

ネパール王国
尿素肥料工場計画調査
報告書
(付録)

1984年9月

国際協力事業団

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尿素肥料工場計画調査
報告書
(付録)

1984年9月

国際協力事業団

国際協力事業団	
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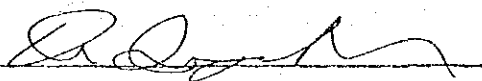
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- Annex I-2 LIST OF STUDY TEAM MEMBER AND COUNTER PARTS**
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- Annex I-4 LIST OF OFFICES VISITED AND PERSONS MET**
- Annex I-5 LIST OF DOCUMENTS RECEIVED**

Annex I-1

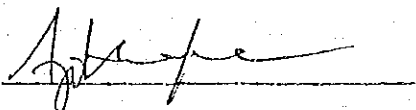
**SCOPE OF WORK FOR THE FEASIBILITY STUDY
AND MINUTE OF MEETING AT PRESENTATION
OF PROGRESS REPORT**

SCOPE OF WORK
FOR
THE FEASIBILITY STUDY
ON
THE ESTABLISHMENT OF UREA FERTILIZER PLANT
IN
THE KINGDOM OF NEPAL
AGREED UPON BETWEEN
THE JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE MINISTRY OF INDUSTRY
HIS MAJESTY'S GOVERNMENT OF NEPAL

Kathmandu, October 4, 1983



Kenji IWAGUCHI
Leader of Japanese Survey Team



Ajit Narayan Singh Thapa
Joint Secretary
Ministry of Industry

I. Introduction

In response to the request of His Majesty's Government of Nepal (hereinafter referred to as "H.M.G.N."), the Government of Japan has decided to conduct a feasibility study on the establishment of urea fertilizer plant (hereinafter referred to as "the study") in accordance with the laws and regulations in force in Japan

The Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the study, in close cooperation with the authorities of the Kingdom of Nepal

Ministry of Industry, H.M.G.N. (hereinafter referred to as "MOI") will be the executing agency and shall designate the Industrial Services Centre (ISC) as a counterpart agency to the Japanese study team (hereinafter referred to as "the Team") and MOI shall also act as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the study

The Present Document sets forth the Scope of Work with regard to the study.

II. Objective of the Study

The objective of the Study is to examine the technical, financial and economic feasibility of the establishment of urea fertilizer plant (hereinafter referred to as "Project") in the Kingdom of Nepal and to prepare a feasibility study report keeping in view the ammonia production process using hydrogen by water electrolysis

III. Scope of the Study

In order to achieve the above objective, the study will cover the following items :

1. Review on the background of the Project
 - 1) the present situation of and policy on agriculture in Nepal
 - 2) the present situation of and policy on fertilizers in Nepal
 - (1) supply and demand of fertilizers
 - (2) trend of consumption of fertilizers
 - 3) the present situation of and policy on industrialization
 - 4) relation of the Project with the overall National Development Plan
 - 5) the present situation and future plan of demand and supply of electric power
 - 6) the present situation of and policy on manpower required for the Project such as chemical engineers, plant engineers and others
 - 7) relevant laws and regulations
2. Study on the detailed urea fertilizer market in Nepal
 - 1) present and past supply and consumption
 - 2) present and past situation of import and its cost
 - 3) trend and structure of price
 - 4) potential demand and constraints in the application of fertilizers

- 5) projection of demand in the coming ten years
 - 6) marketing and distribution system
 - 7) cost and channel of transport and distribution from manufacturing site to major market area
3. Study on the raw materials for the urea fertilizer production
- 1) possibility of electric power supply
 - (1) present situation of electric power supply (capacity, tariff, stability, etc.)
 - (2) future demand and supply (construction projects, schedule, etc.)
 - 2) water
 - (1) quality and quantity of water
 - (2) water works necessary for the Project
 - 3) availability of Carbon Dioxide (CO_2)
 - (1) CO_2 from cement factory
 - (2) CO_2 from other sources
 - 4) materials for packing
 - 5) other materials
4. Study on the plant location and site
- 1) natural conditions of the site and its surrounding area focusing on meteorology, geology and topography
 - 2) utilities and infrastructure such as electricity, gas, water, transportation and communication
 - 3) regional development plan

- 4) selection of the plant site based on the results of the study on the availability of raw materials, utilities, infrastructure and other factors
 - 5) conditions of transportation of equipment and its installation
5. The basic plan and conceptual design of the urea fertilizer plant
- 1) comparison of production processes and determination of the most suitable process
 - 2) examination and determination of production scale
 - 3) fundamentals and major preconditions of conceptual design including list of major equipment
 - 4) process flow sheet
 - 5) layout of the plant and auxiliary facilities
 - 6) implementing program of the plant construction
 - 7) transport plan of equipment and materials for plant construction
 - 8) operation plan of the plant
 - 9) organization and manpower plan for the plant construction and operation including managerial aspects
 - 10) marketing and distribution system
6. Study on environmental protection

7. Financial analysis

1) capital requirements

(1) fixed capital (land, plant construction, auxiliary facilities and pre-operation cost, including training cost and consultancy fees, etc.)

(2) working capital

(3) investment schedule

2) procurement of capital

3) operation cost

4) production cost

5) projected balance sheet

6) projected flow sheet

7) financial internal rate of return

8) sensitivity analysis based on possible variations in

a) electricity tariff

b) investment cost

c) interest rate

d) inflation rate

e) sales price

8. Economic and social evaluation

9. Conclusion and recommendations

IV. Steps and Schedule of the Study

1. Steps

Step 1 : Preparatory office work in Japan

Step 2 : Field work in Nepal

Step 3 : Home office work in Japan

Step 4 : Presentation of and Discussion on the Draft
Final Report

2. Schedule

As shown in Annex

V. Reports

JICA will prepare and submit the following reports to
H.M.G.N.

1. Progress Reports written in English at the end of the
Step 2 in the IV : 10 copies
2. Draft Final Report and its summary written in English
within five (5) months after commencement of the
Step 3 : 15 copies
3. Final report and its summary written in English within
two (2) months after the receipt of comments on the
Draft Final Report by MOI : 30 copies

VI. Undertaking of H.M.G.N.

H.M.G.N. shall accord privileges, immunities and other
benefits to the Team in accordance with the laws on Nepal
and, through the authorities concerned, take following
necessary measures to facilitate the smooth implementation
of the Study :

1. Provide adequate number of full-time counterparts
2. Arrange the Team's visits to relevant authorities
concerned and ensure that the Team has access to all
relevant information required for the execution of
the study

3. Provide the Team with office accomodation with sufficient office supplies and equipment
4. Provide relevant information and data available to the Team
5. Exempt the Team from taxes, duties and charges in the Kingdom of Nepal on materials, equipment and personal effects brought into the Kingdom of Nepal for the purpose of the Study
6. Exempt the Team members from income taxes and charges of any kind imposed on or in connection with the staying expenses remitted from abroad
7. Ensure the security of the Team members during their stay in the Kingdom of Nepal
8. Bear claims, if any arises, against the Team members resulting from, occuring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from the gross negligence or wilful misconduct on the part of the Team members

VII. Undertaking of the Government of Japan

For the implementation of the Study, the Government of Japan will, through JICA, take following measures :

1. To dispatch, at its own expense, study teams to Nepal
2. To pursue technology transfer to the Nepalese counterpart personnel in the course of the Study

VIII. Consultation

JICA and MOI will consult with each other in respect of any matter that may arise in the interpretation or implementation of the present arrangement.

1985

Annex

Tentative Schedule of the Study

Year & Month	1983									1984									1985	
	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.		
Preparatory Office Work (Step 1)	=====	=====	=====	=====																
Field Work (Step 2)					=====															
Home Office Work (Step 3)									=====	=====	=====									
Presentation of Draft Final Report (Step 4)																				
Submission of Final Report																		△		

===== in Japan

===== in Nepal

MINUTES OF MEETING

In summarizing the local activities of survey and study carried out by the study team of Japan International Cooperation Agency (JICA) for the feasibility study of the establishment of urea fertilizer plant in the Kingdom of Nepal (hereinafter referred to as the "Project"), the study team presented the Progress Report at the Ministry of Industry of His Majesty's Government of Nepal (HMG/N), Kathmandu on January 27, 1984.

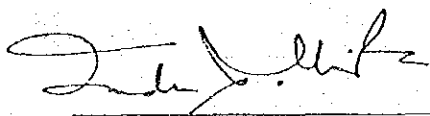
Based upon the detailed explanation of the Progress Report, the in-depth discussion and clarification were made among the authorities of the HMG/N, the study team members and the resident representative of JICA in Nepal, and parties concerned agreed as recommended in the Progress Report in principle regarding the major issues, for formulating the Feasibility Study, on the type of product, selection of location and site, method on the demand projection and the selection of production capacity, supply conditions of raw materials and utilities, scope of facilities, management and schedule for the implementation, and assumption and basis of financial and economic analysis for the Project.

Major additional issues which were discussed and proposed to be taken into consideration during the preparation of the feasibility study report are;

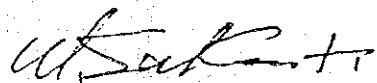
- Re-examination of the schedule assumed for the implementation of the Project.
- Energy saving at the Project.
- Sharing of auxiliary facilities among the other industries in Nepal.
- Industrial uses of urea in Nepal as potential.
- Possibility of utilization of by-products from the Project in the future.

In concluding the whole activities of the study team in Nepal, this Minutes of Meeting is prepared and signed hereunder;

Kathmandu, The Kingdom of Nepal
January 27, 1984



Indu Shamsheer Thapa
Senior Engineer
Ministry of Industry, HMG,
Nepal



Masayasu SAKANASHI
Leader of Study Team
Japan International Cooperation Agency

Names of Persons present in the meeting held in the -office of the Secretary
Ministry of Industry, Tripureswor, Kathmandu on the 27th January 1984.

Mr. I.L. Shrestha, Secretary, Ministry of Industry (MOI)
Mr. R.D. Sharma, Joint Secretary , MOI
Mr. I.S. Thapa, Senior Engineer (MOI)
Mr. B.M. Shakya, Under-Secretary, Ministry of Finance (MOF)
Mr. S.M. Shrestha, Section Officer, MOF
Mr. R.K. Bhattarai, Act. Director General, Department of Industry
Mr. R.K. Bajracharya, Senior Engineer, Department of Electricity
Mr. R.N. Dhungel, General Manager, Nepal Industrial Development Corporation
Mr. T. Hoshi, Resident Representative, Japan International Cooperation Agency

Study Team Members

Mr. M. Sakanashi, Team Leader, Techno-Economist
Mr. K. Adachi, Team Sub-leader, Chemical Engineer
Mr. Y. Fujiki, Plant Mechanical Engineer
Mr. Kuwabara, Fertilizer Chemical Engineer
Mr. T. Incoka, Fertilizer Market Expert
Mr. S. Suzuki, Electrical Engineer
Mr. T. Suzuki, Cement Chemical Engineer

Counterpart Members of ISC

Mr. M.B. Shrestha, Civil Engineer, For Chief, Industrial Projects Division
Mr. H.P. Khanal, Economist, For Chief, Feasibility Study Branch
Mr. B. Sharma, Chemical Engineer, For Chief, Project Engineering & Management Branch

MINUTES OF MEETING

The JICA Study Team led by Mr. M. Sakanashi visited Kathmandu from July 23 to 28, 1984 for the purpose of presentation of the Draft Final Report of the Feasibility Study on the Establishment of the Urea Fertilizer Plant in the Kingdom of Nepal to the Ministry of Industry and also for discussion with the concerned officials of HMG/N on the Project.

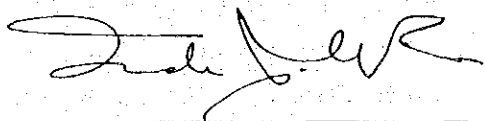
Accordingly, first review meeting on the Draft Final Report was held under the Chairmanship of Industry Secretary, Mr. I.L. Shrestha, in the Ministry of Industry on July 25, 1984 at the presence of officials and representatives of concerned ministries, departments and agencies of HMG/N, the JICA's Resident Representative in Nepal and the JICA Study Team. Likewise, second review meeting took place at the Secretariat of National Planning Commission under the Chairmanship of Hon'ble Vice-Chairman of NPC, Dr. M.M. Sainju on July 26, 1984 at the presence of NPC member, joint members and other concerned government officials. Lists of persons who were present at the meetings are attached as Appendix I and II.

- 1) At the review meetings, the JICA Study Team made the presentation of the Draft Final Report, summarizing the major aspects as well as the conclusion and recommendations derived from the study, and explained and made clarification on questions raised by various persons attending the meeting. The issues discussed at the meetings are attached as Appendix III and IV.

- 2) At the conclusion of the review meetings, Ministry of Industry, HMG/N expressed satisfaction that the Draft Final Report is comprehensive as per the scope of the study as agreed upon by the Ministry of Industry and the JICA on October 4, 1983. It was also agreed that comments on the Draft Final Report would be transmitted to the JICA by August 15, 1984 and these comments would be taken for due consideration in incorporating in the final report. It was further agreed that the JICA Study Team could proceed for the preparation of a Final Report, keeping in view the issues raised during the review meetings.
- 3) The Ministry of Industry, HMG/N expresses its appreciation to the JICA for the submission and presentation of Draft Final Report of the Feasibility Study on the establishment of the Urea Fertilizer Plant in the Kingdom of Nepal.

In concluding the presentation of the Draft Final Report, this Minutes of Meeting is prepared and signed hereunder.

Kathmandu, The Kingdom of Nepal
July 27, 1984.



