29	2
Sub-Total FORESTRY, SOIL CONSERVATION AND WATER MANAGEMENT	22,904.0	3,331.4	26,235.4	1,272.4	185.1	1,457.5	13	8
4. IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT								
STRENGTHENING OF DTO	4,844.7	2,328.7	7,173.4	270.3	129.4	399.4	32	2
STRENGTHENING OF LDO	3,127.4	1,928.5	5,055.9	173.7	107.1	280.9	38	2
Sub-Total IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT	7,972.1	4,257.2	12,229.3	444.0	236.5	680.5	35	4
Sub-Total MINAKOT	128,254.8	62,153.7	190,410.6	7,123.3	3,433.1	10,578.4	33	59
B. BASUMA								
1. AGRICULTURAL DEVELOPMENT								
STRENGTHENING EXTENSION SERVICES	5,973.1	1,741.4	7,714.5	331.8	94.7	428.6	23	2
TRAINING	2,331.1	107.1	2,438.2	141.7	6.0	147.7	4	1
IRRIGATION	5,630.0	2,370.0	8,000.0	312.8	131.7	444.4	30	2
AGRICULTURE AND HORTICULTURE FARMS	2,200.3	1,015.3	3,215.5	122.2	56.4	178.6	32	1
LIVESTOCK DEVELOPMENT	5,871.2	1,173.8	7,045.0	326.2	65.2	391.4	17	2
AGRICULTURAL CREDIT	2,880.5	-	2,880.5	160.0	-	160.0	-	1
AGRICULTURAL INPUTS	691.7	1,336.8	2,028.5	38.4	74.3	112.7	64	1
Sub-Total AGRICULTURAL DEVELOPMENT	25,777.8	7,744.4	33,542.2	1,433.2	430.2	1,863.5	23	10
2. RURAL INFRASTRUCTURE, DRINKING WATER SUPPLY, BRIDGES, ROADS								
16,248.2	5,518.3	21,766.5	569.3	304.6	875.9	35	5	
3. FORESTRY, SOIL CONSERVATION AND WATER MANAGEMENT								
FOREST PLANTATION AND COMMUNITY FOREST DEVELOPMENT	11,073.9	1,105.5	12,179.4	615.2	61.4	676.6	9	4
SOIL CONSERVATION	4,195.5	1,482.1	5,677.5	233.1	82.3	315.4	26	2
Sub-Total FORESTRY, SOIL CONSERVATION AND WATER MANAGEMENT	15,269.3	2,587.6	17,856.9	848.3	143.8	992.0	14	6
4. IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT								
STRENGTHENING OF DTO	3,374.4	1,983.1	5,357.5	187.5	110.2	297.6	37	2
STRENGTHENING OF LDO	2,567.1	1,407.7	3,974.8	139.3	78.2	217.5	36	1
Sub-Total IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT	5,941.5	3,390.8	9,332.3	326.8	188.4	515.1	37	3
Sub-Total BASUMA	57,196.8	19,241.0	76,437.8	3,177.6	1,068.9	4,246.5	25	24
C. CENTRAL SUPPORT UNIT								
1. AGRICULTURAL DEVELOPMENT								
ON - FARM ADAPTIVE RESEARCH	1,580.0	1,197.8	2,777.8	87.8	64.5	154.3	43	1
APPROPRIATE TECHNOLOGY UNIT	1,680.0	245.0	1,925.0	93.3	13.6	106.9	13	1
Sub-Total AGRICULTURAL DEVELOPMENT	3,260.0	1,442.8	4,702.8	181.1	78.2	261.3	31	1
2. IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT								
PROJECT COORDINATORS OFFICE	6,781.3	2,698.1	9,399.4	372.3	149.9	522.2	29	3
STRENGTHENING OF BDM	4,816.0	1,674.5	6,492.5	267.6	93.1	360.7	26	2
STRENGTHENING OF BDA	814.5	502.5	1,317.0	45.3	27.9	73.2	38	0
TECHNICAL ASSISTANCE, OVERSEAS TRAINING AND STUDIES	4,440.0	27,920.0	32,360.0	246.7	1,531.1	1,777.8	86	10
Sub-Total IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT	16,771.7	32,797.1	49,568.9	931.8	1,822.1	2,753.8	66	15
Sub-Total CENTRAL SUPPORT UNIT	20,031.8	34,239.9	54,271.7	1,112.9	1,902.2	3,015.1	63	17
Total BASELINE COSTS	295,483.4	115,634.6	411,118.0	11,415.7	6,424.3	17,840.0	36	100
Physical Contingencies	9,540.2	6,441.7	16,001.9	530.0	370.1	900.1	41	5
Price Contingencies	53,297.3	32,878.0	86,175.3	2,961.0	1,824.6	4,785.5	38	27
Total PROJECT COSTS	248,321.0	155,174.2	403,495.2	14,906.7	8,620.9	23,527.6	37	132

NEPAL
RASUMA - HUMAKOT RURAL DEVELOPMENT PROJECT - PHASE II (RASUMDEV II)
Project Components by Year

