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NEPAL

STAFF APPRAISAL REPORT

OF THE

AGRICULTURAL EXTENSION PROJECT II

March 6, 1985

South Asia Projects Department
General Agriculture Division

CURRENCY EQUIVALENTS

US$ 1 = Nepalese Rupees 18.5

WEIGHTS AND MEASURES

Metric System

FISCAL YEAR

July 16 - July 15

ABBREVIATONS

AA	-	Agricultural Assistant
AADO	-	Assistant Agricultural Development Officer
ADBN	-	Agricultural Development Bank, Nepal
ADO	-	Agricultural Development Officer
AIC	-	Agricultural Inputs Corporation
CSP	-	Cropping Systems Program
CTC	-	Central Technical Committee
DDG	-	Deputy Director General
DG	-	Director General
DOA	-	Department of Agriculture
DTC	-	District Technical Committee
HMG	-	His Majesty's Government of Nepal
ICP	-	Integrated Cereals Project
JT	-	Junior Technician
JTA	-	Junior Technical Assistant
MOA	-	Ministry of Agriculture
PC	-	Project Coordinator
PLAA	-	Panchayat Level Agricultural Assistant
PO	-	Production Officer
ROO	-	Research Outreach Officer
RRC	-	Regional Research Coordinator
RRS	-	Regional Research Station
RTC	-	Regional Training Center
SAEO	-	Senior Agricultural Extension Officer
SMS	-	Subject Matter Specialist
T&V	-	Training and Visit System

NEPAL

AGRICULTURAL EXTENSION PROJECT II

Table of Contents

Credit and Project Summary

ANNEXES

NEPAL

AGRICULTURAL EXTENSION PROJECT II

Credit and Project Summary

Borrower: Kingdom of Nepal

Amount: SDR 7.4 million (US$7.2 million equivalent)

Terms: Standard

Project Description: The project is the second phase of an IDA-supported introduction of the Training and Visit (T&V) extension system in Nepal. This phase would reorganize and strengthen agricultural extension services in eleven administrative districts in the Terai with the objective of achieving early and sustainable improvement in agricultural productivity. The project would aim to bring about these increases by advocating adoption of low-cost and labor-intensive agricultural practices, sound irrigation water management, thus facilitating better cropping patterns, greater crop diversification and more efficient fertilizer usage. The project would also provide for training of staff and monitoring and evaluation of project activities. Given our experience with the first project and the considerable expertise we have developed in introducing the T&V system in Nepal and other countries in the region, no major risks are anticipated. Moreover, the second phase builds upon an existing extension structure, the incremental cost per hectare and per farm family is low and, therefore, even small production increases would generate high returns. Risks arising out of extension staff management have been minimized by providing that all staff would fall under the administrative control of a single government agency.

Estimated Cost:

Item	Local	Foreign	Total
	US$ million		
Civil Works	1.3	1.3	2.6
Vehicles and Equipment	0.2	0.8	1.0
Incremental Staff	1.6	-	1.6
Incremental Operating Cost	0.5	0.3	0.8
Training	0.4	-	0.4
Monitoring and Evaluation	0.1	-	0.1
Total Base Costs	4.0	2.4	6.5
Contingencies			
Physical Contingency	0.4	0.3	0.7
Price Contingency	0.9	0.5	1.4
Total Project Costs	5.3	3.2	8.5

Financing Plan:

	Local	Foreign	Total
	US$ million		
IDA	4.0	3.2	7.2
HMGN	1.3	-	1.3
Total	5.3	3.2	8.5

Estimated Disbursement:

	IDA FY					
	FY86	FY87	FY88	FY89	FY90	FY91 1/
Annual	0.3	0.7	1.6	2.0	2.1	0.5
Cumulative	-	1.0	2.6	4.6	6.7	7.2

1/ One semester.

Economic Rate of Return: 50 percent

Appraisal Report: NEPAL - Agricultural Extension Project : Phase II
Report No. 5096-NEP, dated March 6, 1985

NEPAL

AGRICULTURAL EXTENSION PROJECT II

I. BACKGROUND

A. Introduction

1.01 As part of Bank assisted irrigation projects in the Terai region of Nepal, His Majesty's Government of Nepal (HMG) introduced the Training and Visit System (T&V) of agricultural extension (over the period 1975-79) into six districts. 1/ Encouraged by increasing yields achieved in the first two districts (Bara and Parsa covered by the Narayani Irrigation Project), HMG decided, at the time of the formulation of the Sixth Five Year Plan, to set up a more effective and unified National Agricultural Extension Program in the Terai. As part of this strategy HMG, with assistance from IDA, introduced improved agricultural extension into a further eight districts 2/ of the Terai. HMG has since decided to extend the system to the remaining districts of the Terai. The proposed project would cover six districts not covered under the previous project and also continue the strengthening of extension services in five irrigation project districts (previously covered under IDA assisted projects) to ensure an uniform approach, and thus completing the coverage by improved extension of all the 20 Terai districts. 3/ With the consent of HMG, Mr. R.C. Mishra, Project Coordinator, Agricultural Extension and Research Project formulated a draft outline of the proposed project. Preappraisal of the project was carried out by IDA in November/ December 1983. This report is based on the findings of an IDA appraisal by Mr. R. V. Ramakrishna (IDA) who visited Nepal in March 1984.

B. The Country

1.02 Nepal is landlocked between China and India. It is divided into three parallel ecological zones running east-west: the Terai plain, an extension of the Gangetic Plain of India; the Hills, actually the foothills of the Himalayas, ranging from 500 M to 4,000 M in elevation; and the Himalayan

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1/ Birganj and Narayani Irrigation Projects (Crs. 373 and 856-NEP) in Bara, Parsa and Rautahat districts; Bhairawa-Lumbini Groundwater Project: Stage I (Cr. 654-NEP) in Rupandehi district; and Sunsari-Morang Irrigation and Drainage Development Project (Cr. 1055-NEP) in Sunsari and Morang districts.

2/ Agricultural Extension and Research Project (Cr. 1100-NEP) covering Jhapa, Sarlahi, Mahottari, Dhanusha, Kapilabastu, Chitwan, Nawalparasi and Banke districts.

3/ Rupandehi district is fully covered by improved extension under the ongoing Bhairawa-Lumbini Groundwater Project: Stage II (Cr. 1316-NEP, US$16.0 M, effective 1983).

Mountains to the North. These three zones account for 17 percent, 68 percent, and 15 percent of the total area (140,800 sq.km), respectively. Rivers and streams, running north to south, cut the Hills into isolated areas and varying microclimatic conditions and provide a range of conditions for plant growth, depending on elevation, aspect, cloud cover, slope, etc.

1.03 Nepal's population, 96 percent of which is rural, is currently estimated at 15 M and is increasing at a rate of 2.7 percent annually. About 44 percent of the population lives in the Terai, where a higher rate of population increase (4.1 percent) is partially due to migration from the Hills and India. GNP per capita in Nepal, at about US$170, is among the lowest in the world.

1.04 Administratively, Nepal is divided into five development regions. Each of these comprises a section of the country, running north to south, containing Mountain, Hill and Terai areas. Each development region is divided into either two or three development zones, which are further divided into districts. The districts contain varying numbers of town and village panchayats and there are nine wards (the smallest socioeconomic units) in each panchayat. In rural areas the ward consists of about two hamlets.

C. Agriculture in Nepal

1.05 With farm production and related activities comprising about 60 percent of GDP, agricultural development is the key to economic development in Nepal. Agriculture engages about 90 percent of the labor force and provides more than 80 percent of all merchandise exports. Only about one sixth of the land area is available for cultivation of which about 15 percent is irrigated. About 90 percent of the cropped area is grown to foodgrains, predominantly rice (half of cropped area), followed by maize, wheat and pulses. Less than 10 percent of the cropped area is under cash crops, mainly oilseeds, jute, sugarcane and tobacco.

1.06 During the seventies, the trend in production of major foodgrains was not encouraging, except for wheat which increased at an average rate of 9.6 percent p.a. Overall production grew at 1.1 percent annually largely due to expansion in acreage, while average yields, again with the exception of wheat, fell at a rate of 0.8-0.9 percent per year. Erratic monsoon conditions and uneven distribution as well as higher cost of fertilizers partly account for the decline, but inadequate extension advice and other supporting services, cultivation of marginal lands and inappropriate pricing policies have also contributed to the slow growth.

1.07 Agricultural Strategy. Nepal's Sixth Plan (1980-85) has given priority to increased food production in the Hills and the Terai. So far in the Sixth Plan, HMG has devoted special efforts to increasing the supply and storage of fertilizer, improving extension services in the Terai, increasing and encouraging the proper utilization of irrigation, and to accelerating the completion of seed and post harvest grain preservation projects. These efforts, aided by favorable monsoons, led to agricultural GDP growth of 10

percent in 1980/81 and 3.5 percent in 1981/82. The high growth in 1980/81 was from a base of 1979/80 output and which had been low due to drought. When averaged over the more normal 1978/79 production base, agricultural growth in 1980/81 was about 2.5 percent, which was still higher than the rate obtained in many preceeding years. The highest gross foodgrain production (3.7 M tons) in 1981/82 was 16 percent below the 4.4 M tons required to satisfy the minimum needs of the population. In 1982/83, Nepal experienced another drought and compared to the previous year agricultural output declined by an estimated 11 percent. 1983/84, however, has been a favorable year with preliminary estimates indicating gross foodgrain production of 4.2 M tons, compared to 3.3 M tons in 1982/83.

Agricultural Institutions

1.08 Agricultural development and policy are the main 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) which is responsible for promoting production through research, training and extension. MOA has also overall responsibility for institutions such as the Agricultural Development Bank of Nepal (ADBN) and the Agricultural Inputs Corporation (AIC). The Director General of Agriculture heads DOA and is assisted by four Deputy-Directors General one each responsible for Crop Development, Extension and Services, Horticulture and Fisheries, and Planning and Coordination.

1.09 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 Eastern Region, 25 in Central Region, 10 in Western Region, and 10 in 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. The research service is charged with the responsibility for providing suitable agricultural technology for development of all the regions and climatic zones of Nepal. Considerable progress in the development of appropriate farming recommendations has been made largely as a result of the Integrated Cereals Project (ICP), assisted by USAID. This program has shown the benefits of a coordinated approach to rice, wheat, and maize research and production. The Cropping Systems Program (an integral part of ICP) has been able to develop improved cropping patterns and technology in selected districts of the Terai under irrigated and rainfed conditions through use of short duration varieties, early planting, introduction of additional crops into the rotation and balanced fertilizer use. In the irrigated lowland areas, cropping patterns e.g., Rice-Wheat-Maize, Rice-Wheat-Mungbean and Rice-Mustard-Maize using improved technology developed by the Cropping Systems Program (CSP) produced marked increases in annual yields and returns as compared to prevailing traditional cropping pattern of Rice-Wheat-Fallow. As a first step, to increasing production on a wider scale, DOA has implemented a Pilot Production Program (by mobilizing timely supply of seed, fertilizer, credit and irrigation water and embodying the recommendations of CSP) over compact blocks of 150-500 ha. As a result

of adoption of this improved technology, total annual yields of all crops under irrigation have increased from 4.5 tons/ha to between 6.5 and 7 tons/ha. Under rainfed lowland conditions, a few common cropping patterns have also been developed using improved technology and have led to significant yield increases. During the last winter season, a Pilot Production Program was initiated for rainfed areas involving adoption of improved practices under existing crop rotations.

1.10 Under the IDA assisted Agricultural Extension and Research Project (Cr. 1100-NEP) and the Cash Crop Development Project (Cr. 1339-NEP), agricultural research activities in the Terai are being strengthened by providing staff, equipment and buildings and decentralized by designating four of the existing research stations as Regional Research Stations (RRS). These are at: Tarahara (Eastern Region), Parwanipur (Central Region), Bhairawa (Western Region), and Nepalganj (Far Western Region). In addition, four research substations located at Nawalpur for oilseeds (Sarlahi district), Jitpur for sugarcane (Bara district), and Belachapi for tobacco and Hardinath for horticulture and cereals (Janakpur district) are being developed.

1.11 Each RRS, headed by a Regional Research Coordinator, is responsible for coordinating research activities on RRS and research substations located within the region. Research efforts focus on principal crops grown under the different agroclimatic conditions prevailing in the jurisdiction of each RRS with special emphasis on varietal trials, improvement of cultivation practices, dryland farming techniques, soil and water management, improved farm implements, and farming systems and cropping patterns designed to increase farmers' income levels. Research substations are used for testing of research results and to work on specific crops allotted to them. One Research Outreach Officer (ROO) has been provided for each RRS with responsibility for designing and helping in carrying out adaptive trials on farmers' fields and to work closely with subject matter specialists (SMS), extension staff, farmers, and research workers, and form an important link between research and extension. ROO also has an active role in training SMS which is carried out at RRS once every two months.

1.12 As a result of the above, research activities throughout the Terai have been reorganized, considerably strengthened and a flow of relevant and practical technology started.

1.13 Agricultural Credit. The single major source of institutional credit is the Agricultural Development Bank, Nepal (ADBN), established in 1968. It is expected to provide the overall credit requirements of agriculture and agro-based industries, and ensure effective mobilization of rural savings. The Sajha (cooperative) program provides short term production credit to farmers with funds made available from ADBN for onlending to its members. More recently, commercial banks have also become involved in agricultural credit but their volume of lending is small.

1.14 The standard terms and conditions of lending by ADBN are 18 months duration for short term loans with a 15 percent annual interest rate, 7 years for medium loans at 12 percent annual interest rate, and 20 years for long

term loans with an 8 percent interest rate. ADBN has no constraints in the delivery of credit as it has offices located throughout the country.

1.15 Lending by ADBN increased about eight-fold during the five year period between 1972/73 (Rs. 36 M) and 1977/78 (Rs. 283 M). Lending, however, declined thereafter in 1978/79 (Rs. 218 M), 1979/80 (Rs. 140 M), and 1980/81 (Rs. 134 M). The total lending increased to Rs. 140 M in 1981/82. Further increases are reported for 1982/83. The main reason for decline in lending operations was due to deteriorating repayment performance. Loan overdues increased from 22.6 percent (Rs. 50 M) to 47 percent (Rs. 217 M) in 1979/80. Since then the situation has improved. The Asian Development Bank has provided continued assistance to ADBN for agricultural credit and small farmer development.

1.16 Cooperatives. The Sajha development program was introduced in early 1976 to revitalize the cooperative movement, mobilize local savings, and to link economic development with political decentralization at the local level. The objectives of the Sajhas are 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. Further, at the village panchayat level, they act as the local agent of the Agricultural Inputs Corporation. There are 1,170 registered societies, the majority of which suffer from poor management and lack of resources.

1.17 Agricultural Inputs. The Agricultural Inputs Corporation (AIC), is the sole government agency responsible for supply of inputs and was established in its present form in 1975/76. Its functions include: (a) importation and distribution of chemical fertilizers and maintenance of a buffer stock sufficient for at least one cropping season; (b) collection, processing, storage and distribution of improved seed and assistance to DOA in conducting seed multiplication programs; (c) procurement and distribution of agricultural chemicals for plant protection and grain storage; and (d) distribution of locally manufactured agricultural tools and implements as well as importation and distribution of agricultural machinery. AIC also multiplies improved seed through contract growers and is responsible for distribution of seed produced on government farms. In general AIC suffers from lack of finances to import fertilizer on time and in adequate quantities. In recent years about 40 percent of fertilizer imports, largely urea and complex mixtures, have been obtained in the form of external commodity aid. The prices of chemical fertilizers sold in Nepal are fixed at an uniform rate throughout the country by HMG, taking into account the import prices and retail prices in the adjoining border areas of India. The uniform pricing practice implies subsidization of the cost of fertilizer, particularly to the Hills. However, the bulk of fertilizers (90 percent) is consumed in the Terai and the Kathmandu Valley. Partly as a result of declining import prices and increased retail prices, the rate of subsidy on the import price of Urea has been reduced from 32 percent in 1980/81 to nil in 1983/84, and for complex fertilizer from 26 percent in 1980/81 to 3 percent in 1983/84. Transportation cost of seed from the Terai to the Hills is fully subsidized. Budgetary subsidies to AIC amounted to Rs. 56 M in 1982/83, equivalent to

about 3 percent of regular expenditure and 2 percent of current revenue in that year.

1.18 Agricultural Prices. A principal aim of agricultural pricing policy in Nepal has been to ensure low and stable food prices for consumers who spend 70 to 80 percent of their incomes on food. Producer price policy has aimed at providing input subsidies and announcing minimum support prices, usually fixed at below the expected market prices, for major foodgrains and cash crops but keeping in mind the need to contain consumer prices. While fertilizer procurement and distribution is entirely a public sector undertaking (AIC) in Nepal, the grain output market is predominantly a private sector operation and public procurement of foodgrains amounts to less than 15 percent of marketed output. The Nepal Food Corporation (NFC) procures foodgrains in the Terai for distribution to the deficit Hill areas and subsidizes transportation costs to the Hills at a differential rate, which increases in direct relation to the remoteness of the deficit areas. Overall, budgetary subsidies to NFC amounted to Rs. 80 M in 1982/83, equivalent to 4 percent of regular expenditure, and 3 percent of current revenue, in that year.