Indu Shamsher Thapa
Senior Engineer
Ministry of Industry, HMG
Nepal.



Masayasu Sakanashi
Leader of Study Team
Japan International Cooperation Agency.

Appendix - I

Persons Present at Meeting Held at Ministry of Industry on July 25, 1984


1. Mr. I.L. Shrestha - Secretary, Ministry of Industry
2. Mr. Shiva P. Sharma - Joint Secretary, Ministry of Industry
3. Mr. Bihari Krishna Shrestha - Joint Secretary, National Planning Commission
4. Mr. R.B. Bhattarai - Acting Director General, Dept. of Industry
5. Mr. I.S. Thapa - Senior Engineer, Ministry of Industry.
6. Mr. Narayan Regmi - Deputy Director General, Department of Agriculture
7. Mr. R.K. Bajracharya - Senior Engineer, Department of Electricity
8. Mr. R.N. Dhungel - General Manager, NIDC
9. Mr. G.B. Shah - Executive Director, I.S.C.
10. Mr. Sunder Man Shrestha - Section Officer, Ministry of Finance
11. Mr. A.M. Tamrakar - Division Chief, Agriculture Inputs Corporation
12. Mr. M.D. Bhattarai - Assistant Engineer, Ministry of Industry
13. Mr. T. Hoshi, Resident Representative, Japan International Cooperation Agency/Nepal.

JICA Study Team Members :

1. Mr. M. Sakanashi - Team Leader, Techno-Economist
2. Mr. M. Kuwabara - Fertilizer Chemical Engineer
3. Mr. T. Inooka - Fertilizer Market Expert

Counterpart Members :

1. Mr. Manohar B. Shrestha - For Chief, Industrial Projects Division, I
2. Mr. H.P. Khanal - For Chief, Feasibility Branch, ISC
3. Mr. Bishnu Sharma - For Chief, Project Engg. & Mgmt. Branch, ISC.



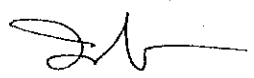
Appendix - II

Persons Present at Meeting Held at National Planning Commission
Secretariat on July 26, 1984

1. Dr. Mohan M. Sainju - Honourable Vice-Chairman, National Planning Commission
2. Dr. Bijaya B. Pradhan - Member, National Planning Commission
3. Mr. Shanker K. Malla - Joint-Member & Secretary, National Planning Commission
4. Mr. Surya P. Shrestha - Joint-Member, National Planning Commission
5. Mr. Iswari L. Shrestha - Secretary, Ministry of Industry
6. Mr. Harsha M. Shrestha - Chief Engineer, Department of Electricity
7. Mr. Shiva P. Sharma - Joint-Secretary, Ministry of Industry
8. Mr. Rameswor B. Singh - Joint-Secretary, Ministry of Agriculture
9. Mr. Bihari K. Shrestha - Joint-Secretary, National Planning Commission
10. Mr. Indu S. Thapa - Senior Engineer, Ministry of Industry
11. Mr. Ram P. Shrestha - Under-Secretary, National Planning Commission
12. Mr. R.K. Bajracharya - Senior Engineer, Dept. of Electricity
13. Mr. Manohar B. Shrestha - For Chief, Industrial Projects Division, ISC
14. Mr. Ramesh B. Adhikari - Senior Officer, ISC. (On deputation to NPC)
15. Mr. T. Hoshi, Resident Representative, Japan International Cooperation Agency/Nepal.

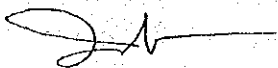
JICA Study Team Members :

1. Mr. M. Sakanashi - Team Leader, Techno-Economist
2. Mr. M. Kuwabara - Fertilizer Chemical Engineer
3. Mr. T. Inooka - Fertilizer Market Expert



Issues Discussed at Meeting After Presentation on July 25, 1984

1. Clarifications on the technological aspects (such as only one or other alternative processes).
2. Interest rate on the external loan, whether it is possible to get the long term loan at 5% and sensitivity analysis to the project profitability by its change.
3. Possibility of getting energy at cheaper rate and its implications.
4. Water/air pollution in the process and what measures are to be taken in order to control it, if any.
5. Quality aspect of the urea to be produced in Nepal.
6. Possibility of product diversification such as producing the compound fertilizer (N:P:K:)
7. Rate of return to the NEC in view of the tariff reduction for this project.
8. Sapta Gandaki implementation to be delayed by one year (1992).
9. Any possibility of redeployment of plant of proposed capacity from other countries for minimizing the total project cost.
10. 10.5% interest on Long Term Loan charged.
11. Projected price (selling) is matching with the international price or not ?
12. Potential industrial uses of urea in Nepal.



Appendix - IV

Issues Discussed at Meeting Held at the National Planning
Commission on July 26, 1984

1. Technology adopted in other countries in the region
2. New technology based on the electricity
3. Possibility of establishing the mini-fertilizer plants (35 - 40 TPD) requiring about 8 - 9 MW of power.
4. There is some foreign exchange component involved in the electricity price. This could reduce the value added of the project.
5. 46% of the production cost in foreign exchange is more than the C.I.F. Calcutta price for fertilizer.
6. Use of laminated bags for the packaging of urea.
7. Secondary energy can be used only during the rainy season but not during the off-peak period.
8. Optimum capacity of 275 TPD, some basis.
9. Storage of Hydrogen gas.
10. Alternatives for making this project financially, sound.

J. S.

[Signature]

Annex I-2

LIST OF STUDY TEAM MEMBER AND COUNTERPARTS

Annex I-2

LIST OF STUDY TEAM MEMBER AND COUNTERPARTS

Members of Study Team of JICA, Japan

Mr. Masayasu Sakanashi*	Team Leader, Techno-Economist, UNICO
Mr. Katsuo Adachi	Team Sub-leader, Chemical Engineer, JCI
Mr. Yukihiro Fujiki	Plant Mechanical Engineer, JCI
Mr. Makoto Kuwabara*	Fertilizer Chemical Engineer, UNICO
Mr. Tetsuo Inooka*	Fertilizer Market Expert, UNICO
Mr. Saburo Suzuki	Electrical Engineer, NIPPON KOEI
Mr. Terumitsu Suzuki	Cement Chemical Engineer, ONODA ENGG.

* These members also visited Kathmandu on July 23 to 28, 1984 for the presentation and discussion of the Draft Final Report.

Members of Counterpart Team, Nepal

Mr. Manohar B. Shrestha	Civil Engineer For Chief, Industrial Projects Division, ISC
Mr. Hari Prasad Khanal	Economist For Chief Feasibility Study Branch, ISC
Mr. Bishnu Sharma	Chemical Engineer For Chief, Project Engineering & Management Branch, ISC
Mr. Pushpa K. Karki	Mechanical Engineer Senior Engineer, Feasibility Study Branch, ISC
Mr. Manoj Chipalu	MBA, Senior Financial Analyst, Feasibility Study Branch, ISC
Mr. Jeevan Thaps	DPA, Officer, Feasibility Study Branch, ISC
Mr. Som N. Bhattarai	Electrical Engineer Technical Officer, Feasibility Study Branch, ISC

Annex I-3

ACTIVITY OF JICA STUDY TEAM

Annex I-3

ACTIVITY OF JICA STUDY TEAM (1)

Date	M. SAKANASHI	K. ADACHI	Y. FUJIKI	M. KUWABARA	T. INOOKA
January, 1984					
8	- Leave TKY	- Leave TKY	- Leave TKY	- Leave TKY	- Leave TKY
9	- Arrive in KTM	- Arrive in KTM	- Arrive in KTM	- Arrive in KTM	- Arrive in KTM
10	- JICA, Japanese Embassy, MOI, ISC	- JICA, Japanese Embassy, MOI, ISC	- JICA, Japanese Embassy, MOI, ISC	- JICA, Japanese Embassy, MOI, ISC	- JICA, Japanese Embassy, MOI, ISC
11	- National Holiday Data Summary	- National Holiday Data Summary	- National Holiday Data Summary	- National Holiday Data Summary	- National Holiday Data Summary
12	- MOI, NIDC	- MOI, NIDC	- DMG, HCC	- DMG, HCC	- MOA
13	- ISC, JICA, NEC	- Balaju Industrial District	- Balaju Industrial District, NBS	- AIC, HCC, NBS	- AIC, DOA
14	- Holiday, Data Summary	- Holiday, Data Summary	- Holiday, Data Summary	- Holiday, Data Summary	- Holiday, Data Summary
15	- NPC, MOF, DE	- NPC, MOF, DE	- NTC, NCCN, Dooar	- NTC, NCCN, Dooars, HCC	- DSSAC/DOA, DFAMS/DOA
16	- CBS, MOI, National Insurance Co., NOC	- GWDP, DOR	- GWDP, DOR	- GWDP, DOR, WSSB at Sundarighat, HCC	- Local Survey in Lalitpur District
17	- HCC	- HCC	- HCC	- HCC	- Local Survey in Bhaktapur
18	- ISC, JICA	- HCC	- HCC, CBC	- HCC	- Local Survey in Kaski District
19	- DOT (Tax), ISC	- HCC	- ISC, NCCN, NTC, HCC	- HCC	- Local Survey in Kaski District
20	- ISC, JICA, HCC	- ISC, HCC	- ISC, CBC, DMG, HCC	- HCC	- Trip, Data Summary
21	- Holiday, Trip to Hetauda	- Holiday, Trip to Hetauda	- Holiday, Trip to Hetauda	- Holiday, Trip to Hetauda	- Holiday, Trip to Hetauda
22	- HCI, Trip to KTM	- HCI, Trip to KTM	- HCI	- HCC	- Local Survey in Parsa District
23	- ISC, JICA	- ISC	- Border, HO, HID, Trip to KTM	- Trip to Raxaul, HCI, Himal Oxygen, Ghee Factory	- Local Survey in Bara District
24	- ISC, Preparation of Progress Report	- ISC, Preparation of Progress Report	- ISC, Preparation of Progress Report	- ISC, HCC	- ISC, Preparation of Progress Report
25	- ISC, Preparation of Progress Report	- ISC, Preparation of Progress Report	- ISC, Preparation of Progress Report	- ISC, Preparation of Progress Report, HCC	- ISC, Preparation of Progress Report
26	- ISC, Japanese Embassy	- ISC, Japanese Embassy	- ISC, Japanese Embassy	- ISC, Japanese Embassy	- ISC, Japanese Embassy
27	- MOI, Presentation of Progress Report	- MOI, Presentation of Progress Report	- MOI, Presentation of Progress Report	- MOI, Presentation of Progress Report	- MOI, Presentation of Progress Report
28	- Holiday	- Holiday	- Holiday	- Holiday	- Holiday
29	- Leave KTM	- Leave KTM	- Leave KTM Arrive in CLT	- Leave KTM Arrive in CLT	- Leave KTM
30	- Arrive in TKY	- Arrive in TKY	- Eng'g Firms	- Eng'g Firms	- Arrive in TKY
February 1					
			- HFC	- HFC	
2			- FAI, Railway	- FAI, Railway	
3			- Haldia, HFC	- Haldia, HFC	
4			- Leave CLT	- Leave CLT	
5			- Arrive in TKY	- Arrive in TKY	

ACTIVITY OF JICA STUDY TEAM (2)

<u>Date</u>	<u>S. SUZUKI</u>	<u>T. SUZUKI</u>
January, 1984		
15	- Leave TKY	- Leave TKY
16	- Arrive in KTM	- Arrive in KTM
17	- HCC	- HCC
18	- ISC, JICA	- HCC, Flue Gas Analysis
19	- ED, NEC	- HCC, Flue Gas Analysis
20	- ED, NEC	- HCC, Flue Gas Analysis
21	- Holiday, Trip to Hetauda	- Holiday, Trip to Hetauda
22	- HCI, Trip to KTM	- HCI, Trip to KTM
23	- ED, NEC	- HCC, Flue Gas Analysis
24	- ED, NEC	- HCC, Flue Gas Analysis
25	- ED, Preparation of Progress Report	- HCC, preparation of Progress Report
26	- ISC, Japanese Embassy	- ISC, Japanese Embassy
27	- MOI, Presentation of Progress Report	- MOI, Presentation of Progress Report
28	- Holiday	- Holiday
29	- Leave KTM	- Leave KTM
30	- Arrive in TKY	- Arrive in TKY

Annex I-4

LIST OF OFFICES VISITED AND PERSONS MET

Annex I-4

LIST OF OFFICES VISITED AND PERSONS MET

(1) Management, Financial and Economic Study Team

-Ministry of Industry	Mr. Indu Shamsher Thapa Senior Engineer
	Mr. Iswari Lal Shrestha Secretary
-ISC	Mr. Tej Kumar Sharma Chief Training Division (for Executive Director)
-NIDC	Mr. R. N. Dhungel General Manager
-NEC	Mr. L. M. Dixit General Manager
-National Planning Commission	Mr. Bed Bahadur Khadka Co-member (Agriculture)
	Dr. Bijaya Bahadur Pradhan Member
-Ministry of Finance	Mr. Hit Singh Shrestha Additional Secretary
	Mr. Bhupal Man Shakya Under-Secretary
-Department of Electricity	Mr. Harsh Man Shrestha Chief Engineer
-Central Bureau of Statistics	Mr. Shyam Biharilal Srivastava Director General
-Department of Industry	Mr. Ram Binod Bhattarai Director General
-National Insurance Co.	Mr. Bhoj Raj Sharma Manager
-Nepal Oil Corporation	Mr. Jeevan Prasad Khanal Deputy General Manager

-Hetauda Cement Factory	Mr. Rabindra Nath Rimal General Manager
-Himal Cement Co.	Mr. Indu Bahadur Shahi General Manager
-Department of Taxes	Mr. Lalit Bahadur Khadka Deputy Director