	Totals Including Contingencies (Nrs '000)								
	1	2	3	4	5	6	7	8	Total
A. HUMAKOT									
1. AGRICULTURAL DEVELOPMENT									
STRENGTHENING EXTENSION SERVICES	52.6	1,490.2	1,753.4	2,342.3	2,303.9	2,831.9	2,404.0	2,334.2	15,534.5
TRAINING	5.3	942.9	1,247.0	1,631.7	2,132.9	2,688.0	2,429.0	2,830.0	13,926.8
IRRIGATION	924.1	5,481.6	8,003.8	12,010.5	18,600.1	11,733.2	14,107.0	8,715.4	79,575.7
AGRICULTURE AND HORTICULTURE FARMS	44.5	1,130.6	1,379.1	1,031.9	1,083.0	1,440.4	1,325.2	811.9	8,286.7
LIVESTOCK DEVELOPMENT	80.0	1,044.2	1,279.4	1,218.3	1,935.0	1,299.5	2,592.9	1,248.1	10,737.5
AGRICULTURAL CREDIT	133.4	471.6	941.0	1,536.1	1,875.8	2,418.3	2,786.7	2,418.6	12,601.4
AGRICULTURAL INPUTS	1,635.7	2,186.8	2,944.9	3,139.6	4,059.5	4,431.6	4,397.1	4,980.9	27,816.0
Sub-Total AGRICULTURAL DEVELOPMENT	2,895.5	12,787.9	17,548.7	22,990.4	32,010.3	26,862.8	30,044.0	23,359.1	168,498.6
2. RURAL INFRASTRUCTURE, DRINKING WATER SUPPLY, BRIDGES, ROADS									
	369.6	3,091.5	5,400.8	5,375.7	6,279.9	7,725.6	6,645.8	4,671.6	39,580.4
3. FORESTRY, SOIL CONSERVATION AND WATER MANAGEMENT									
FOREST PLANTATION AND COMMUNITY FOREST DEVELOPMENT	511.6	1,544.5	2,567.7	3,886.3	5,010.4	5,863.5	4,779.8	2,751.7	26,915.4
SOIL CONSERVATION	96.7	773.8	914.7	1,055.9	1,293.4	1,409.6	1,981.0	1,601.5	9,126.6
Sub-Total FORESTRY, SOIL CONSERVATION AND WATER MANAGEMENT	608.2	2,318.2	3,482.4	4,942.2	6,303.8	7,273.1	6,760.8	4,353.2	36,042.0
4. IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT									
STRENGTHENING OF DDO	107.2	1,084.0	989.8	1,036.2	1,073.0	1,191.4	2,031.1	1,085.4	8,598.0
STRENGTHENING OF LDO	16.0	1,222.8	608.1	489.0	524.2	978.5	806.0	1,556.9	6,201.7
Sub-Total IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT	123.2	2,306.8	1,597.9	1,525.2	1,597.2	2,170.0	2,837.1	2,642.3	14,799.7
Sub-Total HUMAKOT	3,996.6	20,504.5	28,029.7	34,833.5	46,191.1	44,031.4	46,307.8	35,026.1	258,920.7
B. RASUMA									
1. AGRICULTURAL DEVELOPMENT									
STRENGTHENING EXTENSION SERVICES	4.5	1,030.4	989.4	1,339.0	1,384.9	1,630.5	1,926.9	1,217.0	9,522.5
TRAINING	-	183.2	315.3	429.4	613.7	664.4	697.9	726.5	3,632.3
IRRIGATION	108.7	2,111.1	2,813.3	1,642.5	1,979.7	453.6	636.4	665.0	10,410.3
AGRICULTURE AND HORTICULTURE FARMS	114.0	804.5	611.7	538.3	382.9	441.3	692.5	271.0	3,856.3
LIVESTOCK DEVELOPMENT	37.3	953.5	1,056.8	1,069.6	1,151.4	1,168.0	1,485.0	1,074.5	7,996.0
AGRICULTURAL CREDIT	-	180.0	344.1	678.6	653.8	876.1	1,085.8	220.2	4,058.6
AGRICULTURAL INPUTS	76.8	185.3	531.1	364.8	482.2	390.4	315.9	447.2	2,713.6
Sub-Total AGRICULTURAL DEVELOPMENT	341.4	5,498.0	6,481.6	6,062.1	6,568.6	5,626.2	6,840.3	4,621.4	42,189.7
2. RURAL INFRASTRUCTURE, DRINKING WATER SUPPLY, BRIDGES, ROADS									
	369.6	1,718.3	2,849.4	2,650.4	3,333.2	3,634.5	3,824.5	3,996.6	22,396.5
3. FORESTRY, SOIL CONSERVATION AND WATER MANAGEMENT									
FOREST PLANTATION AND COMMUNITY FOREST DEVELOPMENT	303.9	1,280.5	1,893.7	2,888.0	3,198.3	2,689.7	2,405.9	942.3	15,602.0
SOIL CONSERVATION	49.7	721.6	799.4	952.8	1,115.2	1,198.9	1,502.6	1,119.5	7,459.7
Sub-Total FORESTRY, SOIL CONSERVATION AND WATER MANAGEMENT	353.5	2,002.1	2,693.1	3,840.8	4,313.5	3,888.6	3,908.5	2,061.8	23,061.7
4. IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT									
STRENGTHENING OF DDO	85.3	970.0	724.9	734.2	688.2	662.1	1,562.6	896.1	6,323.5
STRENGTHENING OF LDO	-	887.6	504.6	421.5	456.7	839.8	640.5	1,064.8	4,815.5
Sub-Total IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT	85.3	1,857.6	1,229.5	1,155.8	1,144.9	1,501.9	2,203.1	1,960.9	11,139.0
Sub-Total RASUMA	1,149.9	11,026.0	13,473.5	13,709.0	15,360.2	14,651.1	16,776.4	12,640.7	98,786.9
C. CENTRAL SUPPORT UNIT									
1. AGRICULTURAL DEVELOPMENT									
ON - FARM ADAPTIVE RESEARCH	-	615.0	617.4	442.8	297.2	347.7	670.7	348.1	3,379.0
APPROPRIATE TECHNOLOGY UNIT	-	308.4	330.5	335.1	382.1	408.0	429.3	448.6	2,642.1
Sub-Total AGRICULTURAL DEVELOPMENT	-	923.4	947.9	817.9	679.4	755.7	1,100.0	816.8	6,041.0
2. IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT									
PROJECT COORDINATORS OFFICE	377.7	2,220.4	1,441.3	1,218.5	1,131.3	1,170.6	2,436.4	1,266.7	11,243.0
STRENGTHENING OF DDM	69.3	984.3	1,189.0	1,397.0	1,585.5	881.1	1,096.5	592.1	7,794.8
STRENGTHENING OF DDA	-	361.4	141.1	145.6	150.5	155.2	471.3	142.6	1,587.6
TECHNICAL ASSISTANCE, OVERSEAS TRAINING AND STUDIES	1,087.5	10,328.2	11,357.7	12,220.3	2,312.1	623.9	184.3	189.2	39,163.2
Sub-Total IMPLEMENTATION SUPPORT AND INSTITUTIONAL DEVELOPMENT	2,334.6	13,894.3	14,129.1	14,981.4	5,179.4	2,830.8	4,186.4	2,210.5	59,748.6
Sub-Total CENTRAL SUPPORT UNIT	2,334.6	14,817.7	15,076.9	15,799.4	5,858.8	3,586.5	5,286.4	3,027.3	65,789.6
Total PROJECT COSTS	7,481.1	46,348.2	56,580.1	64,341.9	67,410.6	62,289.1	68,372.6	50,694.1	423,497.2