The Bank's Role in the Agricultural Sector

1.19 The Bank, through its current and proposed programs seeks to assist Nepal's development objectives and strategy and the agricultural sector has received priority in the Bank's lending program. Past investments have been predominantly oriented towards increasing agricultural production with emphasis on the agriculture of the Terai and development of its major irrigation infrastructure - the Birganj and Narayani Irrigation Projects (Crs. 373-NEP and 856-NEP); the Sunsari-Morang Irrigation Project (Cr. 812-NEP); Bhairawa-Lumbini Groundwater Projects I and II (Crs. 654-NEP and 1316-NEP); and the Mahakali Irrigation Project I (Cr. 1055-NEP). These projects have made satisfactory progress (para 1.30). The Agricultural Extension and Research Project (Cr. 1100-NEP) will reorganize extension services in eight districts of the Terai and strengthen applied and adaptive research (para 1.29). The recently started Cash Crops Project (Cr. 1339-NEP) will promote the commercial production of sugarcane, tobacco and oilseeds in the Terai, initiate pilot development of sericulture (Hills) and groundnut, and strengthen ginger research (Hills). In addition, IDA is assisting in integrated rural development in the Hills (Cr. 939-NEP) which also addresses hill food production and includes a minor irrigation component. Implementation of this project has been slow. The Hill Food Production Project (Cr. 1101-NEP) pays particular attention to improving extension, input supply and minor irrigation in Gandaki Zone. The project is progressing slowly. The Community Forestry Development Project (Cr. 1008-NEP) in the Hills and the Second Forestry Project (Cr. 1400-NEP) in the Terai address urgent ecological problems. Implementation of the Community Forestry Project in the Hills is satisfactory. The Second Forestry Project, located in the Terai, has recently become effective.

E. The Project Area

The Terai Region

1.20 The Terai lies below the southern foothills of the Siwalik range and stretches the length of Nepal as part of the Indo-Gangetic Plain. The region covers about 21,800 sq.km (about 15 percent of the country). The elevation of the region varies from 100 meters above sea level near the Indian border to 500 meters near the foothills. A large number of streams and rivers (including three of the major rivers of Central Himalayas) enter and cross the Terai.

1.21 Climate. The average annual temperature is about 24°C. Temperatures are high between March and October when the mean monthly range is between 20 and 30°C. November to February are cold winter months with mean monthly temperatures between 14 and 23°C. The average rainfall is about 1,600 mm per year. There is considerable annual variation in the duration of the rainy season, and in the total amount of rainfall. The average number of rainy days is 81, the peak season being June-September when 80 percent of rainfall occurs.

1.22 Soils. The Terai plain forms the piedmont in the northern part of Indo-Gangetic depression which has been filled by recent alluvial material derived from the Himalayas. Soils vary from sandy to silty with thick gravel fans in the northern part. The soil pattern changes from north to south and also from east to west depending on nearness to sources. The texture of soil varies from coarse sand to gravel on foothill slopes to medium sand and silt in the middle of the Terai, and to somewhat heavier clay soils near the Nepal-India border.

1.23 Irrigation. According to current estimates, about 340,000 ha receive some form of irrigation in the Terai comprising 110,000 ha developed by the Government and 230,000 ha from private sources. Most of the area developed by the Government is in Central (42 percent) and Eastern (34 percent) Regions.

1.24 Crops and Production. With average holding sizes of between 1.4 to 2.0 ha, crop production in the Terai is dominated by rice and wheat which in 1981/82 accounted for 64 and 16 percent, respectively, of the total cropped area -- a total of 80 percent. Maize (8 percent), oilseeds (6 percent), jute (2 percent), sugarcane (1 percent) and millet (1 percent) made up most of the balance. Comparison with the statistics for 1971/72 indicates that over the decade to 1981/82, the cropped area in the Terai has increased by some 172,000 ha or about 12 percent. The most significant change has been the more than two-fold increase in area planted to wheat, from 112,000 ha to 249,000 ha. The areas under sugarcane and oilseeds have also increased significantly but other crops have remained at the same levels. Over the 10-year period 1970/71 to 1980/81, the Terai accounted for 65 percent of the national cropped area and approximately the same proportion of national output on a weight basis.

1.25 The average yields of important crops and those obtained by farmers using improved technology are given below:

Table 1.1: Yields of Important Crops

Crop	Average Yield kgs/ha	Yields obtained by good farmers kgs/ha	
		Irrigated	Unirrigated
Paddy	1,900	2,700 - 3,500	2,000
Maize	1,680	-	1,700 - 2,000
Millets	960	-	1,100
Wheat	1,329	2,400 - 3,100	1,400 - 1,700
Oilseed/Pulses	600	-	800
Sugarcane	24,000	-	30,000 -35,000

Nepal's Experience with Improved Extension

1.26 Prior to 1975, there was no organized system of agricultural extension in the Terai and several factors contributed to the relatively low level of effectiveness of the extension service in increasing productivity. Field staff were required to perform varied tasks not directly related to extension activities, and much reporting was required. Targets were often centrally determined and bore little relation to local conditions and priorities. Usually, these work programs were more relevant to a small number of farmers, often the more advanced and larger ones and were usually related to input supplies. The concentration by research workers and policy makers on a high cost and sophisticated farm level technology was also an important factor in limiting the effectiveness of extension workers. The goal of high production and income levels was to be achieved by farmers instantly rather than progressing, step by step, from present productivity levels and in accordance with their farming situations and financial means. Thus, given the differing levels of resource and knowledge constraints, the majority of farmers obtained few relevant and practical messages from the extension service. Agricultural research and extension services suffered from lack of transport, housing and other facilities and inadequate emphasis was paid to applied and adaptive research. Furthermore, overall supervision of field workers was poor.

1.27 The T&V agricultural extension system was introduced between 1975 and 1978 into three districts of the Terai (Bara, Parsa and Rautahat) as a component of the Birganj and Narayani Irrigation Projects (Crs. 379-NEP and 856-NEP); Rupandehi district in 1976 under the Bhairawa-Lumbini Groundwater Project: Stage I (Cr. 654-NEP); Sunsari and Morang districts in 1978 under the Sunsari-Morang Irrigation Project (Cr. 812-NEP), and in 1981 to a limited area (6,000 ha) in Kanchanpur district under the Mahakali Irrigation Project (Cr. 1055-NEP). In Rapandehi district, a follow-on project, Bhairawa-Lumbini Groundwater Project: Stage II (Cr. 1316-NEP, effective 1983) provides for full coverage of the district by improved extension.

1.28 The Director General of Agriculture is assisted by a Deputy Director General (DDG) for Extension and Services. 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.

1.29 The projects provided for (a) Panchayat Level Agricultural Assistants (PLAA), Junior Technical Assistants (JTA) and Junior Technicians (JT) at the field level, (b) two Subject Matter Specialists (SMS) in each project area, and (c) a systematic program of training for PLAA, JTA and JT combined with a regular schedule of visits to farmers' fields.

1.30 Advice to farmers was provided at the village level by full time PLAA coming from a farming background and who are residents of the panchayats in which they work. Each PLAA was assigned to one panchayat (about 700 farm families). PLAAs receive technical support from JTA and one JTA guides and supervises some 3-5 PLAA. One JT supervises the work of three JTA. Supervision at the district level is provided by an Assistant Agricultural Development Officer (ADDO) working under a Senior Agricultural Officer (SAO) at the project level. SAO is assisted by 2-3 SMS to provide specialist training to extension staff. The irrigation projects also financed the construction of two training centers at Jhumka (Sunsari district) and Parwanipur (Bara district). Responsibility for execution of the projects has been assigned to duly constituted Irrigation Boards and actual implementation is the responsibility of a Project Manager seconded from the Irrigation Department. In each project, the Senior Agricultural Officer, seconded from DOA and under the administrative control of the Project Manager, is responsible for agricultural extension activities. Subordinate level extension staff, some of whom are direct employees of the Irrigation Boards, are also responsible to SAO. Technical support and supervision of extension staff, however, are provided by DOA. These administrative arrangements, which provide for dual control over agricultural staff, have not been satisfactory; in particular DOA, who lacking administrative control over the agricultural staff in the irrigation project areas, has basically ignored these staff who are therefore cut off from assistance with problem solving and technology development. There is now a genuine appreciation in both the Irrigation and Agricultural Departments, of the need to place all extension staff directly under the administrative and technical control of DOA. Such arrangements would be incorporated in the proposed project.

1.31 Given the promising results of improved extension in irrigated areas but in recognition of the limited manpower resources and absorptive capacity of DOA, a Bank financed Agricultural Extension and Research Project (Cr. 1100-NEP) became effective in 1981 and extended coverage to a further eight districts of the Terai (Jhapa, Sarlahi, Mahottari, Dhanusha, Kapilabastu, Nawalparasi, Chitwan and Banke). A Project Coordinator, working under the Director General of Agriculture, is responsible for implementation. The project provides for (a) improvement and decentralization of research

facilities in the Terai to provide applied and adaptive research based on location specific needs, (b) an unified extension service under a single line of command, (c) two SMS per district, (d) establishment of a dynamic link between farmers, professional extension workers and researchers, (e) a systematic program for training of full time village level extension workers combined with a regular schedule of visits to farmers' fields, (f) a regular program for inservice training of extension workers, and (g) UNDP technical assistance for overseas training of project staff and provision of consultants. HMG's commitment to providing improved agricultural extension has been evidenced by the action taken to fill almost all research and extension staff positions, to provide incentives to staff, to reorganize the methodology of research so as to establish strong extension-research linkages and to organize training programs required to meet the needs of reorganized extension.

1.32 Good progress has been made in Bara, Parsa, Rautahat, Sunsari and Morang districts (irrigation project districts) over the period 1977-1982. Over this period, in Bara, Parsa and Rautahat districts, fertilizer consumption increased from 5,800 to 8,000 tons (55 percent) and in Sunsari and Morang districts from 1,500 to 2,000 tons (33 percent). Production of foodgrains increased in Bara, Parsa and Rautahat districts from 315,000 to 480,000 tons (52 percent) and in Sunsari and Morang districts from 280,000 to 320,000 tons (14 percent). Studies carried out in Bara and Parsa districts have shown a clear indication of yield increases under both rainfed and irrigated conditions. Details are given below:

Table 1.2: Yield Increases in Bara and Para Districts

	Rainfed		Irrigated	
	Pre Project 1/	Present 2/	Pre Project 1/	Present 2/
	tons per ha			
Early Paddy	1.9	2.5	2.2	3.3
Main Crop Paddy	2.1	2.4	2.2	3.3
Wheat	1.1	1.6	2.4	3.2

1/ Baseline Data collected prior to project implementation.
2/ Crop cutting trials in 1981/82 and winter crop of 1982/83.

1.33 In the ongoing Agricultural Extension and Research Project (Cr. 1100-NEP), the extension mechanism of regular farm visits by PLAA and quality training is being well established. Special courses for SMS in training methodology have been regularly organized. Technology requiring modest financial outlays (seed treatment, timely sowing, line sowing of maize and wheat, interculture operations) are being readily adopted. Research extension linkages in terms of preseason Regional Workshops to determine crop recommendations and programs for field trials, bimonthly workshop for SMS at research stations, and involvement of researchers in guiding SMS to lay out on-farm field trials are improving. In the Pilot Production Program areas, where special efforts have been made to coordinate the timely availability of

irrigation, credit, inputs and advice, annual production per hectare increased under rainfed (2.86 to 4.15 tons/ha) and irrigated (4.5 to 6.5 tons/ha) conditions by adopting advice given by the reorganized extension service. A recent monitoring study carried out by the Agricultural Project Services Center (APROSC), Nepal in the eight project districts has shown further encouraging results: (a) even distribution of contact farmers in each category of farm size and resource base, (b) minimum variation in holding of irrigated land between contact and non-contact farmers, (c) a high percentage of contact and non-contact farmers are aware of the Panchayat Level Agricultural Assistant (PLAA), (d) PLAA visits to contact farmers (74-96 percent) and non-contact farmers (55-89 percent) are regular, (e) a good number of non-contact farmers are aware (34-77 percent) of contact farmers, (f) a good percentage of farmers feel that visits of PLAA are useful, and (g) that there is scope for improvement of the quality of PLAA visits.

Justification and Project Rationale

1.34 In the IDA assisted Sunsari-Morang Irrigation Project (Cr. 812-NEP), the project works have been revised and the closing date has been extended to June 30, 1986. Funds provided for agricultural extension would, however, be fully utilized in FY 1983/84. The Narayani Zone Irrigation Project (Cr. 856-NEP) is expected to be completed by December 1984. Experience has shown that these projects did not, however, provide for adequate levels of extension staff especially of Subject Matter Specialists (SMS) and Agricultural Development Officers (ADO); most PLAAs did not possess basic minimum qualifications; definitive linkages were not established with research; little provision was made for inservice training of staff, especially SMS; and in view of the special administrative arrangements (para 1.30) the Department of Agriculture failed to provide adequate technical supervision of field staff. As a result, the extension methodology has developed slowly and consequently the extension system is only partly operative and partially effective. Nevertheless, given the encouraging results obtained so far (para 1.32 and 1.33) and in line with Nepal's objectives and strategy for increasing agricultural production, HMG has decided to further extend improved extension coverage to the remaining six districts of the Terai (Kanchanpur, Kalali, Bardia, Dang, Sirha and Saptari), not previously covered by IDA assisted projects, and to consolidate and strengthen agricultural extension services in the five irrigation project districts of Bara, Parsa, Rautahat, Sunsari and Morang so as to bring them in line with other districts. This will provide coverage of 19 districts of the Terai under two projects (Cr. 1100-NEP and the proposed project) and ensure coordinated management and supervision of the extension service under the administrative responsibility of DOA. As Rupandehi district is fully covered by improved extension under the ongoing Bhairawa-Lumbini Groundwater Project: Stage II (Cr. 1316-NEP, US$16.0 M, effective 1983) it is not included in the proposed project.

1.35 Since Nepal's agricultural production programs have found priority in the Bank's past and present lending programs, it would be rational for IDA to continue its assistance to improving agricultural extension and research services throughout the Terai and to promote increased crop production so vital to the country's continued progress.

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II. THE PROJECT

A. General Description

2.01 The project would reorganize and strengthen the agricultural extension service in 11 administrative districts of the Nepal Terai. The extension service will provide for the development of a well trained and technically competent organization with the means to reach the majority of farmers. The organization will provide the institutional framework into which all agricultural development programs, aimed at achieving early and sustained improvement in production and incomes, would be incorporated. These improvements in agricultural production would largely be brought about by the wide adoption of low cost and labor intensive agricultural practices, proper irrigation water management, and use of appropriate crop varieties and levels of fertilizer. The design of the project, its timing scope, relative size of project components and organization are based on the experience gained in the implementation of similar reorganization in the irrigation project districts and in the ongoing Agricultural Extension and Research Project (Cr. 1100-NEP). The five year project would comprise:

(a) Reorganization and Strengthening of Agricultural Extension Services. Provision of additional staff, offices, housing, vehicles, equipment and staff training designed to consolidate the reorganization;

(b) Project Management. Strengthening and improving project management and supervision at Headquarter and at the Regional level; and

(c) Project Monitoring and Evaluation.

The Project Districts

2.02 The project area would include six new districts (Kanchanpur and Kailali in the Far-Western Region, Bardia and Dang in the Mid-Western Region and Sirha and Saptari in the Eastern Region) which would receive improved extension coverage for the first time and five districts of Bara, Parsa and Rautahat (Central Region) and Sunsari and Morang (Eastern Region) previously covered by IDA assisted irrigation projects.

2.03 The eleven districts cover an area of 19,000 sq.km. with a cultivated area of 780,000 ha. Total population in the project districts is 3.46 M with 490,000 farm families living in 772 panchayats (averaging 635 farm families

and 1,000 ha cultivated area per panchayat). The average farm size is 1.6 ha. The same general agricultural production pattern as elsewhere in the Terai is to be found in the project districts.

Project Phasing

2.04 During the first project year, the agricultural extension organization would be strengthened in Bara, Parsa, Rautahat, Sunsari and Morang districts; it would be established in Kanchanpur, Kailali and Bardia districts in the second project year and in Dang, Sirha and Saptari districts during the third year (see Map IBRD 17960R).

B. Detailed Features

2.05 The project would:

(a) Reorganize agricultural extension in six new districts (which would receive improved extension for the first time) to provide for additional technical staff, Panchayat Level Agricultural Assistants (PLAA), and support staff so as to enable a single line of command from the Director General to PLAA and the introduction of regular and systematic village and farm visits to provide farmers with advice on farming practices best suited to their specific conditions;

(b) Strengthen the existing extension organization in the five irrigation project districts to bring them in line with other extension districts - provision of subject matter specialists, JT, JTA and PLAA and facilities for fortnightly training;

(c) Provide frequent training of all staff;

(d) Enlarge two extension training centers at Jhumka (Sunsari-Morang Project) and Parwanipur (Narayani Project);

(e) Improve staffing of the offices of four Regional Directors of Agriculture by providing one full time Senior Agricultural Extension Officer for guidance to and supervision of extension activities;

(f) Provide Production Officers in selected areas at subcenter level to coordinate input, credit and irrigation water supply;

(g) Strengthen the Extension - Training and Planning Sections of the Director General of Agriculture to provide technical support to field operations and follow up on budget, procurement and staffing:

(h) Construct minimum office accommodation and housing for staff;

(i) Furnish and equip field extension and training programs;

(j) Provide vehicles and travelling allowance to ensure greater mobility of all staff;

(k) Provide incremental operating costs; and

(l) Undertake baseline studies in the six new districts and project monitoring and evaluation in all project districts.