(2) Market Study Team

-Ministry of Agriculture (MOA)	Mr. Rameshwar Bahadur Singh Joint Secretary
-Agricultural Input Corporation (AIC)	Mr. P. N. Rana Chairman cum General Manager
	Mr. Amrit Man Tamrakar Planning & Evaluation Div.
-Department of Agriculture (DOA)	Mr. Purushottam B. Gorkhali Director General
	Mr. Narayan Regmi Deputy Director General, Planning & Coordination Div.
-Division of Soil Science and Agricul- tural Chemicals, DOA (DSSAC, DOA)	Mr. Ranjit Shah Chief Soil Scientist
-Department of Food and Agricultural Marketing Services, MOA (DFAMS, MOA)	Mr. Pushpa Ram B. Mathema Director General
-Central Regional Agri- cultural Directorate	Mr. S. N. Sarkar Director
	Mr. P. L. Chitrakar Ag. Officer - Planning & Ag. Extension
-District Agricultural Office, Lalitpur District	Mr. Yogendra B. Basnet District Agricultural Development Officer

-Farmers interview in
Thecho Panchayat and
Dhepakhel Panchayat,
Lalitpur District

-Sajha Office in Thecho
Panchayat, Lalitpur
District

-District Agricultural
Office, Bhaktapur
District

-Interviews with farmers
from Sipadoi Panchayat,
Tathali Panchayat, and
Town Panchayat, Bhaktapur
District

-Western Regional Agri- Mr. Manik L. Pradhan
cultural Directorate Director

-District Agricultural
Office, Kaskit District

-Farmers interview in
Arghaun Panchayat and
Bhalam Panchayat, Kaski
District

-District Agricultural
Office, Parsa District

-Farmers interview in
Sugauli Panchayat and
Rengadhwa Panchayat,
Parsa District

-District Agricultural
Office, Bara District

(3) Technical Study Team

-Ministry of Industry Mr. Indu Shamsher Thapa
(MOI) Senior Engineer

Mr. Mukesh Dev. Bhattarai
Engineer

-Dept. of Mines &
Geology (DOMG)

Mr. J. M. Tater
Deputy Director

Mr. P. P. Gorkhali
Engineer

Mr. Dwarika Shrestha
Officer

-Himal Cement Co.
(HCC)

Mr. Indu Bahadur Shahi
General Manager

Mr. A. M. Bania
Chief, Laboratory

Mr. C. D. Rajbhandari
Chief, Planning

Mr. S. R. Aryal
Chief, Mechanical Section

Mr. B. K. Kusle
Chief, Production

-Balaju Yantra Shala
(BYS)

Mr. Alex Arter
Mechanical Engineer

-Structo Nepal (P) Ltd.
(SN)

Ms. Yangji Sherpa
Managing Director

Mr. Urgan Sherpa
Accounts Chief

-NECOENCO (P) Ltd.

Mr. Diwakar Raj Paudyal

-Foundry Project (FP)

Mr. Kamal Manandhar
Engineer

-Nepal Bureau of
Standards (NBOS)

Mr. Dinesh Raj Bhattarai
Director

-Nepal Transport
Corporation (NTC)

Mr. Krishna Raj Panday
Chairman cum General Manager

Mr. Narendra Bahadur Neucha
Director

Mr. Pramod Mani
Ropeway Engineer

-National Construction Co. of Nepal (NCCN)	Mr. N. D. Sharma General Manager
	Mr. L. P. Sharma Works Manager
-Dooars Transport (P) Ltd.	Mr. S. K. Manglik Manager
-Dept. of Roads (DOR)	Mr. Bharati Sharma D. E. Design Section
	Mr. D. P. Rimal D. E. Planning Section
-Water Supply & Sewerage Board (WSSB) Sundarighat	Mr. Binod Shankar Palikhe Officer
-C.B.C. Group	Mr. Deepak Man Sherchan Managing Director
	Mr. S. B. Mathema Director
	Mr. M. Rajbhandari Structure Engineer
-Nepal Oil Corporation (NOC)	Mr. Pradhan Deputy General Manager
-Hetauda Cement Industries Ltd. (HCI)	Mr. R. N. Rimal General Manager
	Mr. Umesh Jha Deputy General Manager
	Mr. T. K. Jha Erection Manager
	Mr. D. P. Shrestha Construction Manager
	Mr. K. R. Aryal Finance Manager
	Mr. Teodoro R. Dino Consultant from ADB/M

-Himal Oxygen (P) Ltd.	Mr. Indra Ranjit Manager
-Himal Iron (P) Ltd.	Mr. Indra Ranjit Manager
-Hetauda Industrial District (HID)	Mr. Gopal Sharma Officer
-Vegetable Ghee Indus- tries Ltd. (VGI)	Mr. D. Mathur Technical Incharge
-Department of Electricity (DOE)	Mr. K. M. Shrestha Manager, Finance & Economic Analysis
	Mr. Manik Tuladhar Officer
	Mr. R. M. Shakya Incharge, Planning & Generation Dept.
-Water Resources Commission	Mr. Deepak Gyawali Officer

Annex I-5

LIST OF DOCUMENTS RECEIVED

Annex I-5

LIST OF DOCUMENTS RECEIVED

<u>Author/Title</u>	<u>Received from</u>
(1) Management, Financial and Economic Study Team	
1) Investors' Guide to Nepal	ISC
2) Investing in Industry in Nepal	ISC
3) Industrial Enterprises Act 2038 (1982)	ISC
4) Economic Survey, Fiscal Year 1982-83 (Ministry of Finance, 1983)	ISC
5) NEPAL - INDIA, Treaty of Trade, Treaty of Transit; Agreement of Cooperation	ISC
6) Nepal Recent Developments and Selected Issues in Trade Promotion, World Bank; Oct. 14, 1983	ISC
7) Nepal: Issues and Options in the Energy Sector; UNDP/World Bank, August, 1983	ISC
8) Water - The Key to Nepal's Development (Ministry of Water Resources, 1981)	ISC
9) Promotion of Export Oriented Industries in Nepal (UNIDO, July 1983)	ISC
10) ISC (Introduction)	ISC
11) List of Works Accomplished by ISC	ISC
12) Industrial Profile 1981/82, Ministry of Industry	ISC
13) Company Act, 2021 (1964)	ISC
14) NIDC (Introduction)	NIDC
15) NIDC (Guidance)	NIDC
16) NIDC (Manual for Financial Assistance)	NIDC
17) Operational Statistics of Nepal Industrial Development Corporation (F.Y. 1979/80 - 1981/82)	NIDC

- | | | |
|-----|---|----------------|
| 18) | Act Relating to Foreign Investment and Technology 2038 (1982) | NIDC |
| 19) | Industrial Policy and Act of HMGN (1982) | NIDC |
| 20) | Review of Performance of Public Sector Enterprises (1981) Ministry of Finance | MOF |
| 21) | Population in Nepal by Districts and Geography (1971, 1981) CBS | CBS |
| 22) | Organizational Chart of HMG/N | ISC |
| 23) | Operating Cost Data at Himal Cement | Himal Cement |
| 24) | Financial Data at Hetauda Cement | Hetauda Cement |
| 25) | Data on Financing Conditions for Hetauda Cement, MOF | MOF |

(2) Market Study Team

- | | | |
|----|--|-------------------|
| 1) | AIC, "Basic Statistics of Agricultural Inputs in Nepal", (Jan. 1983) | AIC |
| 2) | S.S. Rawal and T.M. Pradhan (AIC), "Import Management of Chemical Fertilizers in Nepal" | AIC |
| 3) | A.M. Tamrakar (AIC), "A General Review on the Fertilizer Marketing System in Nepal", (Aug. 1979) | AIC |
| 4) | A.M. Tamrakar (AIC), "AIC Role on Fertilizer Use Promotion" | AIC |
| 5) | AIC, "Tender Document for Supply & Delivery of Chemical Fertilizer", (May 1983) | AIC |
| 6) | Div. of Soil Science & Agri. Chemistry, "Soil Reaction Map of Nepal (Provisional)", (1983) | Div. of SSAC, DOA |
| 7) | Div. of Soil Science & Agri. Chemistry, "Response of N/P ₂ O ₅ Fertilizer" | Div. of SSAC, DOA |

- | | | |
|-----|--|------------|
| 8) | Dept. of Food and Agri. Marketing Services, "Agricultural Statistics of Nepal, 1977", (1977) | DFMAS, MOA |
| 9) | DFMAS, "Hand Book of Agricultural Statistics of Nepal", (1978) | DFMAS, MOA |
| 10) | DSSAC, DOA, "Generalized Soil Map of Nepal (Provisional)", (1978) | DSSAC, DOA |
| 11) | DFMAS, "Cropped Area and Production by Region and Zone 1971 - 1981" | DFMAS |
| 12) | AIC, "Demand Projection of Fertilizer" | AIC |
| 13) | AIC, "Data on Transportation Cost of Fertilizer" | AIC |
| 14) | AIC, "Data on Import and Consumption, 1980 - 1982" | AIC |
| 15) | AIC, "Data/Information on Fertilizer Marketing and Distribution" | AIC |
| 16) | AIC, "Map of Distribution Routes of Fertilizer" | AIC |
| 17) | AIC, "Map of Chemical Fertilizer Distributed" | AIC |

(3) Technical Study Team

- 1) Monthly Bulletin, Hetauda Cement Industries Limited, Nov. 1983
- 2) Industrial profile, Statistical Data No. 15, For Fiscal Year 1982-1983, Hetauda Industrial District, Pashupati Nagar, Hetauda
- 3) Ribbed - Torsteel, Himal Iron and Steel (P) Ltd., Kathmandu, Nepal
- 4) Feasibility Study for Replacement of Bridges on Kathmandu-Raxaul Highway, Department of Roads, June 1981, Kathmandu, Nepal
- 5) Surface Water Records of Nepal, Supplement No. 7, 1972, No. 8 (1973), No. 9 (1974), No. 10 (1975), Department of Irrigation, Hydrology and Meteorology, Ministry of Food, Agriculture and Irrigation, June 27, 1974, Kathmandu, Nepal

- 6) Climatological Records of Nepal, 1971-75, Volume I, Department of Irrigation, Hydrology and Meteorology, Ministry of Food, Agriculture and Irrigation, June 1977, Kathmandu, Nepal
- 7) Climatological Records of Nepal, 1976-1980, Volume I, Department of Irrigation, Hydrology and Meteorology, Ministry of Water Resources, December, 1982 Kathmandu, Nepal
- 8) Techno-Economic Study on Manufacturing Nitrogenous Fertilizers in Nepal, FGU-Kronberg, Gesellschaft fur unternehmensberatung und Projektstudien mbH, Germany, Nepal Bureau of Mines, Ministry of Industry and Commerce, Nepal, April, 1975
- 9) Feasibility Study on a Fused Magnesium Phosphate Fertilizer Plant in Nepal, FGU-Kronberg, Gesellschaft fur unternehmensberatung und Projektstudien mbH, Germany, Nepal Bureau of Mines, Ministry of Industry and Commerce, Nepal, March, 1975
- 10) Stromatolitic Phosphorites of Baitadi District, Department of Mines and Geology, Ministry of Industry, Nepal, 1982
- 11) Water, The key of Nepal's Development, Ministry of Water Resources, Kathmandu, Nepal, 1981
- 12) List of Works, Accomplished by Industrial Services Centre, Kathmandu, Nepal, October, 1983
- 13) Invitation to Tender for Engineering Contractor for Hetauda Cement Project, December, 1977, Hetauda Cement Industries Ltd., and Onoda Engineering and Consulting Co., Ltd.
- 14) Map of NEPAL Infrastructure, courtesy: His Majesty's Government of Nepal, Department of Electricity & IBRD
- 15) Flow Sheet of Plant, Lay-out of Plant, Topographic Map of Factory and Quarter Area Himal Cement Co.
- 16) Water Analysis Data at Sundarighat Plant and Pharping, HMG Water Supply And Sewerage Board
- 17) Ground Water Analysis Data at North of Maharajgunj and Bagmati River after Ring Road Bridge, Ground Water Development Project (Kathmandu)
- 18) Final Report on Soil Investigation Works at Chobar (Himal Cement Co. (Pvt) Ltd.)

- 19) Labor Wages for Kathmandu District Fixed by His Majesty's Government of Nepal (F.Y. 1982/83), ISC
- 20) Micro Seismicity Epicenter Map (Jan. 1982 - Dec. 1982), HMG/Seismological Laboratory, DMG Epicenter Map (1911-1982), HMG/Department of Mines and Geology
- 21) Industrial Profile For Fiscal Year 1982-1983, Hetauda Industrial District
- 22) Report of Soil Investigation for Hetauda Cement Plant at Hetauda - Nepal (December 1980), Development Consultants Private Limited
- 23) List of Transport Facilities, Nepal Transport Corporation
- 24) Information on the questionnaire submitted to Hetauda Cement Industries, and Hetauda Industrial District (CIVIL)
- 25) Plant Lay-out Hetauda Cement Project, Hetauda, Nepal
- 26) Contract Documents (CIVIL) of Hetauda Cement Industries Ltd.
- 27) Information on the Questionnaire Submitted by the Urea Fertilizer Feasibility Study Mission to the Himal Cement Co. Chobar, Kathmandu, Nepal
- 28) Sapta Gandaki Hydroelectric Project Proposal for Development Electricity Department
- 29) Budhi Gandaki Hydroelectric Project - Power Simulation Studies and Evaluation of Alternative Project, Electricity Department
- 30) Electricity Load Forecast for Period 1983 - 2001, (1983) Electricity Department
- 31) Tariff Rates (1976 - 1983) NEC
- 32) Report on Tariff Study, Electricity Department
- 33) Rate Analysis of Civil Work, CBC Group
- 34) NCCN, a brief history

Annex II

- Annex II-1 METHODOLOGY AND PROCEDURE OF DEMAND PROJECTION**
- Annex II-2 PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL**
- Annex II-3 ESTIMATED/PROJECTED CONSUMPTION NITROGEN FERTILIZER BY REGION**
- Annex II-4 CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION**
- Annex II-5 FERTILIZER RESPONSE IN NEPAL**

Annex II-1

METHODOLOGY AND PROCEDURE OF DEMAND PROJECTION

Annex II-1

METHODOLOGY AND PROCEDURE OF DEMAND PROJECTION

(1) General

The demand for fertilizer was projected through the following process.