RDPL
ROADS - RURAL DEVELOPMENT PROJECT - PHASE II (RURAL II)
Project Coordinator's Office
Detailed Cost Table
(In \$ '000)

ANNEX 3
Table 4

	Unit	Quantity								Unit Cost	Base Data									
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	Total	
I. INVESTMENT COSTS																				
A. Civil Works																				
Resthouse at Botswana	no	-	0.2	0.5	0.2	-	-	-	-	1	300.00	-	107.0	170.0	68.0	-	-	-	-	345.0
Sub-Total Civil Works													107.0	170.0	68.0	-	-	-	-	345.0
B. Vehicles																				
4 40 Vehicles	no	-	3	-	-	-	-	1	-	4	200.00	-	600.0	-	-	-	-	-	600.0	1,200.0
Station Wagon	no	-	1	-	-	-	-	1	-	2	150.00	-	150.0	-	-	-	-	-	150.0	300.0
Sub-Total Vehicles													750.0	-	-	-	-	-	750.0	1,500.0
C. Equipment																				
Typewriter	no	-	5	-	-	-	-	-	-	5	7.00	-	35.0	-	-	-	-	-	35.0	35.0
Photocopier	no	-	1	-	-	-	-	1	-	2	45.00	-	45.0	-	-	-	-	-	45.0	90.0
Radio	no	-	1	-	-	-	-	1	-	2	90.00	-	90.0	-	-	-	-	-	90.0	180.0
Other Office Machines	1 unit	-	-	-	-	-	-	-	-	1	-	-	40.0	20.0	20.0	-	-	-	-	80.0
Carpet (Estimate)	1 unit	-	-	-	-	-	-	-	-	1	-	-	10.0	25.0	20.0	-	-	-	-	55.0
Sub-Total Equipment													180.0	220.0	60.0	20.0	-	-	40.0	480.0
D. Furniture																				
Furniture	1 unit	-	-	-	-	-	-	-	-	1	-	-	30.0	150.0	150.0	-	-	-	-	330.0
Sub-Total Furniture													30.0	150.0	150.0	-	-	-	-	330.0
Total INVESTMENT COSTS													60.0	1,222.0	370.0	90.0	-	-	770.0	3,440.0
II. RECURRENT COSTS																				
A. Staff Salaries and Allowances																				
1. Coordination Office																				
Coordinator	no	1	1	1	1	1	1	1	1	8	32.00	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	256.0
Personal Asst.	no	1	1	1	1	1	1	1	1	8	11.30	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	90.4
Sub-Total Coordination Office													43.3	43.3	43.3	43.3	43.3	43.3	43.3	346.4
2. Financial Administration Section																				
Dr. Accountant	no	1	1	1	1	1	1	1	1	8	19.00	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	152.0
Accountant	no	1	1	2	2	2	2	2	1	13	11.30	11.3	11.3	22.6	22.6	22.6	22.6	22.6	11.3	145.9
Sub-accountant	no	1	1	2	2	2	2	2	1	13	9.15	9.1	9.1	18.2	18.2	18.2	18.2	18.2	9.1	138.3
Sub-Total Financial Administration Section													39.0	39.0	60.2	60.2	60.2	60.2	39.0	426.4
3. Planning, Monitoring and Evaluation Section																				
Planning Officer	no	1	1	1	1	1	1	1	1	8	19.00	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	152.0
Research Asst.	no	-	2	2	2	2	2	2	2	14	11.30	-	22.6	22.6	22.6	22.6	22.6	22.6	22.6	158.2
Sub-Total Planning, Monitoring and Evaluation Section													19.0	42.0	42.0	42.0	42.0	42.0	42.0	310.2
4. Training and Communication Section																				
Training Officer	no	0.5	1	1	1	1	1	1	1	7.5	19.00	9.5	19.0	19.0	19.0	19.0	19.0	19.0	19.0	145.5
Research Asst.	no	0.5	1	2	2	2	2	2	1	13.5	11.30	5.7	11.3	22.6	22.6	22.6	22.6	22.6	11.3	141.3
Artist	no	-	1	1	1	1	1	1	1	7	11.30	-	11.3	11.3	11.3	11.3	11.3	11.3	11.3	79.1
Sub-Total Training and Communication Section													15.0	42.0	53.3	53.3	53.3	53.3	53.3	365.9
5. Extension Services Section																				
Regional Engineer	no	0.5	1	1	1	1	1	1	1	7.5	26.30	13.2	26.3	26.3	26.3	26.3	26.3	26.3	26.3	197.3