Agricultural Extension

2.06 The project would provide farmers, on a regular and systematic basis, with demonstrations and up-to-date advice on farming practices best suited to their specific conditions and capable of having an immediate impact on production and income. This would be achieved by programmed visits from regularly trained field staff, supported by professional advice from within the Department of Agriculture (DOA). At the village level, PLAA would be the full time extension worker and would have completed about eight years of schooling and come from a farming background. PLAAs would be residents of the panchayats in which they would work but would not be regarded as permanent and pensionable government employees. In the six new project districts (Kanchanpur, Kailali, Bardia, Dang, Sirha and Saptari), PLAAs would be mainly selected from among existing part time Agricultural Assistants (AA) who have the requisite background and qualification. In the ongoing project (para 1.31) procedures have been established for the selection of PLAAs and this would be continued. The existing procedures comprise: notification of vacancies at the Panchayat level indicating minimum qualification and experience requirements; scrutiny of applications; and an interview by a District Committee chaired by the District Agricultural Development officer with officials and concerned non officials as members. Candidates selected are from the Panchayat in which they would work and would successfully complete a pre-service training course (30 days) before being posted as PLAAs. In five remaining districts, the existing PLAAs and who are presently employed by Irrigation Boards would be screened and only those with requisite qualification and a good record of field work would be selected for employment by DOA. At the moment, part time AA and full time PLAA are paid a fixed remuneration of Rs. 50 and Rs. 150 per month respectively. The remuneration of PLAA (Rs. 150 per month) was fixed in 1975 when improved extension was first introduced. Since that time the minimum daily wage for laborers has been increased to Rs. 10 per day. It is now necessary for PLAA remuneration to be brought into line with the minimum wage rate. At the start of negotiations, HMG confirmed that in order to provide an additional incentive to PLAAs, their remuneration would be increased from Rs. 150 to Rs. 300 per month effective July 16, 1985 and necessary provisions would be made in their FY 1985/86 budget which starts on July 16, 1985. Assurances were obtained during negotiations that (a) PLAAs of requisite qualification and experience would be recruited; and (b) PLAAs would be residents of the Panchayats in which they would work.

2.07 In the project districts, there are 772 Panchayats and about 490,000 farm families. The number of farm families per Panchayat ranges between 524-1150 (averaging 635 per Panchayat). Each Panchayat is divided into nine wards. Initially, one PLAA would be posted to each Panchayat, but those Panchayats where population is widespread or in irrigated areas, more than one PLAA might be required. Provision has been made for about 80 additional PLAAs to meet the needs of more intensive coverage. Overall requirement of additional staff would be reviewed during project implementation. An assurance was obtained during negotiations that HMG and IDA would review by March 31, 1987, the adequacy of staff, especially of PLAA. Thereafter, HMG would ensure that adequate numbers are employed for satisfactory implementation of the project.

2.08 The Extension Methodology. Under the proposed agricultural extension system, an intensive scheduled program of farm visits would be introduced. Each ward would be visited by a PLAA, on a fixed day of the week, once every two weeks. Thus, a PLAA would cover five wards in one week and four wards in the next week. In most panchayats, where additional PLAAs are not provided, the number of farm families covered by one PLAA would not exceed 700. During daily visits, PLAA would spend the full day in the scheduled ward, would visit fields during morning hours, and in the afternoon, either hold meetings in the village at a pre-determined time or hold discussions with farmers or meet farmers in their homes. One of the three remaining working days each fortnight would be devoted to in-service training, where PLAA would discuss and learn recommended practices to be given to farmers during the following fortnight and also bring farmer's problems to the attention of trainers. Thus, every two weeks the PLAA would spend nine days in visiting each of his nine wards and one day in training. During the two remaining days, PLAA would visit field trials, arrange special extension activities, make up visits missed because of illness or holidays, and do occasional but limited office work. All PLAAs would maintain a chart showing days for visiting each ward as well as time and place of group meetings.

2.09 It would not be possible for the PLAA to reach all farmers during field visits. Thus, under the guidance of supervisors and in consultation with the Panchayat Council and farmers themselves, PLAA would select contact farmers (7-8) from each ward. Contact farmers would be from all levels of village society, and would be selected for their potential influence and willingness to collaborate with the extension service in following recommendations. Changes in contact farmers would be made, especially between seasons, if they are shown to be ineffective or should they discontinue this service. PLAAs, during their field visits, would make special efforts to reach at least all contact farmers' fields, and who, in turn, would share the responsiblity of organizing and attending afternoon meeting or any other village group activity. PLAA would also invite neighboring farmers while meeting contact farmers in their fields, and visit other farmers' fields while moving from one contact farmer to another. In due course of time, most farmers in a ward would be aware of the visit day of PLAA.

2.10 Within their area of operation, PLAA would concentrate on important crops focussing on practices which bring the best economic results. Initially, concentration would be on improving agricultural practices and would include better land and seed bed preparation, improved nursery maintenance, use of good seed, seed treatment, timely operation (such as right time of sowing), proper spacing, weeding, etc., and use of appropriate quantities of fertilizer. In adopting better practices farmers face few risks, but will be required to work harder. Since most small farmers have surplus labor but little cash, this fits their financial status well.

2.11 Technical Support and Field Organization. PLAA would receive technical support from Junior Technical Assistants (JTA) and one JTA would guide and supervise the work of 3-5 PLAAs working in three Panchayats. One Junior Technician (JT) would guide and supervise the work of three JTAs. To strengthen technical back up, the project would provide two Subject Matter Specialists (SMSs) in each district, one each in Agronomy and Plant Protection.

2.12 Each JTA would spend at least nine days in the fortnight visiting PLAA in the field. He would also help PLAAs in carrying out demonstrations and simple on-farm trials. He would attend meetings organized by PLAA and meet all of his PLAAs on a fixed day of the fortnight. This close ongoing relationship between PLAA and JTA would relieve the former of the need for formal reporting. PLAA and JTA would, however, maintain a daily diary of activities. JT would supervise the work of PLAAs and JTAs and ensure effectiveness of extension operations. He would spend at least four days in the week meeting his PLAA and JTA in the field. During his visits, he would be able to find out whether visits are being made as planned, inquire from farmers about visit days in their villages, messages learned, etc. Experience of work in the ongoing project districts has shown that once farmers become aware of visit schedules, they themselves become effective monitors by complaining if visits are not made regularly and in a satisfactory manner.

2.13 To ensure a continuous flow of timely, locally proven and adapted farm recommendations, and adequate back-stopping and training of PLAA, JTA and JT, it would be necessary to strengthen the technical support staff at district level. Two Subject Matter Specialists (SMS) would be provided in each district (one each for Agronomy and Crop Protection). SMS would spend one-third of their time in training groups of PLAA, JTA and JT, one-third of their time in field visits providing technical support and guidance to PLAA and JTA and checking on reasons for adoption or non adoption of recommended practices, and one-third of their time in building their own stock of knowledge through a regular dialogue with research workers, carrying out simple field trials in farmers' fields, and attending short training courses.

2.14 During the last two years, DOA has implemented a Pilot Production Program in irrigated areas of Bara, Parsa, Rautahat, Chitwan, Dhanusha and Sarlahi districts under which compact blocks of 150-500 ha have been selected for intensive development using technology developed by the Cropping System Program (para 1.09). A Production Officer (PO) is in charge of each 1,000 ha

area (2-6 blocks) and is responsible for coordinating timely supply of seed, fertilizer, credit and irrigation. PO prepares an action plan for each production block in consultation with participating farmers and local agencies responsible for inputs, credit and supply of irrigation water. PO helps in the preparation of an individual farm plan for each farmer. The program has shown good results in terms of timely mobilization of inputs, credit and irrigation, adoption of improved technology and consequent increase of annual yields. A similar appr ach is being tried for rainfed lowland areas for which appropriate technology has been developed (para 1.09). To further intensify this program, the project would provide for 40 additional PO who would be located at selected subcenters/service centers and working under the district Agricultural Development Officer would organize production programs, attend bimonthly SMS workshops, and help in organizing and conducting fortnightly training sessions.

2.15 At the district level, there would be an Agricultural Development Officer (ADO) to supervise all extension activities. Provision has also been made for additional support staff such as an accountant and an additional clerk to assist ADO. ADO would be responsible for all extension activities in his district and make frequent visits to the field to guide extension staff, check the adoption rates of recommended practices by discussion with farmers and by checking the PLAA/JTA diaries. To free ADO from other routine activities and to allow frequent field visits so necessary to review extension operations, the existing AADO would take over responsibility for reporting and coordinating input supply arrangements.

2.16 At the Regional level, the Regional Director of Agriculture would be assisted by a Senior Agricultural Extension Officer (SAEO) to provide intensive day-to-day support and supervision of extension activities in the Terai. SAEO for Eastern Region would be located at Biratnagar, for Central Region at Birganj, for Western Region at Bhairawa and for Mid-Western Region at Nepalganj. The Far-Western Region has recently been established and until the full organization is in position, SAEO for Mid-Western Region would also look after extension activities in the Far-Western Region. SAEOs would have a separate office under the project and would be assisted by minimum support staff. Staffing details are at Annex 1, Table 4. An assurance was obtained at negotiations that SAEOs for Eastern, Central and Western Regions would be appointed and be in positon by December 31, 1985 and one SAEO to look after Mid- and Far-Western Regions by August 31, 1986.

2.17 The Project Coordinator appointed under the ongoing Agricultural Extension and Research Project (Cr. 1100-NEP) would coordinate all extension activities in the 20 Terai districts. At the start of negotiations, HMG explained that the headquarters of the Project Coordinator should remain in Kathmandu instead of moving to the Terai as originally proposed inasmuch as his functions and responsibilities would be exercised best from Kathmandu rather than from a field location. The Association accepted this explanation.

2.18 At DOA headquarters, in the office of the Director General of Agriculture, the project would strengthen the existing Extension-Training

and Planning sections. Provision has been made for five SMSs in the Extension-Training section who would be responsible for special crop oriented programs (2) and training (3) and for improving the technical quality of the extension service in their areas of specialization and also help in improving the existing linkages between extension SMS and research work being done at Khumaltar in Kathmandu. The Planning section of DOA would be strengthened to follow up on budget, procurement, staffing and other policy matters needing guidance and decision by DOA and MOA headquarters. Details are at Annex 1, Table 4.

2.19 Staffing and Incentives. Much of the extension staff required under the project is presently working in DOA or for Irrigation Boards. Details are summarized below:

Table 2.1: Incremental Extension Staff Requirements

Post	Total Nos. Required	Total Available			Additional Needed
		DOA	Irri. Board	Total	
PLAA	850	-	-	-	850
JTA	277	175	22	197	80
JT	99	84	5	89	10
Production Oficer	52	9	-	9	43
SMS	27	-	-	-	27
AADO	11	11	-	11	-
ADO	11	5	-	5	6
SAEO	4	-	-	-	4

2.20 In the ongoing project (Cr. 1100-NEP), most of the staff positions including all SMS (excluding ROO) have been filled. The quality of SMS is being improved through inservice training and special short courses. Availability of additional SMS and other staff for the project would, therefore, not be a constraint. Adequate numbers of agricultural graduates are trained at the Institute of Agriculture and Animal Sciences, Rampur and postgraduate fellowships are available to DOA staff through programs sponsored by the Colombo Plan and USAID.

2.21 Assurances were obtained during negotiations that (a) all incremental staff would be appointed according to the agreed schedule at Annex 1, Table 9, (b) upon completion of the project, HMG would maintain the incremental staff so as to ensure continued achievement of the objectives of the project, (c) extension staff would work exclusively on agricultural extension and they would not be given any other responsibility, and (d) all special production programs planned for project districts and throughout the Terai would be implemented utilizing the extension methodology and organization.

2.22 Extension work in project districts would be carried out under difficult conditions. Experience in similar projects elsewhere and in ongoing project areas has shown that staff have to work harder and live in remote areas. Provision of housing, motorcycles and bicycles (paras 2.28 and 2.29), and bicycle allowance (para 2.29) would provide added incentive to staff to work more effectively. An understanding was reached at negotiations that HMG is reviewing the issue of monthly project allowance for extension workers as an added incentive and that a decision would be taken in due course.

2.23 Training. The project would strengthen training programs for extension and research workers and administrative staff. The keynote would be the continuous fortnightly training of PLAAs, JTAs and JTs by SMS who are conversant with the latest research results, active in the identification of local problems, and who participate in local verification trials. The entire training effort would be focussed on making these fortnightly sessions as effective as possible. Training would be practical and concentrate on the few specific recommendations relevant to farming operations in the coming fortnight. Ample time would be provided for PLAAs and JTAs to study the recommendations and practice how they would convince farmers to adopt them. They would also have an opportunity to raise and discuss problems encountered in the past two weeks. On alternate weeks PLAAs would meet with JTAs to review progress. Other in-service training courses for PLAAs, JTAs and JTs would include a pre-season workshop/training session for each major season and one or two special short courses per year on a specific technical topic. In each project district, a number of small training subcenters would be established for fortnightly training of extension staff and which would not exceed six in any one district. Overall, 56 such training subcenters would be required. In addition, the facilities available at the Pilot Farm in the Mahakali Irrigation Project (Kanchanpur district) would be used for fortnightly training.

2.24 All PLAA would receive an intensive pre-service training course (35 days). Higher level staff would require a range of introductory training programs as well. Pre-season training of PLAAs would be a regular occurrence, with similar sessions held for JTAs and JTs. Also before each season there would be a workshop at the Regional Research Station attended by ADOs, SMSs, Research Outreach Officer (ROO) and research workers. During the workshop, research workers and extension staff would review the previous season's research results, specify recommendations and plan the coming season's research and field trial programs (paras 4.04-4.10).

2.25 Improving the knowledge of SMS is crucial to the success of the project. For this, there would be a training session held once in two months at the Regional Research Station of each region. The session would be attended by all SMS in the region, ADO, ROO and other research staff. The main objective would be to review results achieved, modify recommendations as necessary to suit prevailing field conditions, review findings and progress of field trials and develop suggestions for future research topics and field trials. The project also provides for special short courses for all staff, especially SMS, to build up their professional competence (para 4.11). Details are given in Annex 2.

2.26 Training facilities are available at the four Regional Training Centers (RTC): Jhumka (Eastern Region), Janakpur (Central Region), Bhairawa (Western Region) and Nepalganj (Mid-Western Region), and at the new training center at Parwanipur (Bara district). RTC at Janakpur is functioning, RTC buildings at Nepalganj and Jhumka are under construction and the Bhairawa RTC will be constructed under the ongoing Agricultural Extension and Research Project. The Parwanipur Training Center has been completed recently. However, various training programs are already being conducted at these locations also making use of the facilities available at Regional Research Stations.

2.27 The project would provide funds for construction, equipping and furnishing of 40 small training subcenter buildings (16 buildings already exist) each with a training hall, store and residence for JT. Each building would have an area of 150 sq.m costing NRs. 450,000. Provision would also be made for expanding the facilities at Jhumka and Parwanipur training centers, developed under the Bank assisted irrigation projects, by providing incremental staff and supplementing the equipment and furniture available. Details are given in Annex 1, Tables 1 to 4.

2.28 Housing and Offices. Under the reorganized extension service, extension staff would be required to make regular and frequent visits to farmers. Consequently, it is desirable for them to live in or near their areas of work. To provide housing for all staff would be beyond the implementation capacity of DOA and the financial resources of HMG, consequently, modest provision has been made for housing (NRs. 26.22 M) for 55 JTAs, 15 JTs, 8 AADOs, 6 ADOs, 22 SMSs, 4 SAEOs, and 37 support staff. Provision has also been made for construction of offices for ADO(2) and SAEO(4) and renovation of the existing building at Parwanipur Training Center. Most civil works would be in village areas. As in case of the ongoing project, construction of JTA and officer staff quarters, subcenter buildings, and offices would be on Panchayat owned land and not involve acquisition. Location of sites has been tentatively decided. The project would provide funds for hiring a consultant architect to prepare detailed estimates for buildings located in the interior areas. Assurances were obtained during negotiations that HMG would (a) furnish to IDA by June 30, 1986, information on location of sites for all civil works to be financed under the project, and (b) appoint the consulting architect by December 31, 1985. Details are at Annex 1, Table 2.

2.29 Transport. The efficient operation of an extension service depends on the degree of contact between all levels of the extension hierarchy and with farmers. Mobility is essential to ensure this and thus funds would be made available for loans to JTAs for purchase of bicycles. The project would also provide a monthly allowance (Rs. 30) to JTA to ensure satisfactory maintenance of bicycles. Assurances were obtained during negotiations that terms and conditions of bicycles loans and the amount of the maintenance allowance would be sufficient to ensure their purchase and use. Motorcycles would be provided to JTs(83), SMSs(22), Production Officers(27) Project Coordinator(1), Headquarter Support Unit(4) and for use at two training centers(4) and 14 jeeps (4-wheel drive) would be provided to districts which

do not already have a vehicle(8), SAOs(4), Jhumka RTC(1) and the Project Coordinator(1). Two minibuses would be purchased for use at the Jhumka and Parwanipur training centers. Details are given in Annex 1, Table 3.