1. Projection of cultivated area of major crops by region
2. Projection of demand for fertilizer
3. Projection of type-wise demand for fertilizer

Details are described in the following sections.

(2) Projection of cultivated area of major crops

i) Method of projection

The future cultivated area (trend) of major crops was projected by region at each projection level shown below on the basis of past trend of change in the cultivation area.

Level 1: Change in the area divided into the following groups, namely, agricultural area, pasture land, forest, and other area including industrial area and urban area. (Note: Level 1 projection was omitted in this Study due to the lack of data.)

Level 2: Change in the area divided into the following groups out of agricultural area, namely, short term crops (multi-cropping crops), long term

crops (less than one cropping annually), and perennial crops.

Level 3: Change in the cultivated area of individual crops.

The total of each projected area in Level 2 in the region in question are adjusted to be equal to the agricultural area in Level 1. Further, the total of cultivated areas of each crop projected in Level 3 in each group shown in Level 2 are adjusted to be equal to the adjusted area projected in Level 2. Here, the total of cultivated area of short-term crops means the total of cultivated area multiplied by multi-cropping ratio of each crops.

The areas of each component (for example, agricultural area and pasture land, etc. in Level 1) included in each Level either increase or decrease affected by economic and/or social factors. If the agricultural area has been expanded, then the expansion will be limited in the future because of approaching the limit of available land. In other words, the urban area may also be expanded at the same time, and the expansion of agricultural area may be depressed by the expansion of urban area. These pressures for expansion by each component and the adjustment function among these components have been reflected on the past trend of changes in the area of individual factors. These trends shown in the past are expected to continue in the future if there is no significant change in the economy, policy or technology, etc. The projection procedure described above represents the adjustment of discrepancies between the projected result of total of individual factors and aggregated factor with calculating the expanding (or shrinking) pressure of each factor by time series analysis.

The cultivated area by region and by crop described above were projected by the following regions, and the result is shown in tables of Annex II-2.

- Eastern Development Region: 1. High Hill 2. Hill
3. Terai
- Central Development Region: 1. High Hill 2. Hill
3. Terai
- Kathmandu Valley:
- Western Development Region: 1. High Hill 2. Hill
3. Terai
- Mid-western Development Region: 1. High Hill 2. Hill
3. Terai
- Far-western Development Region: 1. High Hill 2. Hill
3. Terai

ii) Data and data Sources

The projection of cultivation area was based on the past 12 years data of 1971 through 1982 provided by Food and Agricultural Marketing Service Department, Marketing Services Division, Ministry of Agriculture (FAMSD).

(3) Projection of fertilizer demand

i) Methodology of projection

"Physically optimum dosage level of fertilizer" may be calculated for each crop. The level varies depending on the soil condition, climatic condition of the area as well as fertilizer response of the crop, and represents the dosage level at which maximum additional output per unit input in terms of volume is expected. However, this level does not necessarily represent the economic optimum dosage level. When the application of fertilizer is increased gradually in the same manner as described above, then there will be the dosage

level at which maximum output in terms of value is expected by input of unit value of fertilizer. This level is called "Economic optimum dosage level of fertilizer". Every farmer has the possibility to increase the application level up to this level. However, due to the following factors which adversely affect the use of fertilizer, the actual application level is usually lower than the economic optimum dosage level.

1. Natural disasters such as drought and flood.
2. Delay in the supply of irrigation water or inadequate drainage.
3. Insufficient purchasing ability of farmers to buy fertilizer, or lack of an adequate credit system for fertilizer purchase.
4. Unstable yield of crops.
5. Lack of sufficient knowledge on fertilization technique or effects of fertilization on crop yield.
6. Shortage or delay in supply of fertilizer.
7. Other factors which discourage farmers from fertilization.

When the "economic optimum dosage level" multiplied by "cultivation area" is defined as "potential demand", then the difference between the "potential demand" and actual consumption is understood to have been caused by the factors described above. The ratio of actual consumption to the potential demand is called the "realization rate" of the potential demand. The past trend of improvement of restricting factors of fertilization may be applicable to the future, as long as there is no significant change in the policies on agriculture and fertilizer distribution. In other words, the past trend of realization rate can be applicable to the future. However, it should be noted that if there will be significant changes in the factors, which affect influences on the fertilizer use, then the past trend of the realization rate can not be applied to the future. If such is the case, the

future realization rate should be examined year by year taking into account the change in the factors. These factors include the following.

1. Construction or improvement projects of irrigation/drainage facilities.
2. Large scale intervention by the government on price formation of either agricultural products or fertilizers, including introduction of a subsidy system and/or price support system.
3. Development or introduction of crop varieties which have high fertilizer response.
4. Improvement of the agricultural extension system.
5. Improvement of the fertilizer distribution system.
6. Other changes in the factors which stimulate the farmers to increase the fertilizer application.

The "potential demand" was defined in the above as "optimum dosage per unit cultivation area" multiplied by "cultivation area". If appropriate data are available, then the better estimate may be obtained regarding the "potential demand" using "per hectare economic optimum dosage" multiplied by "fertilized area" in place of "cultivation area". In this case, the "cropped" area will be divided into two, namely, "fertilized area" and "non-fertilized area", and the trend of rate of fertilized area to total cropped area will be first projected with examination made of the probability that the upper limit of the rate will be attained. This projection process is better than that explained above, in that maximum potential rate of fertilized area is sometimes less than 100% because of natural conditions, lack of irrigation facilities, and other reasons, and therefore, the area of which fertilization is impossible, should be deducted from the objective area for calculation of fertilization in the future.

ii) Process of demand projection

The procedure for projection of future demand was as follows.

1. Comparison of the potential demand with actual demand in the past analyzing factors affecting fertilizer consumption and extent of their effects.
2. Projection of potential demand on the basis of projected cultivated area and the potential dosage by crop.
3. Projection of future realization rate of potential demand.
4. Calculation of projected demand multiplying the potential demand with realization rate.

iii) Data sources are as follows, and the details of the data on projection are included in Annex II-3.

1. Potential dosage:

The economic optimum dosage level was firstly calculated using the fertilizer response data^{*/} provided by the Division of Soil Science and Agricultural Chemistry, Department of Agriculture (Div. of SSAC), and the result is shown in Table 2-20 (Chapter 3, Part II). The calculation results thus obtained were found to meet the recommended dosages provided by Div. of SSAC, and therefore, the recommended dosages were regarded as the economic optimum dosage level in this study.

(Note: ^{*/} data are included in Annex II-5.)

2. Actual consumption:

Regional consumption data provided by AIC, which are included in Annex II-4.

(4) Projection of type-wise demand for fertilizer

Based on the result of total demand projection, type-wise demand was projected as follows.

1. Examination of crops (or regions) on which the type of fertilizer in question is applicable.
2. Calculation of potential demand from the above crops (or regions).
3. Projection of type-wise fertilizer demand taking into account the future supply ability and past trend of type-wise fertilizer consumption.

Annex II-2

PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL

Table II-2(1) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
 - EASTERN HIGH HILL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	38	37	92	103	110	111	110	107	107	102	125	129	132	144	153	156
MAIZE	165	161	161	161	155	160	151	180	170	170	167	166	165	162	159	157
WHEAT	25	25	13	7	8	8	8	14	18	10	7	7	6	2	0	0
OTHER CEREALS	48	49	49	48	47	47	47	44	44	50	47	47	46	45	44	43
BARLEY	17	17	17	11	11	11	11	9	9	9	8	7	6	2	0	0
POTATOES	39	39	40	49	47	47	49	49	49	49	50	50	50	51	51	51
OTHER OIL CROPS	7	8	7	4	4	4	4	4	4	2	2	2	1	0	0	0
TOBACCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JUTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	407	407	407	407	407	407	407	407	407	407	407	407	407	407	407	407

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(2) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- EASTERN HILL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	424	482	487	440	438	463	459	509	572	488	505	507	508	516	520	522
MAIZE	652	659	659	660	706	718	662	719	814	797	764	771	778	818	860	877
WHEAT	64	66	65	86	100	100	102	117	130	151	144	151	159	194	229	242
OTHER CEREALS	170	174	174	165	177	192	190	183	189	203	191	191	191	190	190	190
BARLEY	12	13	11	9	10	9	9	7	5	8	6	5	5	2	0	0
POTATOES	126	133	137	136	136	138	138	127	129	129	130	129	129	125	122	121
OTHER OIL CROPS	73	73	74	76	110	111	107	80	70	86	90	90	90	90	90	90
TOBACCO	2	2	2	2	1	2	2	1	1	1	1	1	1	0	0	0
JUTE	16	9	9											0	0	0
SUGAR CANE	2	2	2	2	2	2	2	4	2	1	2	2	2	2	1	1
TOTAL	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(3) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- EASTERN TERAI -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	3392	3443	3640	3585	3605	3543	3556	3567	3601	3295	3581	3587	3593	3611	3617	3616
MAIZE	124	132	127	159	162	186	167	191	210	280	244	256	268	328	386	409
WHEAT	290	372	421	458	451	456	494	370	336	606	507	517	527	568	599	609
OTHER CEREALS	52	41	46	38	51	61	62	56	54	49	56	57	58	62	66	67
BARLEY	8	8	6	5	5	4	4	4	4	3	3	3	2	1	0	0
POTATOES	39	40	34	33	32	31	32	37	42	46	39	39	39	41	42	43
OTHER OIL CROPS	98	103	93	101	138	157	139	157	125	56	126	127	128	132	135	136
TOBACCO	18	18	18	21	24	23	23	23	22	27	24	24	24	25	26	27
JUTE	309	332	261	261	261	261	261	261	261	261	193	181	169	118	78	64
SUGAR CANE	20	17	19	26	27	26	27	22	31	31	30	31	32	35	37	38
TOTAL	2821	2821	2821	2821	2821	2821	2821	2821	2821	2821	2821	2821	2821	2821	2821	2821

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(4) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- CENTRAL HIGH HILL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	63	61	61	61	63	61	61	59	61	64	62	62	62	63	64	64
MAIZE	146	146	146	146	146	149	149	128	145	135	140	140	139	137	135	133
WHEAT	34	34	24	27	27	27	27	39	39	36	34	34	35	37	39	40
OTHER CEREALS	41	41	41	40	39	43	43	41	41	40	41	41	42	42	43	43
BARLEY	9	9	9	8	8	8	8	8	8	10	8	8	8	8	8	8
POTATOES	34	34	34	37	36	41	41	33	32	44	39	39	40	41	42	43
OTHER OIL CROPS	3	3	3	3	3	3	3	2	4	2	3	3	3	3	2	2
TOBACCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JUTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
TOTAL	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(5) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- CENTRAL HILL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	317	317	319	340	348	349	364	376	403	532	446	460	474	520	551	562
MAIZE	530	521	521	521	513	519	489	505	505	479	505	506	507	485	457	446
WHEAT	77	77	81	90	108	104	108	126	158	219	175	186	197	239	272	284
OTHER CEREALS	122	121	121	110	105	106	109	108	116	108	108	108	107	100	92	88
BARLEY	5	5	5	7	5	6	7	9	9	8	9	9	9	11	12	12
POTATOES	44	44	52	52	51	51	53	56	57	57	58	59	60	60	59	58
OTHER OIL CROPS	101	92	90	74	86	48	45	34	61	62	39	34	29	2	0	0
TOBACCO	2	2	1	1	1	1	1	1	1	1	1	1	1	0	0	0
JUTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	9	9	9	8	9	9	8	8	8	19	12	12	12	13	14	15
TOTAL	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(6) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- CENTRAL TERAI -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	3496	3524	3405	3427	3385	3430	3435	3415	3413	3149	3342	3334	3327	3292	3258	3245
MAIZE	529	549	499	470	432	430	381	436	450	572	436	431	426	406	390	384
WHEAT	599	652	1000	1034	1048	977	993	1092	1020	1316	1240	1276	1310	1459	1581	1626
OTHER CEREALS	78	81	81	75	73	72	70	75	71	113	84	85	86	91	96	98
BARLEY	47	48	31	26	44	50	49	49	50	35	43	43	43	42	42	42
POTATOES	53	51	41	39	30	31	31	30	34	76	39	39	38	37	36	35
OTHER OIL CROPS	342	330	307	237	327	360	277	245	125	234	206	194	182	119	57	31
TOBACCO	21	33	34	35	46	43	42	37	36	56	43	43	44	46	48	48
JUTE	3	1	1								0	0	0	0	0	0
SUGAR CANE	71	68	70	82	119	114	117	119	131	123	140	147	154	188	223	236
TOTAL	3439	3439	3439	3439	3439	3439	3439	3439	3439	3439	3439	3439	3439	3439	3439	3439