Asst. Engineer	no	0.5	1	1	1	1	1	1	1	7.5	21.50	10.8	21.5	21.5	21.5	21.5	21.5	21.5	21.5	161.3
Devisors	no	0.5	1	2	2	2	2	2	1	12.5	12.00	6.0	12.0	24.0	24.0	24.0	24.0	24.0	12.0	108.0
Professors	no	0.5	1	1	1	1	1	1	1	7.5	12.00	6.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	90.0
Sub-Total Extension Services Section													26.7	72.0	86.2	86.2	86.2	86.2	72.0	614.5
6. Administration Section																				
Admin. Officer	no	1	1	1	1	1	1	1	1	8	19.00	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	152.0
Office Asst.	no	1	2	3	3	3	3	3	1	19	11.30	11.3	22.6	22.6	22.6	22.6	22.6	22.6	11.3	214.7
Dr. Typist	no	1	1	1	1	1	1	1	1	8	11.30	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	90.4
Typist	no	1	5	6	6	6	6	6	1	37	9.10	9.1	45.5	54.6	54.6	54.6	54.6	54.6	9.1	336.7
Stenographer	no	1	1	1	1	1	1	1	1	8	9.10	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	72.8
Radio/Visual Aids Developer	no	0.5	1	1	1	1	1	1	1	7.5	9.10	4.6	9.1	9.1	9.1	9.1	9.1	9.1	9.1	68.3
Guest Housekeeper-cum-Cook	no	-	1	1	1	1	1	1	1	7	11.30	-	11.3	11.3	11.3	11.3	11.3	11.3	11.3	79.1
Driver	no	-	4	4	4	4	4	4	4	29	7.00	-	28.0	28.0	28.0	28.0	28.0	28.0	28.0	252.0
Peon	no	6	6	7	7	7	7	7	7	54	5.70	34.2	34.2	37.9	37.9	37.9	37.9	37.9	37.9	307.8
Sub-Total Administration Section													186.6	192.9	219.0	219.0	219.0	219.0	219.0	1,545.4
7. Kofuanda Liaison Office																				
Office Asst.	no	1	1	1	1	1	1	1	1	8	11.30	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	90.4
Dr. Typist	no	1	1	1	1	1	1	1	1	8	11.30	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	90.4
Clk/Typist	no	1	1	1	1	1	1	1	1	8	9.10	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	72.8
Peon	no	1	1	1	1	1	1	1	1	8	5.70	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	45.6
MADE OPERATOR	no	0.5	1	1	1	1	1	1	1	7.5	9.10	4.6	9.1	9.1	9.1	9.1	9.1	9.1	9.1	68.3
Sub-Total Kofuanda Liaison Office													42.0	46.5	46.5	46.5	46.5	46.5	46.5	367.5
Sub-Total Staff Salaries and Allowances													202.1	479.9	572.2	572.2	572.2	572.2	572.2	4,172.4
B. BUILDING, VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE																				
Vehicle Op	-	-	-	-	-	-	-	-	-	-	-	-	120.0	120.0	120.0	120.0	120.0	120.0	120.0	960.0
Equipment Maintenance	-	-	-	-	-	-	-	-	-	-	-	-	12.0	12.0	12.0	12.0	12.0	12.0	12.0	96.0
Office Rent (Botswana)	-	-	-	-	-	-	-	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0	160.0
Sub-Total BUILDING, VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE													152.0	152.0	152.0	152.0	152.0	152.0	152.0	1,216.0
C. OFFICE SUPPLIES AND COMMODITIES																				
Office Expenses	-	-	-	-	-	-	-	-	-	-	-	-	90.0	90.0	90.0	90.0	90.0	90.0	90.0	720.0
Sub-Total OFFICE SUPPLIES AND COMMODITIES													90.0	90.0	90.0	90.0	90.0	90.0	90.0	720.0
3. OTHER EXPENDITURE																				
INVESTMENT TAXES	VALUE	-	-	-	-	-	-	-	-	-	-	-	10.0	10.0	10.0	10.0	10.0	10.0	10.0	80.0
Sub-Total OTHER EXPENDITURE													10.0	10.0	10.0	10.0	10.0	10.0	10.0	80.0
Total RECURRENT COSTS													212.1	779.9	910.5	910.5	910.5	910.5	910.5	6,772.4
Total													272.3	2,001.9	1,280.5	1,044.5	982.5	982.5	982.5	4,212.4