2.30 Equipment and Furniture. The project would provide office equipment and furniture, and simple audio visual equipment to support training sessions and enhance field operations. Emphasis would be on low cost aids such as charts, flipcharts and flannelgraphs which extension staff can design themselves and modify to suit local conditions. Office, hostel and audio visual equipment would be added at the training centers at Jhumka and Parwanipur. Details are given at Annex 1, Table 3.

Strengthening of Engineering Unit

2.31 The Engineering Unit of DOA has been strengthened under the ongoing Agricultural Extension and Research Project (Cr. 1100-NEP). This unit has performed satisfactorily in designing, preparation of estimates, tendering and supervision of construction of civil works at research stations and would be further strengthened under the project by adding one Executive Engineer, four Assistant Engineers, two draftsmen and 14 overseers to handle the new construction program and provide better supervision of ongoing works. Details are given in Annex 1, Tables 2 to 4.

Monitoring and Evaluation

2.32 Under the ongoing Agricultural Extension and Research Project, monitoring and evaluation of project activities have been initiated in order to generate data with which to measure output, effect and impact of project actions, thus providing management guidance to those responsible for project implementation. Monitoring by continuous gathering of information on project inputs and activities (timely provision of staff, vehicles, equipment and buildings) is being done; a benchmark study has been completed in eight districts (establishing data on the agricultural conditions of farmers, agricultural practices used, current use of inputs and credit and crop yields). In addition, an indepth monitoring survey has been carried out to evaluate the performance of PLAA and JTA. Under the project, further monitoring/evaluation surveys would be carried out on a regular basis and covering quality of training programs, development of appropriate recommendations, regularity and quality of visits, adoption of recommendations, increased production and consequent increase in farm incomes, and effectiveness of Production Officers.

2.33 Monitoring and evaluation in project districts would be the responsibility of the Evaluation and Program Analysis Division of MOA. Funds would be provided for (a) benchmark studies in six new project districts, and (b) monitoring surveys in each cropping season to generate information that would provide project management with data on quality of training, development of appropriate recommendations, regularity and quality of visits, adoption rates of recommendations, and effectiveness of Production Officers, and (c) monitoring/evaluation surveys to generate additional information and to provide data on crop yields, use of key inputs, and increased production.

Benchmark studies would be simple in content and involve data concerning cropping patterns, yield data, availability of inputs, marketing facilities, present status of extension support and its impact, and farmers technological constraints. This information would set the scene for the proposed extension and research support and also provide data for project evaluation studies/surveys. MOA would commission such studies/surveys by organizations existing in Nepal. Assurances were obtained during negotiations that HMGN would: (a) complete benchmark studies in six new project districts by (Kanchanpur, Kailali, Bardia, Dang and Saptari) by July 31, 1987, (b) monitor project activities and progress on a semi-annual basis, and (c) carry out evaluation surveys in a form acceptable to IDA and forward results to IDA twice a year. Details are given in Annex 1, Table 7.

III. COST ESTIMATES AND FINANCING

A. Cost Estimates

3.01 Total project costs over the five-year development period (1985-90) are estimated at NRs. 157.9 M (US$8.5 M) of which the foreign exchange component is estimated at US$ 3.2 M (about 38 percent of total project cost). Duties and taxes included in total costs are estimated at US$56,600 equivalent. A detailed breakdown of project costs is presented in Annex 1, Tables 1 to 6. The estimated costs by component are summarized below:

Table 3.1: Summary of Costs by Component 1/

	---NRs. Million----			---US$ Million----			% Foreign	% Total Base
	Local	Foreign	Total	Local	Foreign	Total	Exchange	Costs
Civil Works	24.1	23.9	48.0	1.3	1.3	2.6	50.0	40.0
Vehicles and Equipment	3.7	14.5	18.2	0.2	0.8	1.0	80.0	15.0
Incremental Staff	28.8	-	28.8	1.6	-	1.6	-	24.0
Incremental Operating Costs	8.5	6.4	14.8	0.5	0.3	0.8	43.0	12.0
Training Costs	7.4	-	7.4	0.4	-	0.4	-	6.0
Monitoring and Evaluation	2.5	-	2.5	0.1	-	0.1	-	2.0
Total BASELINE COSTS	74.9	44.8	119.7	4.0	2.4	6.5	37.0	100.0
Physical Contingencies	6.5	6.4	12.9	0.4	0.3	0.7	50.0	11.0
Price Contingencies	16.6	8.6	25.3	0.9	0.5	1.4	34.0	21.0
Total PROJECT COSTS	98.0	59.8	157.9	5.3	3.2	8.5	38.0	132.0

1/ Discrepancies due to rounding.

3.02 Basis of Cost Estimates. Base costs refer to prices prevailing in February 1985, and were calculated on the following basis:

(a) Construction costs - on facilities of similar nature, currently bid or completed for the ongoing project Cr. 1100-NEP). The average cost per sq.meter was estimated at NRs. 3,000;

(b) Equipment and furniture - on purchases made and tenders completed for the ongoing project;

(c) Salaries and operating costs - on detailed breakdown of current rates;

(d) Training costs - on actual requirements.

3.03 Contingency Allowances. Estimated project costs include physical contingencies estimated at 15 percent for civil works, vehicles, equipment, furniture, training and monitoring and evaluation and 10 percent for other expenditure. Price contingencies amounting to about 21 percent of baseline costs have been applied in accordance with current Bank estimates of expected inflation rates which are given below:

Table 3.2: Price Escalation Estimates (% per year)

	1985/86	1986/87	1987/88	1988/89	1989/90
Local (Nepal)	6.3	7.8	8.0	8.0	8.0
Foreign	6.3	7.8	8.0	8.0	8.0

B. Proposed Financing

3.04 Financing of total project costs of NRs. 157.90 M (US$ 8.5 M) including contingencies, but net of taxes and duties, would be provided as follows:

Table 3.3: Proposed Financing

	Foreign Exchange		Local Currency		Total	
	US$ M	%	US$ M	%	US$ M	%
IDA	3.2	100	4.0	75	7.2	85
HMGN	-	-	1.3	25	1.3	15
	3.2	100	5.3	100	8.5	100

The proposed IDA credit of US$ 7.2 M would be to HMG on standard terms and conditions and would finance about 85 percent of project costs including all foreign exchange costs. IDA funds would be channeled through the Ministry of Finance to MOA as annual budget subventions. During negotiations an understanding was reached that HMG would (a) make adequate budget provision each year for implementation of the project, and (b) arrange for timely release of funds each year to project districts and units.

C. Procurement

3.05 Procurement arrangements are summarized in the table below:

Table 3.4: Procurement Arrangements

	Procurement Method				Total
	ICB	LCB	Other	NA	Cost
Civil Works	-	3.60 (3.20)	-	-	3.60 (3.20)
Vehicles, Equipment and Furniture	0.96 (0.96)	0.24 (0.18)	- -	- -	1.20 (1.14)
Incremental Staff and Operating Costs	-	-	-	3.00 (2.06)	3.00 (2.06)
Training	-	-	-	0.60 (0.60)	0.60 (0.60)
Monitoring and Evaluation	-	-	-	0.20 (0.20)	0.20 (0.20)
Total	0.96 (0.96)	3.84 (3.38)	-	3.80 (2.86)	8.50 (7.20)

Figures in parenthesis are the amounts to be financed by the Credit.

3.06 Civil Works. All civil works (US$3.6 M) would be unsuitable for International Competitive Bidding (ICB) because they would be individually small and widely distributed throughout the project area. Accordingly, construction of buildings would be awarded to local contractors following Local Competitive Bidding (LCB) procedures and supervised by the Agricultural Engineering Division of DOA and in accordance with HMG procedures, which were found at appraisal to be satisfactory to IDA and which provide for foreign bidders to participate.

3.07 Vehicles and Equipment. Motor vehicles, motorcycles, cycles and equipment (US$0.96 M) would be grouped in appropriate bidding packages and procured by ICB in accordance with Bank Guidelines. Qualifying domestic manufacturers would receive a preference in bid evaluation of 15 percent or the import duty, whichever is the lower. Where orders are valued at less than US$30,000 and totalling no more than US$200,000, items would be procured under LCB procedures and which were found at appraisal to be satisfactory to IDA. Items such as furniture, books, training material, and office requirements (US$ 0.24 M) would be purchased under established local bidding procedures.

3.08 Contract Review. Bidding documents for civil works contracts costing US$100,000 or more and for vehicles, equipment and other goods and services costing US$50,000 or more would be submitted to IDA for review prior to

invitation to bid. This would result in about 15% of contracts covering about 40 percent of the value of all contracts being subject to prior review.

3.09 The balance of project costs (US$ 3.7 M) would be staff salaries and related expenditures (US$ 2.9 M), training (US$ 0.6 M), and monitoring and evaluation (US$ 0.2 M).

3.10 Assurances were obtained at negotiations that procurement procedures set out above would be followed.

D. Disbursements, Accounts, and Audit

Disbursements

3.11 Disburbursement under the credit would be completed by December 31, 1991, over a period of 5 1/2 years, which is 2 1/2 years shorter than the average disbursement profile for IDA assisted agricultural projects Bankwide. An estimated disbursement schedule is presented in Annex 3, Table 2. This reduction is justified as HMG has agreed to open a Special Account (para 3.09), project authorities have already gained experience in ICB and LCB procedures, all civil works designs exist, and delays in payments of project expenditures due to slow release of government funds would be minimized as the accounting arrangements and expenditure reporting system are being presently streamlined (para 3.16). Disbursements from the proceeds of the credit would finance various categories in the following manner:

(a) 81 percent of expenditures for civil works (US$ 2.90 million);

(b) 100 percent of foreign expenditures for directly imported vehicles and equipment, and 100 percent of local expenditures (ex-factory), and 75 percent for other goods (books, training material, office equipment, and furniture) procured locally (US$ 1.14 million);

(c) 48 percent of total expenditure on total staff salaries and allowances equal to 75 percent of incremental staff salaries and allowances disbursed at a declining scale of 100 percent expenditures on total salaries and allowances in FY86, 70 percent in FY87, 50 percent in FY88, 30 percent in FY89 and 20 percent in FY89 (US$ 1.43 million);

(d) 45 percent of expenditures for project operating costs (US$ 0.50 million);

(e) 100 percent of expenditure on training and monitoring and evaluation (US$ 0.8 million); and

(f) Unallocated (US$ 430,000).

3.12 Disbursements against items (c), (d) and (e) would be made against HMG statements of expenditures, the documentation for which would not be submitted to IDA for review but would be retained by HMG. These documents would be available for inspection by IDA during the course of project review missions. Disbursements against items (a), (b) and (f) would be fully documented. Assurances covering the foregoing were obtained during negotiations.

Special Account

3.13 In order to facilitate prefinancing of project expenditures under categories (a), (b), (c), (d) and (e) (para 3.11), a Special Account (SA) would be opened by HMG in the Nepal Rastra Bank (NRB). An initial deposit of US$300,000 (SDR 310,000) would be made in SA by IDA upon receipt of a direct payment application from HMG supported by appropriate evidence that such an account (SA) has been opened. Payments out of the special account would be made according to procedures agreed at negotiations. HMG would furnish to IDA requests for replenishment of SA at specified intervals. On the basis of such requests, IDA would withdraw from the Credit and deposit in SA such amounts as required to replenish SA but not exceeding the amount of payments made for eligible expenditures. Each such deposit would be withdrawn by IDA from the Credit under the respective categories (para 3.11), and in respective equivalent amounts, as shall have been justified by the evidence supporting the request for such a deposit. HMG would furnish to IDA such evidence showing that payment was made for eligible expenditures. Recovery of the initial deposit by IDA would commence when the unwithdrawn amounts in the Credit had been reduced to double the initial deposit to the account. Recovery would be by reimbursing only 50% of the amounts claimed during the recovery period, until the advance has been fully recovered. HMG would refund to IDA any amount outstanding in SA and which would not be required to cover further payments for eligible expenditures. During negotiations HMG and IDA reached a decision on establishing a Special Account and operating procedures.

Accounts and Audit

3.14 The project would be subject to normal government financial control and audit procedures which are satisfactory. Accounts staff would be strengthened at district, project headquarters and DOA headquarters for proper maintenance of accounts and prompt reporting of expenditures. Assurances were obtained during negotiations that HMG would:

(a) record all project expenditure under a separate head of account in accordance with sound accounting practices;

(b) furnish to the Association as soon as available but not later than nine months after the end of each fiscal year, certified copies of financial statements for the year;

(c) cause the records and accounts to be audited, in accordance with sound auditing principles consistently applied, by independent auditors acceptable to the Association; and

(d) provide a statement by such auditors that funds disbursed against statements of expenditure had been used for the purpose for which they were provided.

3.15 In order to ensure that audit covenants in IDA assisted projects are complied with on time, IDA has been assisting the Financial Comptroller General, HMG in a review of present accounting and audit procedures. As a result, a Project Accounting Manual has been prepared to facilitate preparation of a Quarterly Commitment Statements giving details of (a) funds released during the quarter, (b) expenditure incurred, and (c) reimbursement claimed from IDA. This system would help the timely release of funds to project entities, as production of Quarterly Commitment Statements are conditional on further release of funds. Furthermore, such procedures would hasten reimbursement from IDA on a continuous basis, and preparation of an annual consolidated financial statement to enable the Auditor General to complete the audit of project accounts. The methodology contained in the Project Accounting Manual has recently been introduced in two ongoing IDA assisted projects, the Agricultural Extension and Research Project (Cr. 1100-NEP) and Hill Food Production Project (Cr. 1101-NEP), with satisfactory results.

IV. ORGANIZATION AND MANANGEMENT

Project Implementation

4.01 Overall responsibility for project implementation would be with the Director General of Agriculture assisted at headquarters by two Deputy Directors General, one each for Crop Development and Extension and Services. Administrative control of agricultural extension staff working in the districts of Morang, Sunsari, Rautahat, Parsa, and Bara; in Rupandehi district except the command area (about 10,000 ha) of the Bhairawa-Lumbini Groundwater Project Stage II; and in the 6,000 ha area of Mahakali Irrigation Project in Kanchanpur district would be transferred from the respective Irrigation Boards to the Department of Agriculture. An exception has been made in respect of the command area (about 10,000 ha) of the Bhairawa-Lumbini Groundwater Project because agricultural staff in this area (who are normally supposed to perform only extension related activities) have assumed responsibility for input supply and distribution, and on-farm management of tubewell water in addition to their crop production advisory work and that these arrangements should not be disturbed until the project is fully operational, in three or four years time. MOA, and the Director General of Irrigation, are agreeable to the transfer of administrative control. At the start of negotiations, HMG confirmed that necessary action had been taken to (a) transfer administrative control over agricultural staff working in irrigation project districts, except the command area (about 10,000 ha) of the Bhairawa-Lumbini Groundwater Project: Stage II, to DOA, and (b) complete other formalities in respect of the transfer of budgetary control, transfer of assets to DOA, and arrangements for absorption into DOA staff directly appointed by the Irrigation Boards.

4.02 At the Regional level, the Regional Director of Agriculture would continue to be responsible for the day-to-day operation of all district extension activities falling under his jurisdiction. Each Regional Director (Eastern, Central, Western and Mid-Western Regions) would be assisted by a SAEO who would specifically supervise and support extension activities. SAEO of Mid-Western Region would also be responsible for extension activities in the Far-Western Region (para 2.16). The existing Project Coordinator, under the Director General of Agriculture, would coordinate the implementation of project supported extension activities. Working through the Regional Directors of Agriculture and SAEO, he would provide the necessary overall guidance to field operations.

National Level Coordination

4.03 Coordination at the national level between extension, research and allied support agencies would be ensured through the existing Coordination and Progress Review Committee chaired by the Secretary MOA. The Committee, which meets monthly, consists of the Directors General of Agriculture and Livestock Development, the Deputy Directors General, and representatives of credit, input, and marketing organizations. The Committee would also invite representatives from the Ministry of Finance and National Planning Commission to participate in the meetings.

Linkages Between Extension and Research

4.04 As neither research nor extension can function efficiently without close cooperation, it would be necessary to formalize the responsibilities of both agencies. The research wing of DOA would assume full responsibility for the development of suitable new technology, while the extension service would have responsibility for the transfer of technology to farmers, including widespread testing of research recommendations, with the help of research, on farmers' fields. The research organization would continue to identify and select improved varieties of crops, and also identify economically appropriate practices directed to substantially increasing crop production and, at the same time, lowering farmers' risk. Selected varieties and production practices, would then be tested at regional research stations, substations, the Pilot Farm established in the Mahakali Irrigation Project area, and on farmers' fields. The project would provide funds for field testing of research results and for adaptive trials on farmers' fields. Research staff would work closely with extension staff and accompany them during field visits to identify and diagonize field problems, especially SMS, as much of the work at regional stations would be in response to the needs of local extension staff and farmers. The extension staff would work with research workers in carrying out a program of field trials and analyzing and interpreting the results. Under the IDA assisted Agricultural Extension and Research Project (Cr. 1100-NEP) and the Cash Crop Development Project (Cr. 1339-NEP), research facilities in the Terai have been strengthened (paras 1.10 and 1.11) to meet the above objectives.

4.05 Strengthening of arrangements for close coordination between research and extension would also be promoted through Central and District level committees, and regional workshops (paras 4.06 to 4.09).

4.06 Central Technical Committee (CTC). This committee would comprise the Director General of Agriculture, Deputy Directors General of Research and Extension, Project Coordinator, Regional Research Coordinators and senior research staff. The DDG (Research) would be the secretary. CTC would meet twice a year and provide a formal mechanism for review of research and field trials, and for review of future research programs and extension recommendations made by District Technical Committees and at Regional Workshops.