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(7) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
 - WESTERN HIGH HILL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	8	7	7	3	3	1	1	0	0	0	0	0	0	0	0	0
MAIZE	24	24	24	24	24	24	24	23	9	9	15	13	12	6	0	0
WHEAT	10	10	5	5	5	6	6	7	10	9	6	6	6	5	4	3
OTHER CEREALS	12	12	12	11	11	11	11	11	11	11	12	12	12	11	11	10
BARLEY	11	11	12	12	12	12	12	15	15	15	16	16	16	17	18	18
POTATOES	8	8	8	8	8	9	9	7	7	7	8	8	8	7	6	6
OTHER OIL CROPS	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
TOBACCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JUTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(8) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- WESTERN HILL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	520	521	520	519	587	579	570	575	708	726	670	683	696	738	772	785
MAIZE	780	782	792	786	790	800	774	819	797	976	850	855	860	861	859	858
WHEAT	142	144	147	199	224	246	248	263	279	297	309	324	339	398	449	468
OTHER CEREALS	391	391	390	410	391	382	382	354	343	384	354	348	343	309	278	266
BARLEY	25	23	24	23	22	22	22	21	22	21	20	19	19	16	14	13
POTATOES	51	52	55	58	62	58	58	52	50	58	56	56	56	54	52	51
OTHER OIL CROPS	28	28	34	33	32	36	36	24	22	21	25	24	24	20	16	15
TOBACCO	1	1	1	1	0	0	1	1	1	0	0	0	0	0	0	0
JUTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	7	7	6	4	4	4	4	3	3	3	2	1	1	0	0	0
TOTAL	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260	2260

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(9) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL

- WESTERN TERAI -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	1613	1631	1631	1763	1739	1752	1739	1823	1771	1758	1833	1851	1869	1952	2028	2055
MAYZE	195	202	202	177	177	168	155	169	173	73	122	113	105	62	17	0
WHEAT	384	425	434	448	506	502	519	594	592	655	659	688	716	864	1017	1078
OTHER CEREALS	27	28	28	22	28	25	25	22	25	14	21	20	20	17	14	13
BARLEY	20	20	21	10	4	7	7	7	4	3	0	0	0	0	0	0
POTATOES	22	20	17	8	7	7	7	7	12	12	6	5	5	2	0	0
OTHER OIL CROPS	86	83	86	116	147	191	138	158	128	95	149	153	156	172	186	191
TOBACCO	2	2	2	2	2	3	3	3	2	2	3	3	3	3	3	3
JUTE	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	43	39	37	50	62	58	59	75	66	70	74	77	80	96	111	118
TOTAL	1625	1625	1625	1625	1625	1625	1625	1625	1625	1625	1625	1625	1625	1625	1625	1625

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(10) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
 - MID-WESTERN HIGH HILL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	25	24	24	24	24	23	22	22	22	21	21	21	20	18	16	15
MAIZE	50	52	52	53	52	50	48	46	44	37	43	42	42	36	31	28
WHEAT	94	75	43	40	38	36	34	32	29	29	14	10	6	0	0	0
OTHER CEREALS	37	39	39	39	39	39	39	39	39	36	41	42	42	43	44	44
BARLEY	37	37	40	36	35	35	34	34	33	31	33	32	32	29	26	24
POTATOES	22	22	22	22	21	20	19	18	17	16	17	17	16	13	10	9
OTHER OIL CROPS	8	3	4	2	2	2	2	2	2	2	2	2	1	1	0	0
TOBACCO	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
JUTE	0	0	0	0	0	0	0	0	0	0	106	112	118	138	152	157
SUGAR CANE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	278	278	278	278	278	278	278	278	278	278	278	278	278	278	278	278

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(11) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- MID-WESTERN HILL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	229	236	236	229	231	232	233	234	237	249	239	236	234	221	211	207
MAIZE	367	374	374	365	373	382	392	403	412	427	402	399	396	383	374	372
WHEAT	173	173	166	185	211	238	265	294	325	332	323	333	343	387	427	442
OTHER CEREALS	86	86	86	85	92	99	106	112	120	123	120	121	123	131	139	142
BARLEY	40	39	41	45	46	47	49	50	51	53	52	53	53	55	57	57
POTATOES	20	20	20	21	23	25	26	28	30	28	29	29	30	31	33	34
OTHER OIL CROPS	30	30	35	29	34	39	44	50	56	55	54	55	56	63	69	71
TOBACCO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
JUTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL	1154	1154	1154	1154	1154	1154	1154	1154	1154	1154	1154	1154	1154	1154	1154	1154

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(12) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- MID-WESTERN TERAI -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	997	1012	1012	959	953	939	926	912	891	1001	923	917	910	878	846	833
MAIZE	360	365	365	311	312	314	317	319	321	359	321	320	318	311	305	302
WHEAT	193	199	223	229	248	267	286	306	324	348	353	370	386	466	546	577
OTHER CEREALS	26	26	26	21	21	20	20	20	19	18	17	17	16	12	8	7
BARLEY	4	4	3	3	4	4	5	5	6	3	5	5	5	5	6	6
POTATOES	17	17	17	16	15	15	14	13	12	11	11	10	10	7	4	2
OTHER OIL CROPS	234	239	228	227	245	251	259	265	262	271	272	277	281	302	322	330
TOBACCO	4	4	3	3	3	3	3	3	3	2	2	2	2	1	0	0
JUTE	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	1	1	1	1	2	3	4	5	6	2	5	5	5	7	9	10
TOTAL	1221	1221	1221	1221	1221	1221	1221	1221	1221	1221	1221	1221	1221	1221	1221	1221

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2 (13) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- FAR-WESTERN HIGH HILL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	69	67	67	67	68	68	68	68	68	63	66	66	66	65	65	65
MAIZE	41	36	36	36	37	39	41	42	44	43	41	42	42	43	45	45
WHEAT	103	92	72	58	60	62	64	66	69	69	55	53	51	42	35	33
OTHER CEREALS	27	27	27	26	25	24	23	22	21	24	22	22	22	20	18	18
BARLEY	20	19	21	29	30	30	30	30	31	25	31	32	32	35	37	38
POTATOES	8	7	7	10	9	9	8	8	7	7	8	8	8	7	7	7
OTHER OIL CROPS	5	6	7	6	6	6	6	6	6	4	6	6	6	6	7	7
TOBACCO	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	0
JUTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	0	3	2	2	2	1	1	0	0	0	1	1	1	0	0	0
TOTAL	273	273	273	273	273	273	273	273	273	273	273	273	273	273	273	273

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2 (14) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- FAR-WESTERN HILL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	139	137	137	130	133	138	142	146	149	175	158	161	164	179	189	193
MAIZE	144	141	141	139	138	134	131	127	124	125	124	123	121	113	103	98
WHEAT	181	192	159	160	166	172	177	180	182	259	204	207	211	229	241	245
OTHER CEREALS	54	54	54	51	53	55	57	60	61	66	64	65	67	74	79	81
BARLEY	20	20	24	23	23	22	21	21	20	18	20	20	20	20	19	19
POTATOES	10	10	10	10	10	11	11	12	12	12	12	12	13	14	14	15
OTHER OIL CROPS	14	14	21	16	19	17	15	12	9	9	12	11	11	9	7	6
TOBACCO	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
JUTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TOTAL	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(15) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- FAR-WESTERN TERAI -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	620	630	660	680	668	664	659	655	658	703	703	712	721	765	809	827
MAIZE	151	162	162	172	169	165	160	156	152	201	180	183	187	205	224	282
WHEAT	91	93	151	166	177	187	197	207	219	232	243	253	264	310	353	369
OTHER CEREALS	19	19	19	19	19	19	19	20	20	19	20	20	20	22	23	23
BARLEY	0	0	1	1	1	1	2	2	2	1	2	2	2	3	3	3
POTATOES	9	9	8	7	7	6	6	5	5	7	5	5	5	4	4	3
OTHER OIL CROPS	92	95	118	128	142	152	161	174	174	197	204	215	227	289	355	383
TOBACCO	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
JUTE	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	1	1	1	1	1	1	1	1	1	2	1	1	1	2	2	2
TOTAL	826	826	826	826	826	826	826	826	826	826	826	826	826	826	826	826

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(16) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- CENTRAL KATHMANDU VALLEY -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	321	322	312	287	311	298	285	296	307	324	298	297	296	291	284	281
MAIZ	276	277	277	276	244	249	246	249	385	426	335	342	349	384	414	426
WHEAT	280	279	282	291	306	292	291	280	271	270	285	285	285	286	283	282
OTHER CEREALS	63	63	63	58	53	49	46	48	49	34	39	37	34	23	11	6
BARLEY	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1
POTATOES	30	31	31	18	16	20	21	17	28	34	22	21	21	19	18	17
OTHER OIL CROPS	23	24	23	22	20	21	19	9	9	6	9	8	6	0	0	0
TOBACCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JUTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	3	3	2	2	2	2	2	2	2	0	1	1	1	0	0	0
TOTAL	842	842	842	842	842	842	842	842	842	842	842	842	842	842	842	842

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(17) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
 - HIGH HILL TOTAL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	203	196	251	258	268	264	262	256	258	250	274	278	280	290	298	300
MAIZE	426	419	419	420	414	422	413	419	412	394	406	403	400	384	370	363
WHEAT	266	286	157	137	138	139	139	158	165	153	116	110	104	86	78	76
OTHER CEREALS	165	168	168	164	162	164	163	157	156	161	163	164	164	161	160	158
BARLEY	94	93	99	96	96	96	95	96	96	90	96	95	94	91	89	88
POTATOES	111	110	111	126	123	126	126	115	112	123	122	122	122	119	116	116
OTHER OIL CROPS	19	21	22	15	14	15	15	14	16	10	13	13	11	10	9	9
TOBACCO	2	2	2	2	2	2	2	2	1	0	1	1	1	0	0	0
JUTE	0	0	0	0	0	0	0	0	0	0	106	112	118	138	152	157
SUGAR CANE	0	3	2	2	2	2	2	0	0	0	1	1	1	0	0	0
TOTAL	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370	1370

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2 (18) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL

- HILL TOTAL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	1950	1965	1961	1945	2048	2059	2053	2136	2376	2494	2316	2344	2372	2465	2527	2550
MAIZE	2749	2754	2764	2747	2764	2802	2694	2822	3037	3230	2980	2996	3011	3044	3067	3077
WHEAT	917	931	900	1011	1115	1152	1191	1260	1345	1528	1440	1486	1534	1733	1901	1963
OTHER CEREALS	886	889	888	879	871	883	890	865	878	918	876	870	865	827	789	773
BARLEY	103	101	106	109	108	108	109	109	108	109	108	107	107	105	103	102
POTATOES	281	290	305	295	298	303	307	292	306	318	307	306	309	303	298	296
OTHER OIL CROPS	269	261	277	250	301	272	266	209	227	239	229	222	216	184	182	182
TOBACCO	7	7	6	6	4	5	6	5	4	3	3	3	3	1	1	1
JUTE	16	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	23	23	21	18	19	19	18	19	17	25	19	18	18	17	17	18
TOTAL	7906	7906	7906	7906	7906	7906	7906	7906	7906	7906	7906	7906	7906	7906	7906	7906

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2 (19) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL

- TERAI TOTAL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	10118	10240	10348	10414	10350	10328	10315	10372	10334	9906	10382	10401	10420	10498	10558	10576
MAIZE	1359	1410	1355	1289	1252	1263	1180	1271	1306	1485	1303	1303	1304	1312	1322	1327
WHEAT	1557	1741	2229	2335	2430	2389	2489	2569	2491	3157	3002	3104	3203	3667	4096	4259
OTHER CEREALS	202	195	200	175	192	197	196	193	189	213	198	199	200	204	207	208
BARLEY	79	80	62	45	58	66	67	67	66	45	53	53	52	51	51	51
POTATOES	140	137	117	103	91	90	90	92	105	152	100	98	97	91	86	83
OTHER OIL CROPS	852	850	832	809	999	1111	974	999	814	853	957	966	974	1014	1055	1071
TOBACCO	46	57	58	62	76	73	72	67	64	88	73	73	74	76	78	79
JUTE	316	333	262	261	261	261	261	261	261	261	193	181	169	118	78	64
SUGAR CANE	136	126	128	160	211	202	208	222	235	228	250	261	272	328	382	404
TOTAL	9932	9932	9932	9932	9932	9932	9932	9932	9932	9932	9932	9932	9932	9932	9932	9932

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Table II-2(20) PAST TREND AND OUTLOOK OF CROP CULTIVATION AREA IN NEPAL
- GRAND TOTAL -

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1990	1995	2000
PADDY	12271	12401	12560	12617	12666	12651	12630	12764	12968	12650	12972	13023	13072	13253	13383	13426
MAIZE	4534	4583	4538	4456	4430	4487	4287	4512	4755	5109	4689	4702	4715	4740	4759	4767
WHEAT	2740	2908	3286	3483	3683	3680	3819	3987	4001	4838	4558	4700	4841	5486	6075	6298
OTHER CEREALS	1253	1252	1256	1218	1225	1244	1249	1215	1223	1292	1287	1233	1229	1192	1156	1139
BARLEY	276	274	267	250	262	270	271	272	270	244	257	255	253	247	243	241
POTATOES	532	537	533	524	512	519	523	499	523	593	529	526	528	513	500	495
OTHER OIL CROPS	1140	1132	1131	1074	1314	1398	1255	1222	1057	1102	1199	1201	1201	1208	1246	1262
TOBACCO	55	66	66	70	82	80	80	74	69	91	77	77	78	77	79	80
JUTE	332	342	271	261	261	261	261	261	261	261	299	293	287	256	230	221
SUGAR CANE	159	152	151	180	232	223	228	241	252	253	270	280	291	345	399	422
TOTAL	19208	19208	19208	19208	19208	19208	19208	19208	19208	19208	19208	19208	19208	19208	19208	19208