NEPAL

RASUWA-NUNAKOT RURAL DEVELOPMENT PROJECT - PHASE-II (RASNUDEV II)INCREMENTAL STAFF REQUIREMENTS
PROFESSIONAL TECHNICAL & MANAGERIAL*

		<u>Established</u> <u>Posts</u>	<u>In Post</u>	<u>Total</u> <u>Project</u> <u>Requirement</u>	<u>Incremental</u> <u>Staff</u>
A. <u>Gazetted Staff</u>					
<u>Salary Grade</u>	<u>Job</u>				
G/II/T	Senior Agriculture, Engineering and Forestry Staff at District Level.	4	4	13	9
G/III/T	SMS, Forest Officer, Assistant Agronomist, Horticulturist, Production Officer, Assist. Engineers, etc.	27	15	47	32
G/II/NT	Local Development Officer	2	2	2	-
G/III/NT	Planning Officer Administrative Officers	2	2	11	9
TOTAL Gazetted Staff		35	23	73	50
B. <u>Non-gazetted Staff</u>					
NG/I/T	JTs, Overseers, Draftsmen, Research Assistants, Forest Rangers, etc.	98	69	140	70
NG/II/T	JTA, Assistant Ranger, Sub-Overseer, Field Assistant, etc.	95	47	150	103
NG/III/T	Accountants	8	8	20	12
NG/I/NT	Senior Clerks, Adm. Officer	15	10	30	20
NG/II/NT	Typist, Clerks, Stockmen, etc.	39	29	117	88
TOTAL Non-Gazetted Staff		255	163	457	294

* Only district level offices and
excluding Project Coordinators Office.

NEPALRASUWA-NUWAKOT RURAL DEVELOPMENT II PROJECTEstimated Disbursement Schedule

<u>IDA Fiscal Year by Semester</u>	<u>Semester</u>	<u>Cumulative</u>	<u>%</u>
	-----US\$ M -----		
<u>FY87</u>			
1st Semester	.4	.4	
2nd Semester	.6	1.0	5.0
<u>FY88</u>			
1st Semester	0.8	1.8	
2nd Semester	1.0	2.8	15.0
<u>FY89</u>			
1st Semester	0.9	3.7	
2nd Semester	1.1	4.8	25.0
<u>FY90</u>			
1st Semester	1.2	6.0	
2nd Semester	1.3	7.3	38.0
<u>FY91</u>			
1st Semester	1.4	8.7	
2nd Semester	1.6	10.3	54.0
<u>FY92</u>			
1st Semester	1.6	11.9	
2nd Semester	2.1	14.0	73.0
<u>FY93</u>			
1st Semester	1.5	15.4	
2nd Semester	2.0	17.4	91.0
<u>FY94</u>			
1st Semester	1.7	19.1	100.0
2nd Semester			

NEPAL

RASUMA-NUMAKOT RURAL DEVELOPMENT II PROJECT

ECONOMIC ANALYSIS TOTAL PROJECT @/

NRS' 000

1
23
1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
I. COSTS																			
TOTAL PROJECT COST	5615	32225	35914	38994	40747	35225	38929	26975	-	-	-	-	-	-	-	-	-	-	-
VEHICLE AND EQUIPMENT REPLACEMENT	-	-	-	-	-	-	-	-	971	727	2134	13367	4787	971	727	2134	13367	4787	971
POST PROJECT RECURRENT COSTS	-	-	-	-	-	-	-	-	5659	5659	5659	5659	5659	5659	5659	5659	5659	5659	5659
LABOU DHIKURE IRRIGATION SCHEME ON FARM COST	-	88	331	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
CROP INTENSIFICATION ON FARM COST	2	190	895	2034	3522	4541	4770	5246	5246	5246	5246	5246	5246	5246	5246	5246	5246	5246	5246
TOTAL PROJECT COST	5617	32503	36940	41420	44661	40158	44091	32613	12268	12024	13431	24664	16064	12268	12024	13431	24664	16064	12288
II. BENEFITS																			
FORESTRY BENEFITS	-	-	93	110	125	175	240	9775	9825	9825	9825	9825	9825	9825	9825	14550	16125	34500	52875
LIVESTOCK BENEFIT	-	17	140	688	1455	3180	4933	6658	5488	5838	7042	9031	9645	8417	8265	8102	8099	8099	8099
LABOU DHIKURE IRRIGATION SCHEME	-	481	1129	1598	1598	1598	1598	1598	1598	1598	1598	1598	1598	1598	1598	1598	1598	1598	1598
CROP INTENSIFICATION	136	982	3038	9293	17661	22359	23519	25839	25839	25839	25839	25839	25839	25839	25839	25839	25839	25839	25839
RASUMA MIDHILLS MAIZE BASED NET BENEFIT	88	174	483	403	403	403	403	403	403	403	403	403	403	403	403	403	403	403	403
RASUMA MIDHILLS PADDY BASED NET BENEFIT	86	379	856	823	823	823	823	823	823	823	823	823	823	823	823	823	823	823	823
NUMAKOT MIDHILLS MAIZE BASED NET BENEFIT	43	184	501	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421
NUMAKOT MIDHILLS PADDY BASED NET BENEFIT	94	411	948	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923	923
NET BENEFIT VALLEY FLOOR	-181	1302	2831	3299	3627	3627	3627	3627	3627	3627	3627	3627	3627	3627	3627	3627	3627	3627	3627
NET BENEFIT SIMRA	-	105	104	13	147	434	434	551	1142	2253	2252	2251	2251	2251	2251	2251	2251	2251	2251
NET BENEFIT THANSING	-	161	210	210	210	210	210	1023	1450	1806	1806	1812	1812	1812	1812	1812	1812	1812	1812
NET BENEFIT RATOMATO	-	311	463	512	1310	2191	3453	3453	3221	2964	2652	2651	2649	2649	2649	2649	2649	2649	2649
NET BENEFIT GADHKAR SCHEME	-	-	224	472	472	472	472	472	472	472	472	472	472	472	472	472	472	472	472
NET BENEFIT BOXKETAR CHOMKETAR SCHEME	-	-	-	-	-	365	717	955	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084
HORTICULTURE BENEFIT	-37	-60	-106	-146	-175	-185	-163	-100	-27	80	178	252	314	358	391	414	425	425	425
TOTAL PROJECT BENEFITS	229	4427	10914	18619	29000	36996	41810	56421	55289	57956	58945	61012	61686	60502	60383	64968	66551	64926	103301
INCREMENTAL NET BENEFITS																			
INCREMENTAL NET BENEFITS	-5388	-28076	-26026	-22801	-15661	-3162	-2481	23808	44021	45922	45514	36348	45622	48234	48359	51537	41887	68862	91033
@/ EXCLUDING 50% OF AGTRAINING, ADAPTIVE RESEARCH, SOIL CONSERV., RURAL INFRAS., TA AND O/S TRAINING AND 100% OF ATU.																			