4.07 District Technical Committee (DTC). Each Committee would be chaired by the Agricultural Development Officer of the district and comprise district field staff, SMS, Research Outreach Officer, research workers, irrigation staff and farmers' representatives. Local officers of Irrigation Boards/Department would participate in the meeting to decide on the action plan for intensive work in irrigated areas. DTC would meet at lease twice a year to review adoption rates in the previous season and suggest recommendations for agricultural practices, including the identification of research priorities and adaptive trial needs, for discussion at the Regional Workshops.

4.08 Assurances were obtained during negotiations that DTC would be established in the six irrigation project districts and six new districts by December 31, 1985, and meet thereafter at least twice every year.

4.09 Regional Workshops. Twice a year, regional workshops would be organized at each Regional Research Station by the Regional Research Coordinator, well in advance of the summer and winter crop seasons. The workshops would include research workers, Regional Director of Agriculture, and extension staff, and would discuss the implications of recommendations of DTC on extension activities including adoption rates of recommendations and reasons for non adoption, partial adoption and full adoption, adaptive trials, and research priorities, and finalize these after considering research data and field experience.

4.10 The evolution of extension recommendations would be as under:

District Technical Committee ADO/SMS/ROO/Farmers/Research/ Irrigation	Reviews adoption rates of previous season, adaptive research, and trials to propose recommendations and suggests field trial program, and action plan for work in irrigated areas.
Regional Workshop Research and Extension Staff of Region	Assembles proposed recommendations from DTC. Frames recommendations after consideration of research data, economic constraints, results of field trials, and an analysis of adoption rates.

Central Technical Committee DG/DDG/RRC/Senior Research Staff	Reviews proposed recommendations developed by regional workshops. Approves or suggests modifications before returning to DTC/RRS for implementation.
District Technical Committee ADO/SMS/ROO/Farmers/Research/ Irrigation	Considers suggestions of CTC and finalizes recommendations. Formulates specific fortnightly recommendations. These will form the basis of fortnightly training sessions after suitable modifications by SMS at the bimonthly workshop training.
Bimonthly Workshop SMS/ROO/Research Staff/ADO (once in two months)	Bimonthly Workshop will modify recommendations made at preseason training to suit local conditions, review findings of field trials and training techniques, and prepare lesson plans for fortnightly training.
Fortnightly Training PLAA/JTA/JT/SMS	Discuss and finalize recommendations for next fortnight.

Training

4.11 Continuous practical training of PLAA, JTA and JT is crucial to project success. The keynote is the training of SMS, who have to be conversant with the latest research results, be active in the identification of local problems, and participate in local verification trials. Research workers would assist in the training of SMS in which ADO and AADO would also participate. Besides the bimonthly workshops, SMS would participate in special short courses in water management, crop oriented training, technology for rainfed farming and crop protection. These programs would be conducted under actual field conditions. Details of various inservice training programs are at Annex 2.

V. BENEFITS, JUSTIFICATION AND RISKS

5.01 Total project costs over the five year development period, excluding price contingencies, amount to US$6.5 M, which is US$5.5 per ha of cropped land or about US$13.27 per farm family, assuming 490,000 farm families. Incremental costs after the project development period, to be met from HMG budget resources, would be about US$0.66 M annually (less than 2 percent of annual development expenditure for Agriculture) or US$1.4 per farm family.

5.02 Economic Benefits. Attributing a precise level of benefits to this type of project is difficult since it is not possible to determine what

proportion of benefits are due to extension alone and what are due to additional purchased inputs and other factors. In practice, it is the combination of a number of factors, with extension playing the role of a catalyst, that brings the desired benefits. It is also difficult to estimate acceptance rate of recommended practices. However, since the project relies primarily on reorganization and strengthening of an existing extension structure, the incremental cost is low per hectare and per farm family. Hence, even very small production increase in the project areas would generate a high rate of return. The project would generate a 50 percent rate of return if, by 1992, yields of paddy (628,000 ha), maize (90,000 ha), wheat (195,000 ha), pulses (57,000 ha) and oilseeds (67,000 ha) and which cover about 80 percent of cropped land, increase by only 52 kg/ha, 47 kg/ha, 26 kg/ha, 17 kg/ha and 17 kg/ha respectively, over at least 50 percent of cropped land, and which requires an increase of 2.76 percent over current yield levels of all five crops. Details are given at Annex 4. Yield increases have exceeded this level where the extension system has been operating effectively for a few years. One significant feature of the system is that the practices initially stressed by the extension service focus on improving cultural practices (timely operations, good land preparation, proper seed rates, line sowing and weeding) to maintain adequate and healthy plant populations over unit area cultivated; as these operations usually involve more work and little cash outlay, they are particularly well-suited to the needs of many small farmers.

5.03 Project Risks. Risks due to administrative changes are relatively low because all extension staff would be under the control of DOA and this arrangement would ensure a single line of administrative command thus reducing the problems of dual control inherent in past arrangements. Staff changes in the upper ranks of government are frequent and there is the additional risk of lack of sustained, informed and motivated management. To avoid this, it would be necessary for IDA to continue to supervise these projects closely and frequently and provide constant encouragement and assistance to HMG until the principles of the extension reform become fully accepted and permanently institutionalized.

5.04 Other risks are minimal. Experience in the Terai where the reformed agricultural extension system has been introduced shows that farmers' responsiveness to recommendations has been good wherever visits by extension workers are made systematically and where PLAA and JTA have gained confidence in their own professional ability to introduce improved knowledge and skills. Furthermore, the ability of the extension service to develop and disseminate recommendations leading to yield increases well above the level needed for a 50 percent rate of return has been demonstrated adequately. The Cropping System Program has evolved suitable technology for rainfed and irrigated areas (para 1.09) which has been tested and refined to suit different farming situations. Progressive farmers who have adopted the technology have already obtained higher yields. Substantial yield increases are, therefore, possible even in the process of bringing the production level of average farmers up to that of the progressive farmers. To reduce the risk of technological constraints lowering anticipated project benefits, research programs in the

Terai have already been strengthened and adequate provision exists for field testing of research results.

VI. AGREEMENTS REACHED AND RECOMMENDATIONS

6.01 During negotiations, assurances were obtained from HMG on the following matters:

(a) that (i) PLAA of requisite qualification and experience would be recruited, and (ii) PLAA would be residents of the panchayats in which they would work (para 2.06);

(b) HMG and IDA would review by March 31, 1987 the adequacy of staff, especially of PLAA, and ensure thereafter that adequate numbers are employed for satisfactory implementation of the project (para 2.07);

(c) SAEOs for Eastern, Central and Western regions would be appointed and be in position by December 31, 1985 and one SAEO for Mid and Far-Western Regions by August 31, 1986 (para 2.16);

(d) that (i) all incremental staff would be appointed according to the agreed schedule, (ii) upon completion of the project, HMG would maintain the level of incremental staff to continue to achieve the objectives of the project, (iii) extension staff would work exclusively for agricultural extension and they would not be given any other responsibility, and (iv) all special production programs planned for the project districts and throughout the Terai would be implemented utilizing the extension methodology and organization (para 2.21);

(e) that HMG would (i) furnish to IDA by June 30, 1986 information on location of sites for all civil works to be financed under the project, and (ii) appoint the consulting Architect by December 31, 1985 (para 2.28);

(f) terms and conditions of bicycles loans and the amount of the maintenance allowance would be sufficient to ensure their purchase and use (para 2.29);

(g) would (i) complete benchmark studies in six new project districts by July 31, 1987, (ii) monitor project activities and progress on a semi-annual basis, and (iii) carry out evaluation surveys in a form acceptable to IDA and forward results to IDA twice a year (para 2.33);

(h) follow the procurement procedures set out in paras 3.06 to 3.08 (para 3.10);

(i) in order to facilitate prefinancing of project expenditures a Special Account would be established by HMG in the Nepal Rastra Bank (para 3.13);

(j) follow the disbursement procedures set out in paras 3.11 and 3.12;

(k) separate accounts would be kept and audited annually by an independent auditor acceptable to IDA and financial statement for the year would be certified and submitted to IDA within nine months after the close of the fiscal year (para 3.14); and

(l) District Technical Committees would be established in project districts by December 31, 1985 and meet thereafter at least twice every year (para 4.08).

6.02 Subject to the above conditions and assurances, the proposed project constitutes a suitable basis for an IDA credit of US$ 7.2 million (SDR 7.4) to His Majesty's Government of Nepal.

ANNEX 1
Table 1

NEPAL
AGRICULTURAL EXTENSION PROJECT II
Summary Accounts by Year
(NRs. '000)

	Base Costs						Foreign Exchange	
	85/86	86/87	87/88	88/89	89/90	Total	%	Amount
I. INVESTMENT COSTS								
A. CIVIL WORKS								
1. OFFICE BUILDINGS	-	7,860.0	8,760.0	4,845.0	-	21,465.0	50.0	10,732.5
2. HOUSING	-	7,050.0	10,125.0	9,045.0	-	26,220.0	50.0	13,110.0
3. TRAINING	-	100.0	-	-	-	100.0	50.0	50.0
4. ARCHITECT FEE	100.0	100.0	-	-	-	200.0	0.0	0.0
Sub-Total CIVIL WORKS	100.0	15,110.0	18,885.0	13,890.0	-	47,985.0	49.8	23,892.5
B. VEHICLES AND EQUIPMENT								
1. VEHICLES	2,427.5	3,775.0	1,875.0	-	-	8,077.5	95.0	7,673.6
2. OFFICE EQUIPMENT	780.0	360.0	165.0	-	-	1,305.0	80.0	1,044.0
3. FURNITURE	1,590.0	1,355.0	1,075.0	200.0	-	4,220.0	40.0	1,688.0
4. AUDIO VISUALS AND OTHER EQUIPMENT	1,883.8	1,567.5	1,110.2	-	-	4,561.5	89.9	4,099.7
Sub-Total VEHICLES AND EQUIPMENT	6,681.3	7,057.5	4,225.2	200.0	-	18,164.0	79.9	14,505.3
Total INVESTMENT COSTS	6,781.3	22,167.5	23,110.2	14,090.0	-	66,149.0	58.0	38,397.8
II. RECURRENT COSTS								
A. SALARIES AND ALLOWANCE								
1. EXTENSION STAFF	2,735.4	3,572.6	5,141.2	5,555.5	5,555.5	22,560.2	0.0	0.0
2. TRAINING STAFF	134.1	149.5	149.5	149.5	149.5	732.1	0.0	0.0
3. SUPPORT STAFF	540.7	792.6	964.1	964.1	964.1	4,225.6	0.0	0.0
4. ENGINEERING STAFF	212.0	275.7	275.7	275.7	275.7	1,314.8	0.0	0.0
Sub-Total SALARIES AND ALLOWANCE	3,622.2	4,790.4	6,530.5	6,944.8	6,944.8	28,832.7	0.0	0.0
B. OPERATING COSTS								
1. OFFICE AND EXTENSION MATERIAL	423.8	548.5	778.8	817.5	817.5	3,386.1	20.0	677.2
2. TRAVEL AND OTHER EXPENDITURE	522.8	748.4	931.2	937.2	937.2	4,076.8	10.0	407.7
3. OFFICE RENT	252.0	348.0	388.0	388.0	40[illegible]	1,416.0	0.0	0.0
4. VEHICLE OPERATING COSTS	480.0	875.0	1,345.0	1,550.0	1,550.0	5,800.0	90.0	5,220.0
5. FIELD TRIALS	20.0	30.0	40.0	40.0	40.0	170.0	50.0	85.0
Sub-Total OPERATING COSTS	1,698.6	2,549.9	3,483.0	3,732.7	3,384.7	14,848.9	43.0	6,389.9
C. TRAINING COSTS	967.5	1,569.0	1,676.0	1,603.0	1,603.0	7,420.5	0.0	0.0
D. MONITORING AND EVALUATION	675.0	675.0	300.0	400.0	400.[illegible]	2,450.0	0.0	0.0
Total RECURRENT COSTS	6,963.3	9,584.3	11,991.5	12,680.5	12,332.[illegible]	53,552.1	11.9	6,389.9
Total BASELINE COSTS	13,744.6	31,751.8	35,101.7	26,770.5	12,332.5	119,701.1	37.4	44,787.7
Physical Contingencies	1,433.4	3,916.7	4,111.5	2,787.2	638.9	12,887.8	49.6	6,398.7
Price Contingencies	478.1	3,725.8	7,519.2	8,485.7	5,059.6	25,268.4	34.1	8,624.2
Total PROJECT COSTS	15,656.1	39,394.3	46,732.4	38,043.5	18,031.0	157,857.4	37.9	59,810.5
Taxes	136.0	199.6	239.5	228.1	243.1	1,046.2	0.0	0.0
Foreign Exchange	6,895.3	18,092.5	19,500.2	12,765.6	2,556.9	59,810.5	0.0	0.0

February 19, 1985 11:05

NEPAL

AGRICULTURAL EXTENSION PROJECT II

Recurrent Costs: 1984/85 - Benchmark Data 1/

	NRs Million
Staff Salaries	5.40
Operating Costs	1.10
Total	6.50

1/ Estimated expenditure by HMG in Project Districts.

NEPAL
AGRICULTURAL EXTENSION PROJECT II
Table 2. CIVIL WORKS
Detailed Cost Table
(NRs. '000)

ANN
Tab.

	Unit	Quantity 85/86	86/87	87/88	88/89	89/90	Total	Unit Cost	Base Costs 85/86	86/87	87/88	88/89	89/90	Total	Parameters Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Susa: Accou
I. INVESTMENT COSTS																		
A. OFFICE BUILDINGS																		
ADO /a (200 sq.m.)	Nos.	-	1	1	-	-	2	600	-	600.0	600.0	-	-	1,200.0	0.15	0.5	0	
SAEO (150 sq.m.)	Nos.	-	1	3	-	-	4	450	-	450.0	1,350.0	-	-	1,800.0	0.15	0.5	0	
JT Training Unit /b (150 sq.m.)	Nos.	-	15	15	10	-	40	450	-	6,750.0	6,750.0	4,500.0	-	18,000.0	0.15	0.5	0	
Rest House (90 sq.m.)	Nos.	-	-	-	1	-	1	270	-	-	-	270.0	-	270.0	0.15	0.5	0	
Garage /c (15 sq.m.)	Nos.	-	4	4	5	-	13	15	-	60.0	60.0	75.0	-	195.0	0.15	0.5	0	
Sub-Total OFFICE BUILDINGS									-	7,860.0	8,760.0	4,845.0	-	21,465.0				
B. HOUSING																		
JTA /d (45 sq.m.)	Nos.	-	5	20	30	-	55	135	-	675.0	2,700.0	4,050.0	-	7,425.0	0.15	0.5	0	
JT /e (60 sq.m.)	Nos.	-	10	5	-	-	15	180	-	1,800.0	900.0	-	-	2,700.0	0.15	0.5	0	
AADO /f (80 sq.m.)	Nos.	-	2	3	3	-	8	240	-	480.0	720.0	720.0	-	1,920.0	0.15	0.5	0	
SMS (80 sq.m.)	Nos.	-	6	8	8	-	22	240	-	1,440.0	1,920.0	1,920.0	-	5,280.0	0.15	0.5	0	
ADO /g (90 sq.m.)	Nos.	-	3	3	-	-	6	270	-	810.0	810.0	-	-	1,620.0	0.15	0.5	0	
SAEO (120 sq.m.)	Nos.	-	2	2	-	-	4	360	-	720.0	720.0	-	-	1,440.0	0.15	0.5	0	
Other Class III Staff /h (80 sq.m.)	Nos.	-	2	4	4	-	10	240	-	480.0	960.0	960.0	-	2,400.0	0.15	0.5	0	
Other Non Gaz. Staff /i (45 sq.m.)	Nos.	-	4	8	8	-	20	135	-	540.0	1,080.0	1,080.0	-	2,700.0	0.15	0.5	0	
Other Staff /j (35 sq.m.)	Nos.	-	1	3	3	-	7	105	-	105.0	315.0	315.0	-	735.0	0.15	0.5	0	
Sub-Total HOUSING									-	7,050.0	10,125.0	9,045.0	-	26,220.0				
C. TRAINING																		
Renovation of Shed and fencing at Parwanipur	Nos.	-	1	-	-	-	1	100	-	100.0	-	-	-	100.0	0.15	0.5	0	
Sub-Total TRAINING									-	100.0	-	-	-	100.0				
D. ARCHITECT FEE		-	-	-	-	-	-		100.0	100.0	-	-	-	200.0	0.15	0	0	
Total INVESTMENT COSTS									100.0	15,110.0	18,885.0	13,890.0	-	47,985.0				
Total									100.0	15,110.0	18,885.0	13,890.0	-	47,985.0				

/a At Sunsari and Taulihawa.
/b Office cum residence for JT, training hall and store at each Training Sub-center.
/c Project Coordinator(2), SAEO(4), one each for Parsa, Rautahat, Sunsari, Saptari, Sirha, Bardia, Kanchanpur.
/d In remote areas.
/e In remote areas.
/f Parsa, Bara, Rautahat, Sunsari, Kailali, Dang, Bardia, Kanchanpur.
/g Sunsari, Saptari, Sirha, Bardia, Dang, Kanchanpur.
/h In remote areas.
/i In remote areas.
/j In remote areas.