NOTE 1973-1982:ACTUAL 1983-2000:PROJECTED

Annex II-3

ESTIMATED/PROJECTED CONSUMPTION NITROGEN FERTILIZER BY REGION

Table II-3(1) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION
- EASTERN HIGH HILL -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA									
		1981	1982	1983	1984	1985	1990	1995	2000		
PADDY	30	10700	10200	12500	12900	13200	14400	15300	15600		
MAIZE	30	17000	17000	16700	16600	16500	16200	15900	15700		
WHEAT	30	1800	1000	700	700	600	200	0	0		
OTHER CEREALS	11	4400	5000	4700	4700	4600	4500	4400	4300		
BARLEY	30	900	900	800	700	600	200	0	0		
POTATOES	72	4900	4900	5000	5000	5000	5100	5100	5100		
OTHER OIL CROPS	34	400	200	200	200	100	0	0	0		
TOBACCO	22	0	0	0	0	0	0	0	0		
JUTE	34	0	0	0	0	0	0	0	0		
SUGAR CANE	72	0	0	0	0	0	0	0	0		
POTENTIAL DEMAND (A)		1327	1288	1339	1345	1341	1347	1352	1353		
ACTUAL/PROJECTED CONSUMPTION (B)		29	55	40	54	54	67	81	95		
(A/B : %)		2	4	3	4	4	5	6	7		

Table II-3(2) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION

- EASTERN HILL -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA									
		1981	1982	1983	1984	1985	1990	1995	2000		
PADDY	80	57200	48800	50500	50700	50800	51600	52000	52200		
MAIZE	00	81400	79700	76400	77100	77800	81800	86000	87700		
WHEAT	60	13000	15100	14400	15100	15900	19400	22900	24200		
OTHER CEREALS	11	18900	20300	19100	19100	19100	19000	19000	19000		
BARLEY	30	500	800	600	500	500	200	0	0		
POTATOES	72	12900	12900	13000	12900	12900	12500	12200	12100		
OTHER OIL CROPS	34	7000	8600	9000	9000	9000	9000	9000	9000		
TOBACCO	22	100	100	100	100	100	0	0	0		
JUTE	34	0	0	0	0	0	0	0	0		
SUGAR CANE	72	200	100	200	200	200	200	100	100		
POTENTIAL DEMAND (A)		14902	14258	14031	14148	14274	14907	15535	15791		
ACTUAL/PROJECTED CONSUMPTION (B)		224	354	281	283	285	447	466	474		
(A/B : %)		2	2	2	2	2	3	3	3		

Table II-3(3) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION

- EASTERN TERRAI -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA								
		1981	1982	1983	1984	1985	1990	1995	2000	
PADDY	00	360100	329500	358100	358700	359300	361100	361700	361600	
MAIZE	20	21000	28000	24400	25600	28800	32800	38600	40900	
WHEAT	00	33600	60600	50700	51700	52700	56800	59900	60900	
OTHER CEREALS	11	5400	4900	5600	5700	5800	6200	6600	6700	
BARLEY	30	400	300	300	300	200	100	0	0	
POTATOES	72	4200	4600	3900	3900	3900	4100	4200	4300	
OTHER OIL CROPS	34	12500	5600	12600	12700	12800	13200	13500	13600	
TOBACCO	22	2200	2700	2400	2400	2400	2500	2600	2700	
JUTE	34	26100	26100	19300	18100	16900	11800	7800	6400	
SUGAR CANE	72	3100	3100	3000	3100	3200	3500	3700	3800	
POTENTIAL DEMAND (A)		43848	44124	45513	45788	46060	47249	48215	48554	
ACTUAL/PROJECTED CONSUMPTION (B)		1287	963	1365	1374	1382	1890	1929	1942	
(A/B : %)		3	2	3	3	3	4	4	4	

Table II-3(4) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION

- CENTRAL HIGH HILL -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA									
		1981	1982	1983	1984	1985	1990	1995	2000		
PADDY	30	6100	6400	6200	6200	6200	6800	6400	6400	6400	
MAIZE	30	14500	13500	14000	14000	13900	13700	13500	13500	13300	
WHEAT	30	3900	3600	3400	3400	3500	3700	3900	3900	4000	
OTHER CEREALS	11	4100	4000	4100	4100	4200	4200	4300	4300	4300	
BARLEY	30	800	1000	800	800	800	800	800	800	800	
POTATOES	72	3200	4400	3900	3900	4000	4100	4200	4200	4300	
OTHER OIL CROPS	34	400	200	300	300	300	300	200	200	200	
TOBACCO	22	0	0	0	0	0	0	0	0	0	
JUTE	34	0	0	0	0	0	0	0	0	0	
SUGAR CANE	72	0	0	0	0	0	0	0	0	0	
POTENTIAL DEMAND (A)		1048	1103	1068	1068	1076	1087	1094	1094	1099	
ACTUAL/PROJECTED CONSUMPTION (B)		679	864	865	897	925	957	963	963	967	
(A/B : %)		65	78	81	84	86	88	88	88	88	

Table II-3(5) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION

- CENTRAL HILL -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA									
		1981	1982	1983	1984	1985	1990	1995	2000		
PADDY	80	40300	53200	44600	46000	47400	52000	55100	56200		
MAIZE	00	50500	47900	50500	50600	50700	48500	45700	44600		
WHEAT	60	15800	21900	17500	18600	19700	23900	27200	28400		
OTHER CEREALS	11	11600	10800	10800	10800	10700	10000	9200	8800		
BARLEY	30	900	800	900	900	900	1100	1200	1200		
POTATOES	72	5700	5700	5800	5900	6000	6000	5900	5800		
OTHER OIL CROPS	34	6100	6200	3900	3400	2900	200	0	0		
TOBACCO	22	100	100	100	100	100	0	0	0		
JUTE	34	0	0	0	0	0	0	0	0		
SUGAR CANE	72	800	1900	1200	1200	1200	1300	1400	1500		
POTENTIAL DEMAND (A)		10054	11263	10453	10631	10808	11119	11273	11318		
ACTUAL/PROJECTED CONSUMPTION (B)		1557	1987	1882	2020	2162	2446	2593	2603		
(A/B : %)		15	18	18	19	20	22	23	23		

Table II-3(6) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION

- CENTRAL TERAI -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA							
		1981	1982	1983	1984	1985	1990	1995	2000
PADDY	00	341300	314900	334200	333400	332700	329200	325800	324500
MAIZE	20	45000	57200	43600	43100	42600	40600	39000	38400
WHEAT	00	102000	131600	124000	127600	131000	145900	158100	162600
OTHER CEREALS	11	7100	11300	8400	8500	8600	9100	9600	9800
BARLEY	30	5000	8500	4300	4300	4300	4200	4200	4200
POTATOES	72	3400	7600	3900	3900	3800	3700	3600	3500
OTHER OIL CROPS	34	12500	23400	20600	19400	18200	11900	5700	3100
TOBACCO	22	3600	5600	4300	4300	4400	4600	4800	4800
JUTE	34	0	0	0	0	0	0	0	0
SUGAR CANE	72	13100	12300	14000	14700	15400	18800	22300	23600
POTENTIAL DEMAND (A)		51650	54095	53357	53588	53804	54734	55466	55714
ACTUAL/PROJECTED CONSUMPTION (B)		5209	6617	6403	6966	6995	8757	9429	9471
(A/B : %)		10	12	12	13	13	16	17	17

Table II-3(7) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION
- WESTERN HIGH HILL -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA											
		1981	1982	1983	1984	1985	1990	1995	2000				
PADDY	40	0	0	0	0	0	0	0	0	0	0	0	0
MAIZE	60	900	900	1500	1300	1200	600	600	0	0	0	0	0
WHEAT	40	1000	900	600	600	600	500	400	300	300	300	300	300
OTHER CEREALS	11	1100	1100	1200	1200	1200	1100	1100	1000	1000	1000	1000	1000
BARLEY	30	1500	1500	1600	1600	1600	1700	1800	1800	1800	1800	1800	1800
POTATOES	72	700	700	800	800	800	700	600	600	600	600	600	600
OTHER OIL CROPS	34	0	0	0	0	0	0	0	0	0	0	0	0
TOBACCO	22	0	0	0	0	0	0	0	0	0	0	0	0
JUTE	34	0	0	0	0	0	0	0	0	0	0	0	0
SUGAR CANE	72	0	0	0	0	0	0	0	0	0	0	0	0
POTENTIAL DEMAND (A)		201	197	233	221	215	169	125	120	120	120	120	120
ACTUAL/PROJECTED CONSUMPTION (B)		18	16	28	31	30	24	18	17	17	17	17	17
(A/B : %)		9	8	12	14	14	14	14	14	14	14	14	14

Table II-3(8) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION

- WESTERN HILL -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA									
		1981	1982	1983	1984	1985	1990	1995	2000		
PADDY	80	70800	72600	67000	68300	69600	73800	77200	78500		
MAIZE	00	79700	97600	85000	85500	86800	86100	85900	85800		
WHEAT	80	27900	29700	30900	32400	33900	39800	44900	46800		
OTHER CEREALS	11	34300	38400	35400	34800	34300	30900	27800	26600		
BARLEY	30	2200	2100	2000	1900	1900	1600	1400	1300		
POTATOES	72	5000	5800	5600	5600	5600	5400	5200	5100		
OTHER OIL CROPS	34	2200	2100	2500	2400	2400	2000	1600	1500		
TOBACCO	22	100	0	0	0	0	0	0	0		
JUTE	34	0	0	0	0	0	0	0	0		
SUGAR CANE	72	300	300	200	100	100	0	0	0		
POTENTIAL DEMAND (A)		16768	18940	17284	17538	17806	18543	19135	19354		
ACTUAL/PROJECTED CONSUMPTION (B)		651	888	864	877	890	1113	1339	1548		
(A/B : %)		4	5	5	5	5	6	7	8		

Table II-3(9) ESTIMATED/PROJECTED CONSUMPTION OF NITROGEN FERTILIZER BY REGION

- WESTERN TERAI -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA								
		1981	1982	1983	1984	1985	1990	1995	2000	
PADDY	00	177100	175800	183300	185100	186900	195200	202800	205500	
MAIZE	00	17300	7300	12200	11300	10500	6200	1700	0	
WHEAT	80	59200	65500	65900	68800	71600	86400	101700	107800	
OTHER CEREALS	11	2500	1400	2100	2000	2000	1700	1400	1300	
BARLEY	30	400	300	0	0	0	0	0	0	
POTATOES	72	1200	1200	600	500	500	200	0	0	
OTHER OIL CROPS	34	12800	9500	14900	15300	15600	17200	18600	19100	
TOBACCO	22	200	200	300	300	300	300	300	300	
JUTE	34	0	0	0	0	0	0	0	0	
SUGAR CANE	72	6600	7000	7400	7700	8000	9600	11100	11800	
POTENTIAL DEMAND (A)		25217	24492	25934	26283	26639	28368	30040	30694	
ACTUAL/PROJECTED CONSUMPTION (B)		1884	1883	2075	2103	2131	2837	3304	3376	
(A/B : %)		7	8	8	8	8	10	11	11	

Table II-3(10) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION
- MID-WESTERN HIGH HILL -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA									
		1981	1982	1983	1984	1985	1990	1995	2000		
PADDY	40	2200	2100	2100	2100	2000	1800	1600	1500		
MAIZE	60	4400	3700	4300	4200	4200	3600	3100	2800		
WHEAT	40	2900	2900	1400	1000	600	0	0	0		
OTHER CEREALS	11	3900	3600	4100	4200	4200	4300	4400	4400		
BARLEY	30	3300	3100	3300	3200	3200	2900	2600	2400		
POTATOES	72	1700	1600	1700	1700	1600	1300	1000	900		
OTHER OIL CROPS	34	200	200	200	200	100	100	0	0		
TOBACCO	22	0	0	0	0	0	0	0	0		
JUTE	34	0	0	10600	11200	11800	13800	15200	15700		
SUGAR CANE	72	0	0	0	0	0	0	0	0		
POTENTIAL DEMAND (A)		739	677	1032	1028	1018	988	965	947		
ACTUAL/PROJECTED CONSUMPTION (B)		3	5	0	0	10	10	10	9		
(A/B : %)		0	1	0	0	1	1	1	1		

Table II-3(11) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION
- MID-WESTERN HILL -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA									
		1981	1982	1983	1984	1985	1990	1995	2000		
PADDY	80	23700	24900	23900	23600	23400	22100	21100	20700		
MAIZE	00	41200	42700	40200	39900	39600	38300	37400	37200		
WHEAT	80	32500	33200	32300	33300	34300	38700	42700	44200		
OTHER CEREALS	11	12000	12300	12000	12100	12300	13100	13900	14200		
BARLEY	30	5100	5300	5200	5300	5300	5500	5700	5700		
POTATOES	72	3000	2800	2900	2900	3000	3100	3300	3400		
OTHER OIL CROPS	34	5600	5500	5400	5500	5600	6300	6900	7100		
TOBACCO	22	100	100	100	100	100	100	100	100		
JUTE	34	0	0	0	0	0	0	0	0		
SUGAR CANE	72	100	100	100	100	100	100	100	100		
POTENTIAL DEMAND (A)		9317	9610	9206	9239	9286	9450	9649	9735		
ACTUAL/PROJECTED CONSUMPTION (B)		49	115	92	92	93	189	193	195		
(A/B : %)		1	1	1	1	1	2	2	2		