NEPAL

 RASUNA-NUMAKOT RURAL DEVELOPMENT II PROJECT

 ECONOMIC ANALYSIS TOTAL PROJECT a/

 NRS' 000

	20	21	22	23	24	25	26	27	28	29	30
I. COSTS											
TOTAL PROJECT COST											
VEHICLE AND EQUIPMENT REPLACEMENT	727	2134	13367	4767	971	727	2134	13367	4767	971	727
POST PROJECT RECURRENT COSTS	5659	5659	5659	5659	5659	5659	5659	5659	5659	5659	5659
LABDU DHIKURE IRRIGATION SCHEME ON FARM COST	392	392	392	392	392	392	392	392	392	392	392
CROP INTENSIFICATION ON FARM COST	5246	5246	5246	5246	5246	5246	5246	5246	5246	5246	5246
TOTAL PROJECT COST	12024	13431	24664	16064	12268	12024	13431	24664	16064	12268	12024
II. BENEFITS											
FORESTRY BENEFITS	58125	47100	22425	6675	4050	4050	4050	4050	4050	4050	4050
LIVESTOCK BENEFIT	8099	8099	8099	8099	8099	8099	8099	8099	8099	8099	8099
LABDU DHIKURE IRRIGATION SCHEME	1598	1598	1598	1598	1598	1598	1598	1598	1598	1598	1598
CROP INTENSIFICATION	25839	25839	25839	25839	25839	25839	25839	25839	25839	25839	25839
RASUNA MIDHILLS MAIZE BASED NET BENEFIT	403	403	403	403	403	403	403	403	403	403	403
RASUNA MIDHILLS PADDY BASED NET BENEFIT	823	823	823	823	823	823	823	823	823	823	823
NUMAKOT MIDHILLS MAIZE BASED NET BENEFIT	421	421	421	421	421	421	421	421	421	421	421
NUMAKOT MIDHILLS PADDY BASED NET BENEFIT	923	923	923	923	923	923	923	923	923	923	923
NET BENEFIT VALLEY FLOOR	3627	3627	3627	3627	3627	3627	3627	3627	3627	3627	3627
NET BENEFIT SIMRA	2251	2251	2251	2251	2251	2251	2251	2251	2251	2251	2251
NET BENEFIT THANSING	1812	1812	1812	1812	1812	1812	1812	1812	1812	1812	1812
NET BENEFIT RATOMATO	2649	2649	2649	2649	2649	2649	2649	2649	2649	2649	2649
NET BENEFIT GADUKAR SCHEME	472	472	472	472	472	472	472	472	472	472	472
NET BENEFIT BOKETAR CHONKETAR SCHEME	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084	1084
HORTICULTURE BENEFIT	425	425	425	425	425	425	425	425	425	425	425
TOTAL PROJECT BENEFITS	108551	97526	72851	57101	54476						
INCREMENTAL NET BENEFITS											
INCREMENTAL NET BENEFITS	96527	84095	48187	41037	42208	42452	41045	29812	38412	42208	42452

November 15, 1985 18:57

Internal Rates of Return of Net Streams

N. TOTAL 29.45%

SWITCHING VALUES AT 13.5%

STREAM	APPRAISAL VALUE	SWITCHING VALUE	PERCENTAGE CHANGE
B. TOTAL	214,093.70	131,080.48	38.77%
C. TOTAL	131,080.48	214,093.70	63.33%

Net Present Value at DCC 13.5% = 83,013.2
 Internal Rate of Return = 29.4%
 Coupon Equivalent Rate of Return = 22.6%