NEPAL
AGRICULTURAL EXTENSION PROJECT II
Table 3. VEHICLES AND EQUIPMENT
Detailed Cost Table
(NRs. '000)

	Unit	Quantity 85/86	86/87	87/88	88/89	89/90	Total	Unit Cost	Base Costs 85/86	86/87	87/88	88/89	89/90	Total	Parameters Phys. Cont. Rate	For. Exch.	Gross Tax Rate	Summary Account
I. INVESTMENT COSTS																		
A. VEHICLES																		
4WD Diesel Jeep /a	Nos.	7	4	3	-	-	14	200	1,400.0	800.0	600.0	-	-	2,800.0	0.15	0.95	0.01	VC
Motor Cycles /b	Nos.	33	69	39	-	-	141	30	990.0	2,070.0	1,170.0	-	-	4,230.0	0.15	0.95	0.01	VC
Bicycles (Staff owned)	Nos.	25	70	70	-	-	165	1.5	37.5	105.0	105.0	-	-	247.5	0.15	0.95	0.01	VC
Minibus /c	Nos.	-	2	-	-	-	2	400	-	800.0	-	-	-	800.0	0.15	0.95	0.01	VC
Sub-Total VEHICLES									2,427.5	3,775.0	1,875.0	-	-	8,077.5				
B. OFFICE EQUIPMENT																		
Project Coordinator /d	Nos.	-	1	-	-	-	1	140	-	140.0	-	-	-	140.0	0.15	0.8	0.01	OEQ
SAED /e	Nos.	3	1	-	-	-	4	55	165.0	55.0	-	-	-	220.0	0.15	0.8	0.01	OEQ
ADO /f	Nos.	5	3	3	-	-	11	55	275.0	165.0	165.0	-	-	605.0	0.15	0.8	0.01	OEQ
Training Center /g	Nos.	2	-	-	-	-	2	120	240.0	-	-	-	-	240.0	0.15	0.8	0.01	OEQ
Director General Office /h	Nos.	1	-	-	-	-	1	100	100.0	-	-	-	-	100.0	0.15	0.8	0.01	OEQ
Sub-Total OFFICE EQUIPMENT									780.0	360.0	165.0	-	-	1,305.0				
C. FURNITURE																		
Project Coordinator		-	1	-	-	-	1	100	-	100.0	-	-	-	100.0	0.15	0.4	0.01	FUR
SAED		3	1	-	-	-	4	30	90.0	30.0	-	-	-	120.0	0.15	0.4	0.01	FUR
ADO - Office and Quarter		5	3	3	-	-	11	50	250.0	150.0	150.0	-	-	550.0	0.15	0.4	0.01	FUR
Rest House		-	-	-	1	-	1	50	-	-	-	50.0	-	50.0	0.15	0.4	0.01	FUR
Training Sub-center		20	20	16	-	-	56	50	1,000.0	1,000.0	800.0	-	-	2,800.0	0.15	0.4	0.01	FUR
JT/JTA		-	15	25	30	-	70	5	-	75.0	125.0	150.0	-	350.0	0.15	0.4	0.01	FUR
Training Centers /i		2	-	-	-	-	2	100	200.0	-	-	-	-	200.0	0.15	0.4	0.01	FUR
Director General Office		1	-	-	-	-	1	50	50.0	-	-	-	-	50.0	0.15	0.4	0.01	FUR
Sub-Total FURNITURE									1,590.0	1,335.0	1,075.0	200.0	-	4,220.0				
D. AUDIO VISUAL AND OTHER EQUIPMENT																		
Project Coordinator /j	Nos.	-	1	-	-	-	1	10	-	10.0	-	-	-	10.0	0.15	0.8	0.01	AVE
SAED /k	Nos.	-	4	-	-	-	4	10	-	40.0	-	-	-	40.0	0.15	0.8	0.01	AVE
ADO /l	Nos.	5	3	3	-	-	11	30	150.0	90.0	90.0	-	-	330.0	0.15	0.95	0.01	AVE
Training Sub-center /m	Nos.	20	20	16	-	-	56	60	1,200.0	1,200.0	960.0	-	-	3,360.0	0.15	0.95	0.01	AVE
JT/JTA /n	Nos.	100	175	46	-	-	321	0.5	50.0	87.5	23.0	-	-	160.5	0.15	0.5	0.01	AVE
PLAA /o	Nos.	407	350	93	-	-	850	0.4	162.8	140.0	37.2	-	-	340.0	0.15	0.5	0.01	AVE
Training Centers /p	Nos.	1	-	-	-	-	1	300	300.0	-	-	-	-	300.0	0.15	0.95	0.01	AVE
Civil Engineering /q	Nos.	21	-	-	-	-	21	1	21.0	-	-	-	-	21.0	0.15	0.9	0.01	AVE
Sub-Total AUDIO VISUAL AND OTHER EQUIPMENT									1,883.8	1,567.5	1,110.2	-	-	4,561.5				
Total INVESTMENT COSTS									6,681.3	7,037.5	4,225.2	200.0	-	18,164.0				
Total									6,681.3	7,037.5	4,225.2	200.0	-	18,164.0				

/a For Jhapa, Chitwan, Dhanusha, Mahottari, Sarlahi, Sirha, Kailali, Bardia, SAED(4), Project Coordinator(1) and Jhumka RTC(1).
/b Parsa(9), Bara(12), Rautahat(11), Morang(9), Sunsari(8), Sirha(15), Saptari(15), Kailali(8), Bardia(5), Dang(6), Kanchanpur(6), Project Coordinator(1), Training Centers(4) - one motorcycle each for JT and SMS, Director General Office(4) and Production Officers(28).
/c For Training Centers: Paruanipur and Jhumka.
/d Typewriters(2), Nepali and English, Duplicator, Photocopying Machine, etc.
/e Typewriters, Duplicator, etc.
/f Typewriters, Duplicator, etc.
/g Typewriter, Duplicator, Reference Material, etc., Kitchen utensils for Paruanipur.
/h Typewriters, Duplicator, etc.
/i Hostel and Classroom furniture for Paruanipur, Library furniture for Paruanipur and Jhumka.
/j Camera, flannel and black boards, etc.
/k Camera, flannel and black boards, etc.
/l Camera, cassette player, flannel and black boards, etc.
/m Flannel and black boards, soil testing kit, measuring tape, weighing balance, volumetric measuring glass, buckets, spoons of different sizes, specimen jars and bottles, insect collection boxes, plant protection equipment, etc.
/n Small folding board, flannel cloth, measuring tape, spring balance, bag to carry papers, etc.
/o Small folding board, flannel cloth, measuring tape, bag to carry papers, etc.
/p Slide projector, film projector, overhead projector, cassette tape recorder, public address system, and portable generator for Jhumka; agricultural tools, plants protection equipment, museum and sample material, drawing board and equipment, artist tools and material, display board, etc. for Jhumka and Paruanipur.
/q One measuring tape and one pocket calculator per unit.

NEPAL
AGRICULTURAL EXTENSION PROJECT II
Table 4. INCREMENTAL STAFF COSTS
Detailed Cost Table
(NRs. '000)

ANNEX 1
Table 4

	Unit	Quantity 85/86	86/87	87/88	88/89	89/90	Total	Unit Cost	Base Costs 85/86	86/87	87/88	88/89	89/90	Total	Parameters Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Summary Account
I. RECURRENT COSTS																		
A. EXTENSION STAFF																		
1. PROJECT COORDINATOR																		
Junior Technician	Staffyear	1	1	1	1	1	5	11.8	11.8	11.8	11.8	11.8	11.8	59.0	0	0	0	ES
Driver	Staffyear	-	1	1	1	1	4	7.7	-	7.7	7.7	7.7	7.7	30.8	0	0	0	ES
Sub-Total PROJECT COORDINATOR									11.8	19.5	19.5	19.5	19.5	89.8				
2. DIRECTOR GENERAL OFFICE /a																		
Extension and Training Specialists	Staffyear	3	3	3	3	3	15	16.5	49.5	49.5	49.5	49.5	49.5	247.5	0	0	0	ES
Subject Matter Specialists	Staffyear	-	2	2	2	2	8	16.5	-	33.0	33.0	33.0	33.0	132.0	0	0	0	ES
Assistant Economist/Planner	Staffyear	-	2	2	2	2	8	16.5	-	33.0	33.0	33.0	33.0	132.0	0	0	0	ES
Sub-Total DIRECTOR GENERAL OFFICE /a									49.5	115.5	115.5	115.5	115.5	511.5				
3. REGIONAL LEVEL /b																		
SAEO	Staffyear	3	4	4	4	4	19	27.9	83.7	111.6	111.6	111.6	111.6	530.1	0	0	0	ES
Asst. Economist	Staffyear	3	4	4	4	4	19	16.5	49.5	66.0	66.0	66.0	66.0	313.5	0	0	0	ES
JT	Staffyear	3	4	4	4	4	19	11.8	35.4	47.2	47.2	47.2	47.2	224.2	0	0	0	ES
Driver	Staffyear	-	3	4	4	4	15	7.7	-	23.1	30.8	30.8	30.8	115.5	0	0	0	ES
Sub-Total REGIONAL LEVEL /b									168.6	247.9	255.6	255.6	255.6	1,183.3				
4. DISTRICT LEVEL																		
ADO /c	Staffyear	3	5	6	6	6	26	20.9	62.7	104.5	125.4	125.4	125.4	543.4	0	0	0	ES
SMS /d	Staffyear	10	16	22	22	22	92	16.5	165.0	264.0	363.0	363.0	363.0	1,518.0	0	0	0	ES
Driver /e	Staffyear	5	7	10	10	10	42	7.7	38.5	53.9	77.0	77.0	77.0	323.4	0	0	0	ES
Sub-Total DISTRICT LEVEL									266.2	422.4	565.4	565.4	565.4	2,384.8				
5. FIELD STAFF																		
Production Officer	Staffyear	25	34	43	43	43	188	16.5	412.5	561.0	709.5	709.5	709.5	3,102.0	0	0	0	ES
JT /f	Staffyear	5	5	10	10	10	40	11.8	59.0	59.0	118.0	118.0	118.0	472.0	0	0	0	ES
JTA /g	Staffyear	34	37	65	80	80	296	8.9	302.6	329.3	578.5	712.0	712.0	2,634.4	0	0	0	ES
PLAA	Staffyear	407	505	772	850	850	3,384	3.6	1,465.2	1,818.0	2,779.2	3,060.0	3,060.0	12,182.4	0	0	0	ES
Sub-Total FIELD STAFF									2,239.3	2,767.3	4,185.2	4,599.5	4,599.5	18,390.8				
Sub-Total EXTENSION STAFF									2,735.4	3,572.6	5,141.2	5,555.5	5,555.5	22,560.2				
B. TRAINING CENTER STAFF																		
Training Officer /h	Staffyear	1	1	1	1	1	5	20.9	20.9	20.9	20.9	20.9	20.9	104.5	0	0	0	TRS
Instructors /i	Staffyear	4	4	4	4	4	20	16.5	66.0	66.0	66.0	66.0	66.0	330.0	0	0	0	TRS
JT /J	Staffyear	4	4	4	4	4	20	11.8	47.2	47.2	47.2	47.2	47.2	236.0	0	0	0	TRS
Driver	Staffyear	-	2	2	2	2	8	7.7	-	15.4	15.4	15.4	15.4	61.6	0	0	0	TRS
Sub-Total TRAINING CENTER STAFF									134.1	149.5	149.5	149.5	149.5	732.1				
C. SUPPORT STAFF																		
1. PROJECT COORDINATOR																		
Chief Accountant	Staffyear	1	1	1	1	1	5	22.1	22.1	22.1	22.1	22.1	22.1	110.5	0	0	0	SPS
Senior Accountant	Staffyear	1	1	1	1	1	5	17	17.0	17.0	17.0	17.0	17.0	85.0	0	0	0	SPS
Senior Clerk (Store)	Staffyear	1	1	1	1	1	5	11.9	11.9	11.9	11.9	11.9	11.9	59.5	0	0	0	SPS
Peon/Watchman	Staffyear	1	1	1	1	1	5	6	6.0	6.0	6.0	6.0	6.0	30.0	0	0	0	SPS
Sub-Total PROJECT COORDINATOR									57.0	57.0	57.0	57.0	57.0	285.0				

Senior Accountant	Staffyear	1	1	1	1	1	5	17	17.0	17.0	17.0	17.0	17.0	85.0	0	0	0	SPS
Typist/Clerk	Staffyear	1	3	3	3	3	13	9.2	9.2	27.6	27.6	27.6	27.6	119.6	0	0	0	SPS
Peon	Staffyear	-	2	2	2	2	8	6	-	12.0	12.0	12.0	12.0	48.0	0	0	0	SPS
Sub-Total DIRECTOR GENERAL OFFICE									26.2	56.6	56.6	56.6	56.6	252.6				
3. REGIONAL LEVEL /k																		
Senior Accountant	Staffyear	3	4	4	4	4	19	17	51.0	68.0	68.0	68.0	68.0	323.0	0	0	0	SPS
Clerk/Typist	Staffyear	3	4	4	4	4	19	9.2	27.6	36.8	36.8	36.8	36.8	174.8	0	0	0	SPS
Peon/Watchman	Staffyear	6	8	8	8	8	38	6	36.0	48.0	48.0	48.0	48.0	228.0	0	0	0	SPS
Sub-Total REGIONAL LEVEL /k									114.6	152.8	152.8	152.8	152.8	725.8				
4. DISTRICT LEVEL																		
Accountant /l	Staffyear	3	6	7	7	7	30	11.9	35.7	71.4	83.3	83.3	83.3	357.0	0	0	0	SPS
Typist/Clerk /m	Staffyear	5	8	11	11	11	46	9.2	46.0	73.6	101.2	101.2	101.2	423.2	0	0	0	SPS
Peon/Watchman /n	Staffyear	25	45	67	67	67	271	6	150.0	270.0	402.0	402.0	402.0	1,626.0	0	0	0	SPS
Sub-Total DISTRICT LEVEL									231.7	415.0	586.5	586.5	586.5	2,406.2				
5. TRAINING CENTERS /o																		
Accountant	Staffyear	2	2	2	2	2	10	11.9	23.8	23.8	23.8	23.8	23.8	119.0	0	0	0	SPS
Typist/Clerk	Staffyear	2	2	2	2	2	10	9.2	18.4	18.4	18.4	18.4	18.4	92.0	0	0	0	SPS
Artist	Staffyear	2	2	2	2	2	10	10.5	21.0	21.0	21.0	21.0	21.0	105.0	0	0	0	SPS
Helpers	Staffyear	8	8	8	8	8	40	6	48.0	48.0	48.0	48.0	48.0	240.0	0	0	0	SPS
Sub-Total TRAINING CENTERS /o									111.2	111.2	111.2	111.2	111.2	556.0				
Sub-Total SUPPORT STAFF									540.7	792.6	964.1	964.1	964.1	4,225.6				
D. CIVIL ENGINEERING STAFF /p																		
Executive Engineer	Staffyear	1	1	1	1	1	5	20.9	20.9	20.9	20.9	20.9	20.9	104.5	0	0	0	EMS
Assistant Engineer	Staffyear	3	4	4	4	4	19	16.5	49.5	66.0	66.0	66.0	66.0	313.5	0	0	0	EMS
Draftsman	Staffyear	2	2	2	2	2	10	11.8	23.6	23.6	23.6	23.6	23.6	118.0	0	0	0	EMS
Overseas	Staffyear	10	14	14	14	14	66	11.8	118.0	165.2	165.2	165.2	165.2	778.8	0	0	0	EMS
Sub-Total CIVIL ENGINEERING STAFF /p									212.0	275.7	275.7	275.7	275.7	1,314.8				
Total RECURRENT COSTS									3,622.2	4,790.4	6,530.5	6,944.8	6,944.8	28,832.7				
Total									3,622.2	4,790.4	6,530.5	6,944.8	6,944.8	28,832.7				

/a At Kathmandu in the office of Director General, Agriculture to strengthen the Extension/Training and Planning sections.
/b One each for Eastern, Central and Western Regions and one for Mid and Far Western Regions (combined).
/c One each for Parsa, Rautahat, Sunsari, Kanchanpur, Bardia, Sirha.
/d Two each for 11 districts.
/e For Jhapa, Chitwan, Dhanusha, Mahottari, Sarhalli, Sirha, Kailali and Bardia, and two more.
/f Bara(3), Rautahat(2), Saptari(3) and Sirha (2).
/g Parsa(8), Bara(14), Rautahat(9), Morand(2), Sunsari(1), Saptari(16), Sirha(12), Bardia(3) and 15 additional.
/h For Jhumka.
/i Jhumka training center.
/j Jhumka and Parwanipur training centers.
/k For SAEO.
/l Parsa, Bara, Rautahat, Kailali, Kanchanpur, Bardia and Dang.
/m One for each district.
/n Training Sub-centers(56) and one for ADO office(11).
/o For Jhumka and Parwanipur training centers.
/p One Executive Engineer at Project HQ in the Terai! four Assistant Engineers for Regions - Eastern and Central(1), Western(1), Mid Western(1) and Far Western(1)! Overseas Eastern and Central(3), Western(3), Mid Western(4) and Far Western(4).