Table II-3(12) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION
- MID-WESTERN TERAI -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA								
		1981	1982	1983	1984	1985	1988	1995	2000	
PADDY	00	89100	100100	92300	91700	91000	87800	84600	83300	
MAIZE	00	32100	35900	32100	32000	31800	31100	30500	30200	
WHEAT	80	32400	34800	35300	37000	38600	46600	54600	57700	
OTHER CEREALS	11	1900	1800	1700	1700	1600	1200	800	700	
BARLEY	30	600	300	500	500	500	500	600	600	
POTATOES	72	1200	1100	1100	1000	1000	700	400	200	
OTHER OIL CROPS	34	26200	27100	27200	27700	28100	30200	32200	33000	
TOBACCO	22	300	200	200	200	200	100	0	0	
JUTE	34	0	0	0	0	0	0	0	0	
SUGAR CANE	72	600	200	500	500	500	700	900	1000	
POTENTIAL DEMAND (A)		15778	17432	16342	16418	16468	16776	17093	17200	
ACTUAL/PROJECTED CONSUMPTION (B)		344	657	490	493	494	671	684	860	
(A/B : %)		2	4	3	3	3	4	4	5	

Table II-3 (13) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION
- FAR-WESTERN HIGH HILL -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA									
		1981	1982	1983	1984	1985	1990	1995	2000		
PADDY	40	6800	6300	6600	6600	6600	6500	6500	6500	6500	
MAIZE	60	4400	4300	4100	4200	4200	4300	4500	4500	4500	
WHEAT	40	6900	6900	5500	5300	5100	4200	3500	3300	3300	
OTHER CEREALS	11	2100	2400	2200	2200	2200	2000	1800	1800	1800	
BARLEY	30	3100	2500	3100	3200	3200	3500	3700	3800	3800	
POTATOES	72	700	700	800	800	800	700	700	700	700	
OTHER OIL CROPS	34	600	400	600	600	600	600	700	700	700	
TOBACCO	22	100	0	100	100	100	0	0	0	0	
JUTE	34	0	0	0	0	0	0	0	0	0	
SUGAR CANE	72	0	0	100	100	100	0	0	0	0	
POTENTIAL DEMAND (A)		1001	951	935	936	928	884	875	870	870	
ACTUAL/PROJECTED CONSUMPTION (B)		4	15	9	9	9	9	18	17	17	
(A/B : %)		0	2	1	1	1	1	2	2	2	

Table II-3(14) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION

- FAR-WESTERN HILL -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA								
		1981	1982	1983	1984	1985	1990	1995	2000	
PADDY	80	14900	17500	15800	16100	16400	17900	18900	19300	
MAIZE	00	12400	12500	12400	12300	12100	11300	10300	9800	
WHEAT	80	18200	25900	20400	20700	21100	22900	24100	24500	
OTHER CEREALS	11	6100	6600	6400	6500	6700	7400	7900	8100	
BARLEY	30	2000	1800	2000	2000	2000	2000	1900	1900	
POTATOES	72	1200	1200	1200	1200	1300	1400	1400	1500	
OTHER OIL CROPS	34	900	900	1200	1100	1100	900	700	600	
TOBACCO	22	0	0	0	0	0	0	0	0	
JUTE	34	0	0	0	0	0	0	0	0	
SUGAR CANE	72	100	100	100	100	100	100	100	100	
POTENTIAL DEMAND (A)		4139	4973	4401	4436	4482	4674	4746	4766	
ACTUAL/PROJECTED CONSUMPTION (B)		58	18	44	44	45	47	47	48	
(A/B : %)		1	0	1	1	1	1	1	1	

Table II-3(15) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION
- FAR-WESTERN TERRAI -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA									
		1981	1982	1983	1984	1985	1990	1995	2000		
PADDY	00	65800	70300	70300	71200	72100	76500	80900	82700		
MAIZE	00	15200	20100	18000	18300	18700	20500	22400	23200		
WHEAT	80	21900	23200	24300	25300	26400	31000	35300	36900		
OTHER CEREALS	11	2000	1900	2000	2000	2000	2200	2300	2300		
BARLEY	30	200	100	200	200	200	300	300	300		
POTATOES	72	500	700	500	500	500	400	400	300		
OTHER OIL CROPS	34	17400	19700	20400	21500	22700	28900	35500	38300		
TOBACCO	22	100	100	100	100	100	100	100	100		
JUTE	34	0	0	0	0	0	0	0	0		
SUGAR CANE	72	100	200	100	100	100	200	200	200		
POTENTIAL DEMAND (A)		10517	11657	11541	11778	12037	13241	14441	14917		
ACTUAL/PROJECTED CONSUMPTION (B)		121	253	115	236	241	265	433	448		
(A/B : %)		1	2	1	2	2	2	3	3		

Table II-3(16) ESTIMATED/PROJECTED CONSUMPTION OF
NITROGEN FERTILIZER BY REGION
- CENTRAL KATHMANDU VALLEY -

CROP	POTENTIAL DOSAGE (N Kg/ha)	CROPPED AREA								
		1981	1982	1983	1984	1985	1990	1995	2000	
PADDY	00	30700	32400	29800	29700	29600	29100	28400	28100	
MAIZE	20	38500	42600	33500	34200	34900	38400	41400	42600	
WHEAT	00	27100	27000	28500	28500	28500	28600	28300	28200	
OTHER CEREALS	11	4900	3400	3900	3700	3400	2300	1100	600	
BARLEY	30	100	100	100	100	100	100	100	100	
POTATOES	72	2800	3400	2200	2100	2100	1900	1800	1700	
OTHER OIL CROPS	34	900	600	900	800	600	0	0	0	
TOBACCO	22	0	0	0	0	0	0	0	0	
JUTE	34	0	0	0	0	0	0	0	0	
SUGAR CANE	72	200	0	100	100	100	0	0	0	
POTENTIAL DEMAND (A)		10703	11358	10092	10153	10217	10543	10783	10874	
ACTUAL/PROJECTED CONSUMPTION (B)		5816	6234	6358	6599	6743	7591	8303	8808	
(A/B : %)		54	55	63	65	66	72	77	81	

Annex II-4

CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION

Talbe II-4 (1) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION

- EASTERN HIGH HILL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	0	6	10	10	23	29	27	45
AMMONIUM SULPHATE (1)	2	0	2	2	0	-	-	-
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	-	-
AMMONIUM PHOSPHATE	4	12	30	35	60	83	81	173
COMPLEX (1)	-	-	-	-	10	5	-	-
COMPLEX (2)	-	-	-	-	-	-	-	-
COMPLEX (3)	-	-	-	-	-	-	-	-
COMPLEX (4)	-	-	-	-	-	-	-	-
TRIPLE SUPER PHOSPHATE	-	-	-	-	-	-	-	-
MURIATE OF POTASH	0	1	5	4	4	-	1	1
SULPHATE OF POTASH	-	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	6	19	47	51	97	117	109	219
N TOTAL (IN N TONS)	1	5	11	12	25	31	29	55
P205 TOTAL (IN P205 TONS)	1	2	6	7	14	18	16	35
K20 TOTAL (IN K20 TONS)	0	1	3	2	2	0	1	1

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(2) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- EASTERN HILL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	84	115	180	181	234	207	246	350
AMMONIUM SULPHATE (1)	32	83	95	86	30	25	30	28
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	-	-
AMMONIUM PHOSPHATE	258	307	375	398	463	545	454	912
COMPLEX (1)	-	-	-	-	74	-	-	11
COMPLEX (2)	-	-	-	-	55	55	-	12
COMPLEX (3)	1	1	25	27	32	0	-	0
COMPLEX (4)	-	-	-	-	-	-	0	0
TRIPLE SUPER PHOSPHATE	-	-	3	8	4	1	1	3
MURIATE OF POTASH	54	80	73	79	39	25	30	58
SULPHATE OF POTASH	1	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	425	586	751	779	857	858	835	1374
N TOTAL (IN N TONS)	96	132	182	185	224	222	224	354
P205 TOTAL (IN P205 TONS)	51	62	80	87	112	122	125	192
K20 TOTAL (IN K20 TONS)	33	48	48	52	28	15	18	35

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4 (3) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- EASTERN TERAI -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	618	943	1198	1332	1510	1498	1810	2821
AMMONIUM SULPHATE (1)	509	444	259	271	169	218	270	367
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	0	3
AMMONIUM PHOSPHATE	1296	1371	1792	1085	1832	2052	1704	4073
COMPLEX (1)	-	-	-	-	274	64	61	248
COMPLEX (2)	39	352	390	1331	350	3	15	-
COMPLEX (3)	-	-	-	-	-	-	0	4
COMPLEX (4)	17	21	39	43	25	16	6	9
TRIPLE SUPER PHOSPHATE	210	279	281	199	211	202	292	441
MURIATE OF POTASH	0	-	8	13	2	-	-	-
SULPHATE OF POTASH	0	-	0	2	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	2689	3410	3967	4276	4373	4053	4381	8041
N	656	854	1022	1087	1212	1160	1287	963
P205 TOTAL (IN P205 TONS)	273	387	435	437	493	433	463	910
K20 TOTAL (IN K20 TONS)	132	220	231	326	180	122	178	265

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(4) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- CENTRAL HIGH HILL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	102	236	649	607	800	909	1078	1417
AMMONIUM SULPHATE (1)	85	125	253	196	281	358	326	206
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	-	-
AMMONIUM PHOSPHATE	74	84	193	168	342	629	564	845
COMPLEX (1)	-	-	-	-	-	9	-	-
COMPLEX (2)	-	-	-	40	63	50	8	-
COMPLEX (3)	0	0	-	0	-	-	-	-
COMPLEX (4)	-	-	0	0	-	-	-	-
TRIPLE SUPER PHOSPHATE	-	-	0	0	-	-	-	-
MURIATE OF POTASH	8	2	4	4	7	8	5	4
SULPHATE OF POTASH	-	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	269	447	1099	1015	1493	1963	1983	2473
N TOTAL (IN N TONS)	80	152	390	360	505	629	679	864
P205 TOTAL (IN P205 TONS)	15	17	39	40	78	135	115	170
K20 TOTAL (IN K20 TONS)	5	1	2	8	14	12	4	2

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4 (5) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- CENTRAL HILL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	470	748	1406	1497	2212	1288	2462	3372
AMMONIUM SULPHATE (1)	500	504	667	700	485	150	651	467
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	-	-
AMMONIUM PHOSPHATE	326	371	646	573	691	759	1303	1612
COMPLEX (1)	-	-	-	-	152	1	16	51
COMPLEX (2)	46	90	169	354	243	68	86	7
COMPLEX (3)	-	-	5	-	-	-	2	3
COMPLEX (4)	1	1	1	0	1	1	1	2
TRIPLE SUPER PHOSPHATE	72	47	57	25	13	4	51	20
MURIATE OF POTASH	-	-	-	-	-	-	-	-
SULPHATE OF POTASH	-	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	0	-
TOTAL (IN PRODUCT TONS)	1415	1761	2951	3149	3747	2271	4620	5548
N TOTAL (IN N TONS)	393	538	941	1004	1318	786	1557	1987
P205 TOTAL (IN P205 TONS)	73	88	155	168	210	163	300	343
K20 TOTAL (IN K20 TONS)	50	42	60	68	44	13	44	13

NOTE: ASI=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(6) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- CENTRAL TERAI -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	2836	4124	4493	5305	5838	9108	7839	9054
AMMONIUM SULPHATE (1)	1666	901	1808	1127	751	825	724	714
AMMONIUM SULPHATE (2)	-	34	-	-	-	-	391	81
AMMONIUM PHOSPHATE	3028	2076	3764	3200	3485	7582	6304	10479
COMPLEX (1)	-	-	-	-	1116	35	205	828
COMPLEX (2)	-	-	-	-	1813	412	481	10
COMPLEX (3)	878	1930	1295	1277	1	-	8	5
COMPLEX (4)	4	163	22	2	33	21	95	1
TRIPLE SUPER PHOSPHATE	91	26	42	379	196	169	275	512
MURIATE OF POTASH	374	210	218	267	30	5	-	2
SULPHATE OF POTASH	117	0	53	27	-	-	-	-
OTHER NITROGEN FERTILIZER	0	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	8494	9464	11695	11584	13213	18157	16322	21686
N TOTAL (IN N TONS)	2162	2808	3395	3509	4059	5949	5209	6617
P2O5 TOTAL (IN P2O5 TONS)	779	727	968	1006	1231	1596	1604	2326
K2O TOTAL (IN K2O TONS)	415	427	353	365	405	166	238	310

NOTE: ASI=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4 (7) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
 - WESTERN HIGH HILL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA						11	22	14
AMMONIUM SULPHATE (1)						-	-	-
AMMONIUM SULPHATE (2)						-	-	-
AMMONIUM PHOSPHATE						16	39	45
COMPLEX (1)						-	-	-
COMPLEX (2)						1	-	-
COMPLEX (3)						-	-	-
COMPLEX (4)						-	-	-
TRIPLE SUPER PHOSPHATE						-	-	-
MURIATE OF POTASH						-	0	2
SULPHATE OF POTASH						-	-	-
OTHER NITROGEN FERTILIZER						-	-	-
TOTAL (IN PRODUCT TONS)				28	61	63		
N TOTAL (IN N TONS)				9	18	16		
P2O5 TOTAL (IN P2O5 TONS)				3	8	10		
K2O TOTAL (IN K2O TONS)				0	0	1		