SENSITIVITY ANALYSIS

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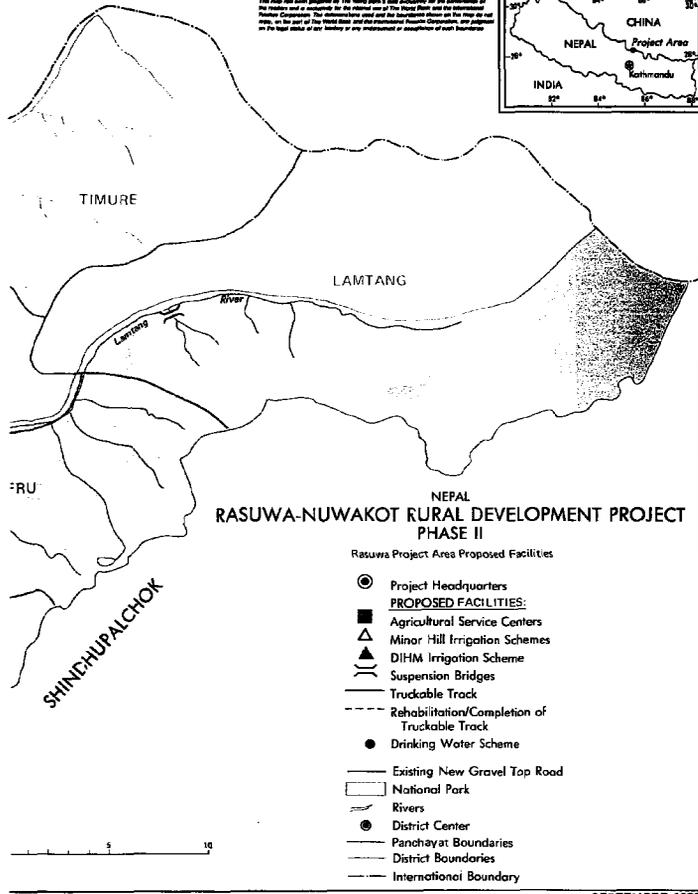
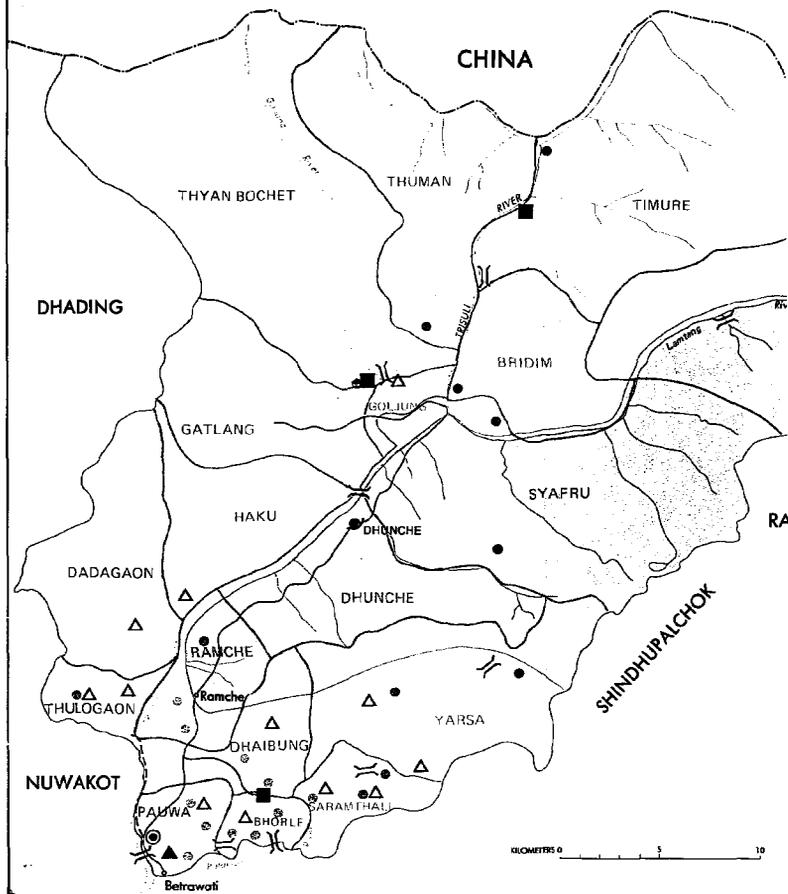
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RASUWA-NUWAKOT RURAL DEVELOPMENT PROJECT - PHASE II (RASNUDEV II)

Selected List of Documents in Project File

- A1 The Overlooked Link in Agricultural Planning - Mimeographed Report by Mr. Bharat B. Pradhan; September 1981.
- A2 Rural Development and Decentralization in Nepal - Paper presented to Nepal Aid Group meeting by HMG/N; April 1985.
- B1 Rasuwa-Nuwakot Rural Development Project, Second Phase Project Preparation Report, APROSC; July 1983 (in four volumes).
- C1 Project File - Detailed Project Costs.
- C2 Project File - Working Papers on Organization.
 - Item 1 - Project Organization & Implementation
 - Item 2 - Technical Assistance & Overseas Training
 - Item 3 - Summary of Decentralization Act & Rules
 - Item 4 - Job Descriptions (LDO, Planning Officer & Village Secretary)
- C3 Project File - Working Papers on Agriculture, Irrigation & Rural Infrastructure Development