NEPAL
AGRICULTURAL EXTENSION PROJECT II
Table 5. INCREMENTAL OPERATING COSTS
Detailed Cost Table
(NRs. '000)

	Unit	Quantity 85/86	86/87	87/88	88/89	89/90	Total	Unit Cost	Base Costs 85/86	86/87	87/88	88/89	89/90	Total	Parameters: Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Summary Account
I. RECURRENT COSTS																		
A. OFFICE OPERATING EXPENSES AND EXTENSION MATERIAL																		
PLAA /a	Staffyear	407	505	772	850	850	3,384	0.4	162.8	202.0	308.8	340.0	340.0	1,353.6	0.1	0.2	0	OEM
JT/JTA /b	Staffyear	187	236	361	376	376	1,536	0.5	93.5	118.0	180.5	188.0	188.0	768.0	0.1	0.2	0	OEM
SMS /c	Staffyear	10	16	22	22	22	92	1	10.0	16.0	22.0	22.0	22.0	92.0	0.1	0.2	0	OEM
Training Sub-centers /d	Nos.	20	37	56	56	56	225	2.5	50.0	92.5	140.0	140.0	140.0	562.5	0.1	0.2	0	OEM
ADO /e	Staffyear	5	8	11	11	11	46	2.5	12.5	20.0	27.5	27.5	27.5	115.0	0.1	0.2	0	OEM
SAEO /f	Staffyear	3	4	4	4	4	19	5	15.0	20.0	20.0	20.0	20.0	95.0	0.1	0.2	0	OEM
Project Coordinator /g	Staffyear	1	1	1	1	1	5	5	5.0	5.0	5.0	5.0	5.0	25.0	0.1	0.2	0	OEM
Training Centers /h	Nos.	2	2	2	2	2	10	15	30.0	30.0	30.0	30.0	30.0	150.0	0.1	0.2	0	OEM
Civil Engineering	Staffyear	1	1	1	1	1	5	40	40.0	40.0	40.0	40.0	40.0	200.0	0.1	0.2	0	OEM
Director General Office	Staffyear	1	1	1	1	1	5	5	5.0	5.0	5.0	5.0	5.0	25.0	0.1	0.2	0	OEM
Sub-Total OFFICE OPERATING EXPENSES AND EXTENSION MATERIAL									423.8	548.5	778.8	817.5	817.5	3,386.1				
B. TRAVELLING AND OTHER EXPENDITURE																		
JTA Cycle Allowance /i	Staffyear	137	171	262	277	277	1,124	0.4	54.8	68.4	104.8	110.8	110.8	449.6	0.1	0.1	0	TOE
JT /J	Staffyear	50	65	99	99	99	412	0.6	30.0	39.0	59.4	59.4	59.4	247.2	0.1	0.1	0	TOE
ADO /k	Staffyear	5	8	11	11	11	46	6	30.0	48.0	66.0	66.0	66.0	276.0	0.1	0.1	0	TOE
AADO /l	Staffyear	5	8	11	11	11	46	4	20.0	32.0	44.0	44.0	44.0	184.0	0.1	0.1	0	TOE
SMS /m	Staffyear	10	16	22	22	22	92	10	100.0	160.0	220.0	220.0	220.0	920.0	0.1	0.1	0	TOE
SAEO Office /n	Nos.	3	4	4	4	4	19	7	21.0	28.0	28.0	28.0	28.0	133.0	0.1	0.1	0	TOE
Project Coordinator's Office /o	Nos.	1	1	1	1	1	5	5	5.0	5.0	5.0	5.0	5.0	25.0	0.1	0.1	0	TOE
Training Centers /p	Nos.	2	2	2	2	2	10	5	10.0	10.0	10.0	10.0	10.0	50.0	0.1	0.1	0	TOE
Civil Engineering Staff	Staffyear	14	21	21	21	21	98	10	140.0	210.0	210.0	210.0	210.0	980.0	0.1	0.1	0	TOE
Production Officers	Staffyear	25	34	43	43	43	188	4	100.0	136.0	172.0	172.0	172.0	752.0	0.1	0.1	0	TOE
Director General Office	Nos.	1	1	1	1	1	5	12	12.0	12.0	12.0	12.0	12.0	60.0	0.1	0.1	0	TOE
Sub-Total TRAVELLING AND OTHER EXPENDITURE									522.8	748.4	931.2	937.2	937.2	4,076.8				
C. OFFICE RENT /q																		
Training Sub-centers	Nos.	15	30	40	40	10	135	4	60.0	120.0	160.0	160.0	40.0	540.0	0.1	0	0	OFR
SAEO	Staffyear	3	4	4	4	-	15	36	108.0	144.0	144.0	144.0	-	540.0	0.1	0	0	OFR
Project Coordinator	Staffyear	1	1	1	1	-	4	84	84.0	84.0	84.0	84.0	-	336.0	0.1	0	0	OFR
Sub-Total OFFICE RENT /q									252.0	348.0	388.0	388.0	40.0	1,416.0				
D. VEHICLE OPERATING COSTS																		
1. District 4WD Diesel /r	Nos.	5	9	12	12	12	50	30	150.0	270.0	360.0	360.0	360.0	1,500.0	0.1	0.0	0.1	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

D. VEHICLE OPERATING COSTS

1. District 4WD Diesel /r	Nos.	5	9	12	12	12	50	30	150.0	270.0	360.0	360.0	360.0	1,500.0	0.1	0.9	0.1	VOC
2. SAEO 4WD Diesel /s	Nos.	1	3	4	4	4	16	40	40.0	120.0	160.0	160.0	160.0	640.0	0.1	0.9	0.1	VOC
3. Project Coord. 4WD Diesel /t	Nos.	1	1	1	1	1	5	40	40.0	40.0	40.0	40.0	40.0	200.0	0.1	0.9	0.1	VOC
4. Minibus /u	Nos.	-	2	2	2	2	8	15	-	30.0	30.0	30.0	30.0	120.0	0.1	0.9	0.1	VOC
5. Motorcycles																		
- Director General Office /v	Nos.	-	4	4	4	4	16	5	-	20.0	20.0	20.0	20.0	80.0	0.1	0.9	0.1	VOC
- SHS /w	Nos.	10	10	16	22	22	80	10	100.0	100.0	160.0	220.0	220.0	800.0	0.1	0.9	0.1	VOC
- JT /x	Nos.	20	28	74	99	99	320	5	100.0	140.0	370.0	495.0	495.0	1,600.0	0.1	0.9	0.1	VOC
- Coordinator /y	Nos.	-	3	4	4	4	15	5	-	15.0	20.0	20.0	20.0	75.0	0.1	0.9	0.1	VOC
- Training Center /z	Nos.	-	4	4	4	4	16	5	-	20.0	20.0	20.0	20.0	80.0	0.1	0.9	0.1	VOC
- Production Officers /a	Nos.	10	24	33	37	37	141	5	50.0	120.0	165.0	185.0	185.0	705.0	0.1	0.9	0.1	VOC
Sub-Total Motorcycles									250.0	415.0	755.0	960.0	960.0	3,340.0				
Sub-Total VEHICLE OPERATING COSTS									480.0	875.0	1,345.0	1,550.0	1,550.0	5,800.0				
E. FIELD TRIALS		-	-	-	-	-	-		20.0	30.0	40.0	40.0	40.0	170.0	0.1	0.5	0.1	FT
Total RECURRENT COSTS									1,698.6	2,549.9	3,483.0	3,732.7	3,384.7	14,848.9				
Total									1,698.6	2,549.9	3,483.0	3,732.7	3,384.7	14,848.9				

/a Includes printing of diaries, poster paper and paint for preparing simple aids and other instructional material.
/b Includes printing of diaries, poster paper and paint for preparing simple aids and other instructional material.
/c For preparing training aids and other simple visuals.
/d Preparing training material and for fortnightly training costs.
/e Annual office operating costs.
/f Annual office operating costs.
/g Annual office operating costs.
/h Training Center (Jhumka and Parwanipur) annual operating costs and preparation of teaching aids.
/i NRs 30 per month for JTA owning a bicycle.
/j Annual travelling costs.
/k Annual travelling costs.
/l Annual travelling costs.
/m Annual travelling costs.
/n Annual travelling costs.
/o Annual travelling costs.
/p Annual travelling costs.
/q Annual office rental pending completion of civil works.
/r At 12,000 kms per year includes Jeep of Jhumka RTC.
/s At 15,000 kms per year.
/t At 15,000 kms per year.
/u At 6,000 kms per year.
/v About 15 kms/day at NRs 1.50/km.
/w About 30 kms/day at NRs 1.50/km.
/x About 15 kms/day at NRs 1.50/km.
/y About 15 kms/day at NRs 1.50/km.
/z About 15 kms/day at NRs 1.50/km.
/a About 15 kms/day at NRs 1.50/km.

ANNEX 1
Table 6

NEPAL
AGRICULTURAL EXTENSION PROJECT II
Table 6. TRAINING COSTS
Detailed Cost Table
(NRs. '000)

	Unit	Quantity 85/86	86/87	87/88	88/89	89/90	Total	Unit Cost	Base Costs 85/86	86/87	87/88	88/89	89/90	Total	Parameters: Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Summary Account
T COSTS																		
ation Trainins																		
ins Staff /a	Staffyear	700	-	-	-	-	700	0.1	70.0	-	-	-	-	70.0	0.15	0	0	TNC
taff	Staffyear	200	350	420	420	420	1,810	0.1	20.0	35.0	42.0	42.0	42.0	181.0	0.15	0	0	TNC
l Orientation Trainins									90.0	35.0	42.0	42.0	42.0	251.0				
ervice Training: PLAA /b	Staffyear	150	300	150	100	100	800	1.5	225.0	450.0	225.0	150.0	150.0	1,200.0	0.15	0	0	TNC
thly Workshop /c (ADO/ADO)	Staffyear	25	40	52	52	52	221	1.2	30.0	48.0	62.4	62.4	62.4	265.2	0.15	0	0	TNC
eason Training (JTA/JT)	Staffyear	600	1,000	1,300	1,300	1,300	5,500	0.2	120.0	200.0	260.0	260.0	260.0	1,100.0	0.15	0	0	TNC
eason Resional Workshop (SMS/ADO/Trs. Office)	Staffyear	25	40	52	52	52	221	0.3	7.5	12.0	15.6	15.6	15.6	66.3	0.15	0	0	TNC
l Short Coures /d																		
	Staffyear	10	16	22	22	22	92	1.5	15.0	24.0	33.0	33.0	33.0	138.0	0.15	0	0	TNC
JTA/JT	Staffyear	600	1,000	1,300	1,300	1,300	5,500	0.8	480.0	800.0	1,040.0	1,040.0	1,040.0	4,400.0	0.15	0	0	TNC
l Special Short Coures /d									495.0	824.0	1,073.0	1,073.0	1,073.0	4,538.0				
ENT COSTS									967.5	1,569.0	1,678.0	1,603.0	1,603.0	7,420.5				
									967.5	1,569.0	1,678.0	1,603.0	1,603.0	7,420.5				

ins staff in Morang, Sunsari, Rautahat, Parsa,
l Rupandehi districts will be given a two-day orientation
batch (40 persons per batch).
includes incentives to research scientists.
includes incentives to research scientists.
includes incentives to research scientists.

1985 11:05

ANNEX 1
Table 7

NEPAL
AGRICULTURAL EXTENSION PROJECT II
Table 7. MONITORING AND EVALUATION
Detailed Cost Table
(NRs. '000)

	Unit	Quantity 85/86	86/87	87/88	88/89	89/90	Total	Unit Cost	Base Costs 85/86	86/87	87/88	88/89	89/90	Total	Parameters Phy. Cont. Rate	For. Exch.	Gross Tax Rate	Summary Account
NT COSTS																		
e Study /a	District	3	3	-	-	-	6	125	375.0	375.0	-	-	-	750.0	0.15	0	0	MAE
ing and uation Studies /b	Nos.	3	3	3	4	4	17	100	300.0	300.0	300.0	400.0	400.0	1,700.0	0.15	0	0	MAE
RRENT COSTS									675.0	675.0	300.0	400.0	400.0	2,450.0				
									675.0	675.0	300.0	400.0	400.0	2,450.0				

, Kanchanpur and Bardia in 84/85;
irha and Saptari in 85/86.
would be conducted on specific project activities.

, 1985 11:05

ANNEX 1
Table 8

NEPAL

AGRICULTURAL EXTENSION PROJECT: PHASE II

REQUIREMENT AND AVAILABILITY OF EXTENSION STAFF

District	Panchayats	PLAA 1/ Reqd.	JTA 1/ Reqd.	JTA Positions Available	Incremental JTA Needed	JT 2/ Reqd.	JT Positions Available	Incremental JT Needed	SMS Reqd.	Permanent SMS Available	Incremental SMS Needed	AADO Reqd.	AADO Avail.	ADO Reqd.	ADO Avail.	Incremental ADO Needed
YEAR I																
Morang	66	66	22	20	2	8	8	-	2	-	2	1	1	1	1	-
Sunsari	52	52	18	17	1	7	7	-	2	-	2	1	1	1	-	1
Rautahat	101	101	34	25	9	12	10	2	2	-	2	1	1	1	-	1
Bara	105	105	35	21	14	13	10	3	2	-	2	1	1	1	1	-
Parsa	83	83	28	20	8	10	10	-	2	-	2	1	1	1	-	1
Sub Total	407	407	137	103	34	50	45	5	10	-	10	5	5	5	2	3
YEAR II																
Bardia	34	34	12	9	3	5	5	-	2	-	2	1	1	1	-	1
Kailali	44	44	15	15	-	6	6	-	2	-	2	1	1	1	1	-
Kanchanpur	20	20	7	7	-	4	4	-	2	-	2	1	1	1	-	1
Sub Total	98	98	34	31	3	15	15	-	6	-	6	3	3	3	1	2
YEAR III																
Saptari	115	115	39	23	16	14	11	3	2	-	2	1	1	1	1	-
Sirha	112	112	38	26	12	14	12	2	2	-	2	1	1	1	-	1
Dang	40	40	14	14	-	6	6	-	2	-	2	1	1	1	1	-
Sub Total	267	267	91	63	28	34	29	5	6	-	6	3	3	3	2	1
Additional Needs 3/	-	78	15	-	15	-	-	-	-	-	-	-	-	-	-	-
TOTAL	772	850	277	197	80	99	89	10	22	-	22	11	11	11	5	6

1/ One PLAA per Panchayat and one JTA for three PLAA or nine Pannchayats.
2/ One JT for three JTA and one for ADO office.
3/ Additional positions of PLAA and JTA needed for making adjustments in remote and difficult areas and intensive cultivation areas.

NEPAL

AGRICULTURAL EXTENSION PROJECT II

Recruitment of Staff by Year

		1985/86	1986/87	1987/88	1988/89	1989/90
PLAA						
New						
- one PLAA per Panchayat	yearly	407	98	267	-	-
- additional PLAA	"	-	-	-	78	-
	cumulative	407	505	772	850	850
JTA						
- Existing	yearly	103	31	63	-	-
- New	"	34	3	28	15	-
	cumulative	137	171	262	277	277
JT						
- Existing	yearly	45	15	29	-	-
- New	"	5	-	5	-	-
	cumulative	50	65	99	99	99
AADO						
- Existing	yearly	5	3	3	-	-
	cumulative	5	8	11	11	11
ADO						
- Existing	yearly	2	1	2	-	-
- New	"	3	2	1	-	-
	cumulative	5	8	11	11	11
PRODUCTION OFFICER						
- New	yearly	25	9	9	-	-
	cumulative	25	34	43	43	43
SMS						
- New	yearly	13	8	6	-	-
	cumulative	13	21	27	27	27
SAEO						
- New	yearly	3	1	-	-	-
	cumulative	3	4	4	4	4

ANNEX 1
Table 9
Page 2

		1985/86	1986/87	1987/88	1988/89	1989/90
TRAINING						
- New	yearly	9	2	-	-	-
	cumulative	9	11	11	11	11
ENGINEERING						
- New	yearly	16	5	-	-	-
	cumulative	16	21	21	21	21
ACCOUNTS STAFF						
- New	yearly	10	4	1	-	-
	cumulative	10	14	15	15	15

NEPAL

AGRICULTURAL EXTENSION PROJECT II

TRAINING

Training Strategy

1. Since the extension service has to improve the quality of farming practices, training of research and extension staff and farmers would be such that it imparts the specific information that is needed. The extension workers work with farmers in teaching specific skills. This implies that PLAA, JTA and JT must be able to perform all tasks and, likewise, SMS who train these workers must also be able to perform all these tasks. Furthermore, trainers of SMS (research workers and senior staff) need to be acquainted with farming operations and how they are best performed.

2. In designing appropriate training programs it would be necessary to identify the skills and knowledge required by farmers to improve their production. The PLAA would need training in what is to be passed on to the farmers. The JTA and JT should be able to answer more advanced technical questions. Research workers have to develop ability to identify factors limiting farm production in the field. This implies joint farm visits by research and extension workers.

3. The project would support a variety of in-service and pre-service training programs for staff. These are briefly described below.

Panchayat Level Agricultural Assistants (PLAA)

4. Pre-service Training. PLAA would have generally completed about 8 years of schooling. They would be given a 35-day training with emphasis on practicals and development of skills.