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NEPAL RASUWA-NUWAKOT RURAL DEVELOPMENT PROJECT PHASE II

Rasuwa Project Area Proposed Facilities

- Project Headquarters
- PROPOSED FACILITIES:
- Agricultural Service Centers
- ▲ Minor Hill Irrigation Schemes
- ▲ DHM Irrigation Scheme
- Suspension Bridges
- Truckable Track
- - - Rehabilitation/Completion of Truckable Track
- Drinking Water Scheme
- Existing New Gravel Top Road
- National Park
- Rivers
- District Center
- Panchayat Boundaries
- District Boundaries
- International Boundary

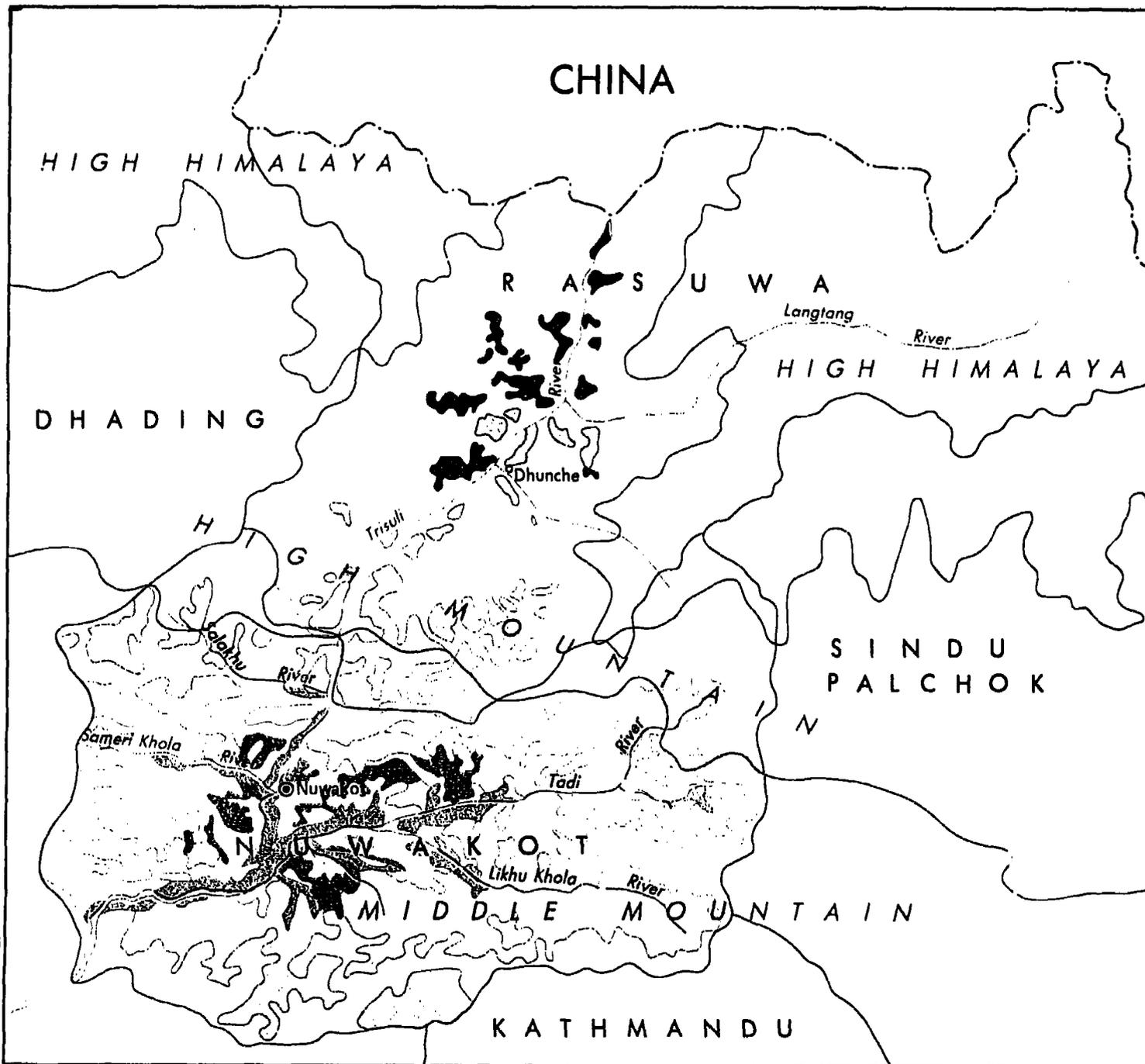
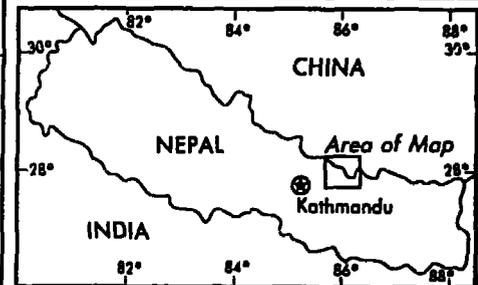
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RASUWA-NUWAKOT
RURAL DEVELOPMENT PROJECT
PHASE II

TYPE OF CULTIVATED LANDS

-  Sloping Terraces
-  Valley Floors, Tars, Alluvial Fans and Footslog
-  Level Terraces
-  Rivers
-  Physiographic Boundaries
-  District Boundaries
-  International Boundaries
-  District Headquarter

KILOMETERS 0 5 10

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SEPTEMBER 1985

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