5. Orientation Training. All PLAA would receive special training in extension and T&V system.

6. Fortnightly Training. Central to the entire extension approach and an integral part of it is the fortnightly training session. The training would be carried out by the SMS and, reviewed by PLAA and his JTA in the alternate week. PLAA, JTA and JT would attend the fortnightly training given by the SMS on a specific day, once in two weeks. Most sessions would be held where there are means for practical application of lessons taught, viz., a farmer's field, a seed farm, an experimental station or a training center. Training would cover actual field situations likely to arise over the next two week period. Time would be allowed to PLAA to carry out field operations and practicals. During training, PLAA would have a chance to raise and discuss problems encountered in the previous fortnight. Representative of Sajha, ADBN, AIC and Irrigation would be invited to attend part of the session to ensure coordination of related activities. In the intervening week, PLAA would meet with their JTA to review current problems.

7. Preseason Training. Prior to each of the two main agricultural seasons (summer and winter), PLAA would receive a 2-day training covering the main seasonal crops and practices recommended for them. The training would be held in two to three convenient groups for each district where facilities would be available. ADO and SMS would organize and attend this session. The training would initiate the extension campaign for the coming season.

8. Special Short Courses. PLAA would be given training in particular disciplines/crops which are of special importance to their areas.

Junior Technical Assistants an Junior Technicians (JTA/JT)

9. Pre-service Training. JTA and JT would have received one year and two year basic training respectively in the Institute of Agricultural Sciences, Rampur. A few JT would have been promoted from JTA.

10. Orientation Training. All JTA and JT would receive special training in extension methodology and T&V system.

11. Fortnightly Training. JTA and JT would attend all training sessions of their PLAA. They would be given extra training by SMS to develop greater subject matter efficiency.

12. Preseason Training. JTA and JT would participate in the 2-day preseason training.

13. Special Short Courses. Selected JTA and JT would be given specialized training for a week in particular crops and disciplines which are of importance to their area of operation.

Subject Matter Specialists (SMS)

14. Pre-service Training. SMS would generally be university graduates. Some of them would have post-graduate qualifications.

15. Orientation Training. All SMS would receive special training in T&V extension methodology.

16. In-service Training. SMS would participate in the preseason training, bimonthly workshop and specialized short courses.

(a) Preseason Training. SMS would participate in the 2-day preseason training prior to the main cropping season.

(b) Bimonthly Workshop. To provide effective training to PLAA, JTA and JT once every two weeks, SMS would have to be up to date in their area of specialization and ensure that training has a practical bias. For this purpose, the SMS would participate in bimonthly workshop once every two months at the Regional Research Station.

(c) Special Short Courses. In order to build up professional competence of SMS it is considered necessary to provide them opportunities for special training in research institutions within the country.

Administrative Staff

17. Orientation Training. All supervisory personnel would undergo training in extension methodology and T&V system. Their specific roles would be explained in detail.

Responsibilities

18. The Project Coordinator, in consultation with Deputy Directors General, Research and Extension and other appropriate staff, would be responsible for planning and organizing all training programs. A summary of the training activities is as under:

Training Activity	Venue	Frequency	Duration	Participants	Trainers	Organizers
Pre-service (PLAA)	RTC	As 45 needed	35 days	PLAA recruits	RRS Staff	DOA/Project Coordinator
Fortnightly (PLAA)	within district	26x year	1 day	PLAA JTA, JT	SMS	ADO, AADO SMS
Bimonthly Workshop (SMS)	RRS	6x year	1 or 2 days	All SMS, ADO and AADO of region	RRS Staff DOA, ROO	Project Coordinator, ROO, (DDG) Research
Preseason (PLAA)	within district	2x year	3 days	PLAA	SMS, ADO, ROO, Research Staff	ADO, SMS
Preseason (JTA/JT)	district	2x year	3 days	JTA, JT	SMS, ADO, ROO, Research Staff	ADO, SMS

Training Activity	Venue	Frequency	Duration	Participants	Trainers	Organizers
Special Short Courses	RRS/ RTC	2x year	5-7 days	PLAA JTA, JT	Research Staff, ROO, SMS	Regional Project Coordinator
Special Short Courses	RRS/ Khumaltar	As needed	5-7 days	SMS Senior Staff	Research Staff, & other Institutions	DDG (Research), Project Coordinator
Project Orientation	District	As needed	2 days	All District Staff/ SAEO	Project Coordinator	Project Coordinator/ SAEO
	Region/ Katmandu	As needed	2 days	Senior Staff	Project Coordinator	Project Coordinator/ SAEO

NEPAL
AGRICULTURAL EXTENSION PROJECT II
Implementation Schedule

FINANCIAL YEAR		FY86			FY87			FY88			FY89			FY90		
PROJECT YEAR		1			2			3			4			5		
CALENDAR YEAR	1985				1986			1987			1988			1989		1990
QUARTER	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
IL WORKS																						
Selection & Appointment of Architect																						
Site Selection																						
Design Development																						
Preparation of Tenders																						
Contract Award & Approval																						
Complete Construction										57				80				74				
ICLES & EQUIPMENT																						
Prepare List of Equipment																						
Preparation of Tenders																						
Contract Award & Approval																						
Purchase Vehicles						65				145				112								
Purchase Equipment																						
REMENTAL STAFF																						
Appointment of Staff																						
— SAEO				3				1														
— ADO				3				2			1											
— SMS				13				8			5											
— JT				5							5											
— JTA				34				3			28			15								
— PLAA				407				98			267			78								
— Training Staff				9				2														
— Engineering Staff				16				5														

World Bank – 25855

ANNEX 3
Table 2

NEPAL

AGRICULTURAL EXTENSION PROJECT II

SCHEDULE OF ESTIMATED IDA DISBURSEMENTS

US$ Million

IDA Fiscal Year and Semester		Disbursement	
		Semester	Cumulative
1986	1st	0.1	-
	2nd	0.2	0.3
1987	1st	0.3	0.6
	2nd	0.4	1.0
1988	1st	0.6	1.6
	2nd	1.0	2.6
1989	1st	1.0	3.6
	2nd	1.0	4.6
1990	1st	1.5	6.1
	2nd	0.6	6.7
1991	1st	0.5	7.2

ANNEX 4
Table 1

NEPAL

AGRICULTURAL EXTENSION PROJECT II

Economic Analysis
(NRs. '000)

Year	Incremental Extension and Training Costs	Total Cost Discounted at 50%	Discount Factor	Benefits: % Benefits Achieved	Benefits: Present Value of Benefits
1	13,745	9,127	0.664	-	-
2	31,752	14,098	0.444	10	0.044
3	35,102	10,390	0.296	30	0.088
4	26,770	5,274	0.197	60	0.118
5	12,332	1,615	0.131	80	0.105
6	12,332	1,073	0.087	90	0.078
7-20	12,332	2,096	0.170	100	0.170
		43,673			0.603

The annual incremental value of crops (1981 prices) required from year 7 onwards to achieve a 50% rate of return is

$$\frac{\text{NRs. } 43{,}673}{.603} \text{ M or NRs. } 72 \text{ M}$$

Crop	Area (ha)	Present Yield Kg/ha	Present Yearly Production M tons	Prices of Crops NRs/ton	Present Yearly Value of Crops NRs M
Paddy	628,000	1,900	1.19	2,836 2/	3,375.0
Wheat	195,490	1,300	0.25	3,873 2/	968.0
Maize	90,031	1,700	0.15	3,207 2/	481.0
Other Crops 1/	124,000	600	0.07	5,500 3/	385.0
					5,209.0

1/ Pulses and Oilseeds.
2/ See Table 2.
3/ Farmgate prices have been used as these crops are not traded.

To obtain NRs. 72 M, all yields must increase by $\frac{72}{5,209}$ or 1.38% on all cropped area or 2.76% on 50% cropped area. Yield increases would thus be:

	All Cropped Area (kg/ha)	50% Cropped Area (kg/ha)
Paddy	26.22	52.44
Wheat	17.94	25.88
Maize	23.46	46.92
Other Crops	8.28	16.56

ANNEX 4
Table 2

NEPAL

AGRICULTURAL EXTENSION PROJECT II

Economic Price Build-up

	Paddy/Rice	Maize	Wheat
Projected Average World Market Price 1/ 1985-90 (US$/ton)	286	116	152
Adjustment for Quality Differentials 2/ (factor) and bags (US$/ton)	-28%	-	-
Adjusted Projected Price	206	116	152
Freight FOB Calcutta	+25	+30	+30
Price FOB Calcutta	231	146	182
Clearing, forwarding and handling from Calcutta to Project Area	+40	+40	+40
Wholesale Price in Project Area	271	186	222
Equivalent NRs.	5,014	3,441	4,107
Domestic Transport/Handling from Wholesale Point or Mill (NRs/ton x SCF) 3/	-225	-171	-171
Processing Ratio	64%	100%	100%
Processing Cost (NRs/ton x SCF) 3/	-166	-	-
Transport, Handling to/from Farmgate (NRs/ton x SCF) 3/	-63	-63	-63
Farmgate Economic Price of Paddy (NRs/ton rounded)	2,836	3,207	3,873

1/ Source: IBRD Commodity Price Forecasts, December 1984.
Rice : Thai, milled 5% broken FOB Bangkok
Maize: US No 2, yellow, FOB Gulf Ports
Wheat: Canadian No. 1, Western Red Spring, in store Thunder Bay.

2/ Since most of the rice produced is traded locally with a high content of brokens (28%), price is assumed to be 28% lower.

3/ SCF = 0.9.

ANNEX 5

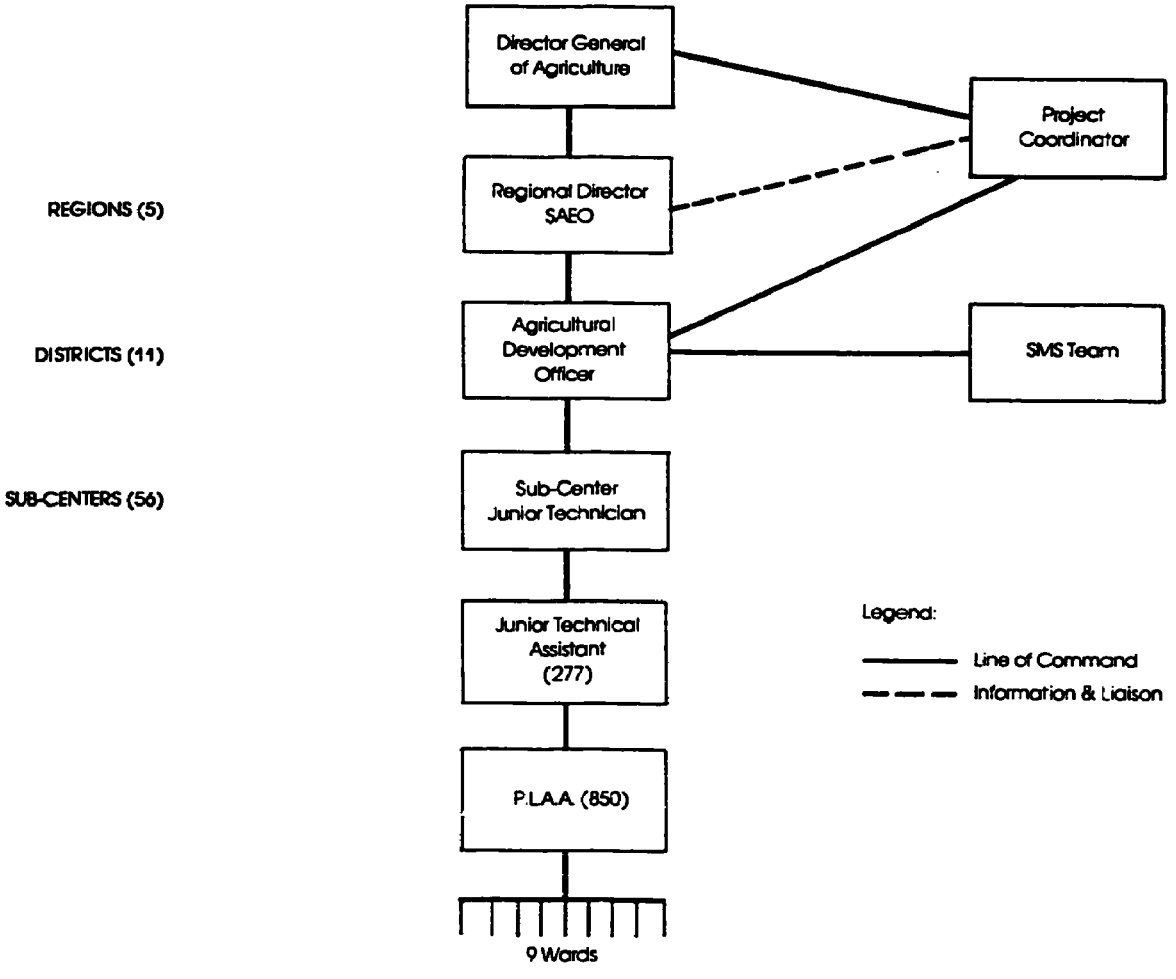
NEPAL

AGRICULTURAL EXTENSION PROJECT II

Related Document Available in the Project File

1. Nepal - Agricultural Extension and Research Project II: Project Proposal Report. R.C. Mishra, Consultant.

NEPAL
AGRICULTURAL EXTENSION PROJECT II
Extension Organization



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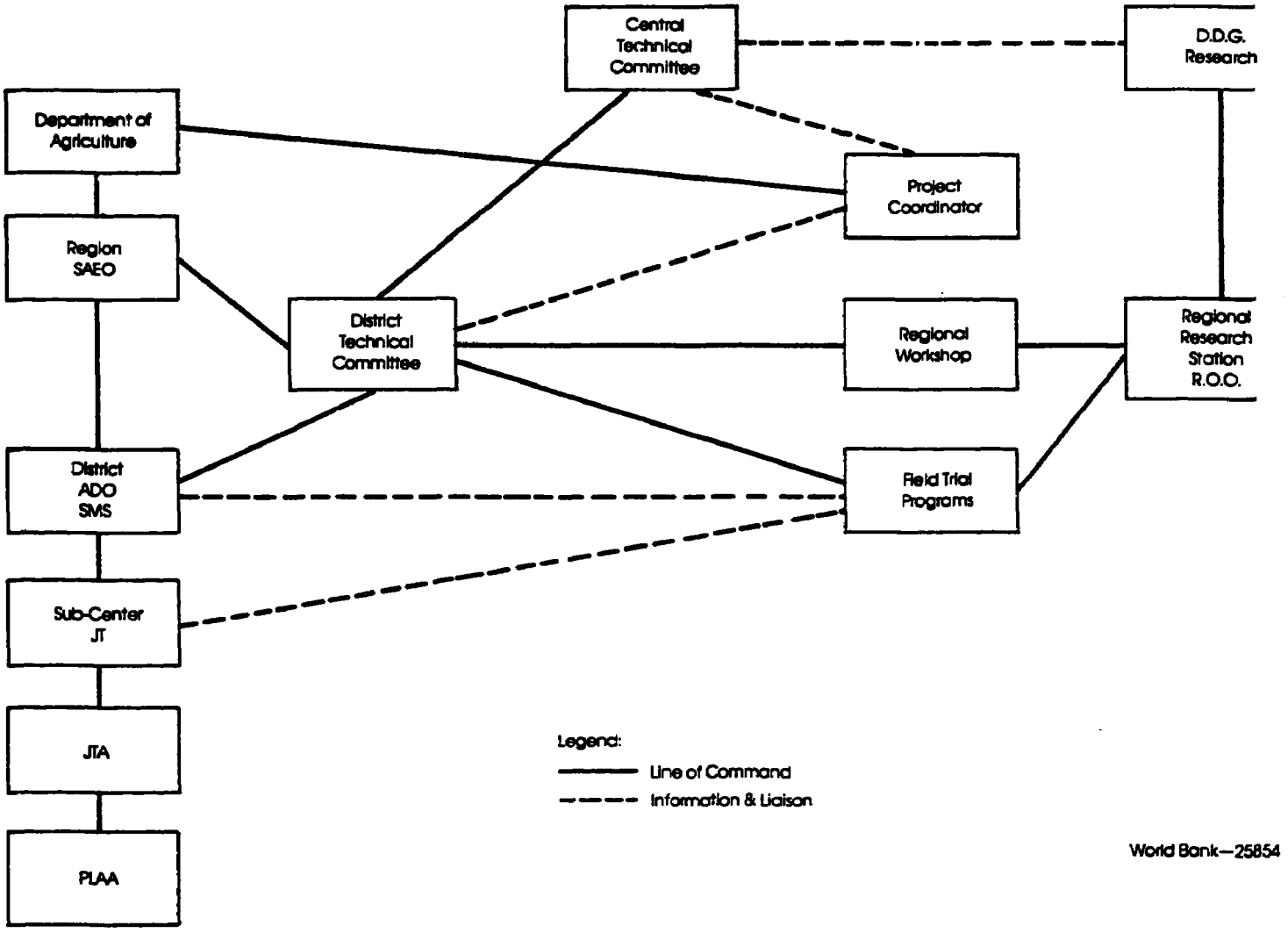
NEPAL
AGRICULTURAL EXTENSION PROJECT II
Linkages Between Research and Extension



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AGRICULTURAL EXTENSION PROJECT II
Project Districts
Project Year 1
Project Year 2
Project Year 3
Ongoing Project Districts
Development Region Boundaries
District Boundaries
Zonal Boundaries
International Boundaries
Existing Research and Training Facilities:
Khumaltar Research Station
Regional Research Stations
Research Sub-stations
Regional Training Centers
CHINA
INDIA
NEPAL
Kathmandu
KILOMETERS
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