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(8) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
 - WESTERN HILL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	99	173	306	362	549	552	615	766
AMMONIUM SULPHATE (1)	147	141	147	65	30	26	41	20
AMMONIUM SULPHATE (2)	12	14	-	-	-	-	-	-
AMMONIUM PHOSPHATE	289	358	1340	617	887	1430	1237	2437
COMPLEX (1)					174	45	295	164
COMPLEX (2)					1072	246	222	3
COMPLEX (3)	952	1140	349	1074				
COMPLEX (4)	2	6	0	-	-	-	0	10
TRIPLE SUPER PHOSPHATE	3	3	1	6	0	1	0	4
MURIATE OF POTASH	12	9	22	49	15	40	34	43
SULPHATE OF POTASH	0	-	-	-	-	-	3	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	1516	1844	2165	2173	2727	2340	2507	3477
N TOTAL (IN N TONS)	280	356	492	465	637	593	651	888
P205 TOTAL (IN P205 TONS)	202	244	321	287	378	334	376	542
K20 TOTAL (IN K20 TONS)	150	177	66	191	170	61	55	27

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(9) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION

- WESTERN TERAI -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	985	1295	1523	1613	2150	2296	2632	2325
AMMONIUM SULPHATE (1)	118	174	168	73	5	61	103	30
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	0	-
AMMONIUM PHOSPHATE	630	1398	2458	1768	1694	1626	3031	3709
COMPLEX (1)	-	-	-	-	64	301	16	232
COMPLEX (2)	1408	807	442	1119	718	253	88	-
COMPLEX (3)	-	-	-	-	-	-	7	-
COMPLEX (4)	11	4	2	4	240	15	68	1
TRIPLE SUPER PHOSPHATE	101	115	139	50	74	102	204	250
MURIATE OF POTASH	-	-	-	-	-	-	-	-
SULPHATE OF POTASH	-	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	1	-
TOTAL (IN PRODUCT TONS)	3253	3793	4732	4627	4945	4654	6303	6613
N TOTAL (IN N TONS)	815	1033	1294	1279	1451	1501	1884	1883
P205 TOTAL (IN P205 TONS)	342	403	559	523	572	439	726	826
K20 TOTAL (IN K20 TONS)	272	190	150	198	152	99	136	150

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(10) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
 - MID-WESTERN HIGH HILL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	1	0	2	1	1	3	3	6
AMMONIUM SULPHATE (1)	2	1	1	-	-	0	-	-
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	-	-
AMMONIUM PHOSPHATE	3	2	1	2	-	3	2	6
COMPLEX (1)	-	-	-	-	-	-	-	-
COMPLEX (2)	2	1	-	1	2	3	5	6
COMPLEX (3)	-	-	-	-	-	-	-	-
COMPLEX (4)	-	-	-	-	-	0	-	-
TRIPLE SUPER PHOSPHATE	0	1	0	-	-	0	0	1
MURIATE OF POTASH	-	-	-	-	1	-	-	-
SULPHATE OF POTASH	-	-	-	-	0	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	0	5	4	4	4	9	10	19
N TOTAL (IN N TONS)	2	1	1	1	1	3	3	5
P205 TOTAL (IN P205 TONS)	1	1	0	1	0	1	1	2
K2O TOTAL (IN K2O TONS)	0	1	0	0	1	1	1	2

NOTE: ASI=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(11) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION

- MID-WESTERN HILL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	9	21	40	70	97	81	58	127
AMMONIUM SULPHATE (1)	22	38	47	22	32	4	5	-
AMMONIUM SULPHATE (2)	0	3	-	-	-	-	-	0
AMMONIUM PHOSPHATE	43	104	139	145	130	97	73	193
COMPLEX (1)	-	-	-	-	-	0	14	69
COMPLEX (2)	2	7	11	13	44	48	20	13
COMPLEX (3)	-	-	-	-	-	-	-	-
COMPLEX (4)	-	-	-	-	-	-	-	-
TRIPLE SUPER PHOSPHATE	-	-	-	1	0	1	7	0
MURIATE OF POTASH	8	20	25	20	17	5	-	4
SULPHATE OF POTASH	-	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	84	193	262	271	320	236	178	406
N TOTAL (IN N TONS)	18	40	58	68	84	65	49	115
P205 TOTAL (IN P205 TONS)	9	22	30	32	33	27	21	57
K20 TOTAL (IN K20 TONS)	5	13	17	14	17	10	7	4

NOTE: AS1-21% AS2-26% CX1-20:20:0 CX2-23:23:0 CX3-15:15:15 CX4-5:6:7

Table II-4 (12) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
 - MID-WESTERN TERAI -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	124	236	276	263	375	264	322	658
AMMONIUM SULPHATE (1)	93	143	139	103	41	70	42	117
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	-	-
AMMONIUM PHOSPHATE	202	544	476	530	646	423	580	1367
COMPLEX (1)	-	-	-	-	87	96	206	230
COMPLEX (2)	128	25	150	78	72	92	160	24
COMPLEX (3)	-	-	-	-	-	-	-	-
COMPLEX (4)	-	-	-	-	-	-	-	-
TRIPLE SUPER PHOSPHATE	3	9	10	19	11	1	53	1
MURIATE OF POTASH	38	106	82	58	87	54	111	111
SULPHATE OF POTASH	-	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	588	1063	1133	1051	1269	1000	1363	2508
N TOTAL (IN N TONS)	136	251	274	260	330	257	344	657
P205 TOTAL (IN P205 TONS)	61	117	122	126	154	121	187	330
K2O TOTAL (IN K2O TONS)	42	67	72	47	63	46	56	70

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4 (13) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
 - FAR-WESTERN HIGH HILL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	2	0	0	0	2	4	4	15
AMMONIUM SULPHATE (1)	0	0	2	-	0	0	-	0
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	-	-
AMMONIUM PHOSPHATE	-	0	3	1	3	6	12	40
COMPLEX (1)	-	-	-	-	-	-	0	1
COMPLEX (2)	-	-	-	-	6	0	-	1
COMPLEX (3)	-	-	-	-	-	-	-	-
COMPLEX (4)	-	-	-	-	-	-	-	-
TRIPLE SUPER PHOSPHATE	-	-	-	-	-	-	-	-
MURIATE OF POTASH	0	0	0	0	0	0	0	2
SULPHATE OF POTASH	6	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	8	0	5	1	11	10	16	59
N TOTAL (IN N TONS)	1	0	1	0	3	3	4	15
P205 TOTAL (IN P205 TONS)	0	0	1	0	2	1	2	8
K20 TOTAL (IN K20 TONS)	3	0	0	0	1	0	0	1

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(14) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
 - FAR-WESTERN HILL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	14	23	24	38	27	15	36	6
AMMONIUM SULPHATE (1)	7	13	13	6	1	0	3	7
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	-	-
AMMONIUM PHOSPHATE COMPLEX (1)	35	44	51	59	140	76	168	51
COMPLEX (2)	-	-	-	-	-	8	23	15
COMPLEX (3)	34	60	112	57	46	11	10	0
COMPLEX (4)	-	-	-	-	-	-	-	-
TRIPLE SUPER PHOSPHATE	-	-	-	-	-	-	-	-
MURIATE OF POTASH	5	6	5	5	4	2	6	3
SULPHATE OF POTASH	-	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	95	146	205	165	218	112	246	82
N TOTAL (IN N TONS)	20	31	41	39	48	26	58	18
P2O5 TOTAL (IN P2O5 TONS)	12	18	27	20	35	19	40	14
K2O TOTAL (IN K2O TONS)	8	13	20	12	9	3	5	2

NOTE: ASI-21% AS2-26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(15) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- FAR-WESTERN TERAI -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	39	126	125	145	112	75	125	266
AMMONIUM SULPHATE (1)	35	81	22	20	1	1	2	-
AMMONIUM SULPHATE (2)	-	-	-	-	-	-	-	-
AMMONIUM PHOSPHATE	85	103	151	188	177	150	209	41
COMPLEX (1)	-	-	-	-	-	3	68	523
COMPLEX (2)	104	342	212	260	59	13	35	72
COMPLEX (3)	-	-	-	-	-	-	-	16
COMPLEX (4)	-	-	-	-	-	-	-	-
TRIPLE SUPER PHOSPHATE	0	7	1	0	-	-	12	7
MURIATE OF POTASH	17	33	17	18	24	14	17	32
SULPHATE OF POTASH	-	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	280	692	528	581	373	256	468	957
N TOTAL (IN N TONS)	58	147	124	138	96	67	121	253
P205 TOTAL (IN P205 TONS)	33	75	63	67	44	33	68	146
K20 TOTAL (IN K20 TONS)	26	71	42	50	23	10	16	22

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(16) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- CENTRAL KATHMANDU VALLEY -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	5179	5614	6057	8365	8393	7926	9393	10154
AMMONIUM SULPHATE (1)	3291	5106	6787	4705	3284	2343	3021	1602
AMMONIUM SULPHATE (2)	-	107	-	21	134	-	-	-
AMMONIUM PHOSPHATE	-	-	-	-	-	-	294	96
COMPLEX (1)	2058	2650	2836	1929	4199	7678	4025	6043
COMPLEX (2)	-	-	-	-	160	-	2	-
COMPLEX (3)	1464	897	50	764	284	42	8	1
COMPLEX (4)	19	9	0	0	2	69	27	9
TRIPLE SUPER PHOSPHATE	9	3	5	64	3	5	17	5
MURIATE OF POTASH	20	27	13	14	44	30	15	11
SULPHATE OF POTASH	-	-	-	-	-	-	-	-
OTHER NITROGEN FERTILIZER	-	-	-	-	-	-	-	-
TOTAL (IN PRODUCT TONS)	12040	14413	15748	15862	16503	18093	16802	17921
N TOTAL (IN N TONS)	3706	4348	4786	5342	5505	5683	5816	6234
P205 TOTAL (IN P205 TONS)	636	667	577	530	921	1548	951	1256
K20 TOTAL (IN K20 TONS)	233	151	15	123	69	29	12	7

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(17) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION

- HIGH HILL TOTAL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	105	242	661	618	826	956	1134	1497
AMMONIUM SULPHATE (1)	89	126	258	198	281	358	326	206
AMMONIUM SULPHATE (2)	0	0	0	0	0	0	0	0
AMMONIUM PHOSPHATE	0	0	3	0	0	0	2	3
COMPLEX (1)	81	98	224	206	405	737	698	1109
COMPLEX (2)	0	0	0	0	10	14	0	1
COMPLEX (3)	2	1	0	41	71	54	13	7
COMPLEX (4)	0	0	0	0	0	0	0	0
TRIPLE SUPER PHOSPHATE	0	0	0	0	0	0	0	0
MURIATE OF POTASH	8	4	9	8	11	8	6	10
SULPHATE OF POTASH	6	0	0	0	1	0	0	0
OTHER NITROGEN FERTILIZER	0	0	0	0	0	0	0	0
TOTAL (IN PRODUCT TONS)	283	471	1155	1071	1605	2127	2179	2833
N TOTAL (IN N TONS)	84	158	403	373	534	675	733	955
P205 TOTAL (IN P205 TONS)	17	20	46	48	94	158	142	225
K20 TOTAL (IN K20 TONS)	8	3	5	10	18	13	6	7

NOTE: AS1-21% AS2-26% CX1-20:20:0 CX2-23:23:0 CX3-15:15:15 CX4-5:6:7

Table II-4 (18) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION

- HILL TOTAL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	5855	6694	8013	10513	11512	10069	12810	14775
AMMONIUM SULPHATE (1)	3999	5885	7756	5584	3812	2548	3751	2124
AMMONIUM SULPHATE (2)	12	124	0	21	134	0	0	0
AMMONIUM PHOSPHATE	0	0	0	0	0	0	477	151
COMPLEX (1)	3004	3834	5387	3721	6510	10585	7260	11248
COMPLEX (2)	0	0	0	0	541	109	350	311
COMPLEX (3)	2499	2195	716	2289	1721	415	346	24
COMPLEX (4)	21	15	5	0	2	69	29	22
TRIPLE SUPER PHOSPHATE	13	7	10	79	8	9	19	14
MURIATE OF POTASH	171	189	195	192	132	106	143	139
SULPHATE OF POTASH	1	0	0	0	0	0	3	0
OTHER NITROGEN FERTILIZER	0	0	0	0	0	0	0	0
TOTAL (IN PRODUCT TONS)	15575	18943	22082	22399	24372	23910	25188	28808
N TOTAL (IN N TONS)	4513	5445	6500	7103	7816	7375	8355	9596
P205 TOTAL (IN P205 TONS)	983	1101	1190	1124	1689	2213	1813	2404
K2O TOTAL (IN K2O TONS)	479	444	226	460	337	131	141	88

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(19) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- TERAI TOTAL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	4102	6724	7615	8658	9985	13241	12728	15124
AMMONIUM SULPHATE (1)	2421	1743	2396	1594	967	1175	1141	1228
AMMONIUM SULPHATE (2)	0	34	0	0	0	0	0	3
AMMONIUM PHOSPHATE	0	0	0	0	0	0	768	263
COMPLEX (1)	5241	5492	8641	6721	7784	11833	11828	20151
COMPLEX (2)	0	0	0	0	1491	499	556	1610
COMPLEX (3)	2557	3456	2489	4065	3012	773	779	50
COMPLEX (4)	4	163	22	2	1	0	15	9
TRIPLE SUPER PHOSPHATE	122	67	94	445	309	53	181	19
MURIATE OF POTASH	740	743	737	592	592	541	841	1346
SULPHATE OF POTASH	117	0	61	40	32	5	0	2
OTHER NITROGEN FERTILIZER	0	0	0	2	0	0	1	0
TOTAL (IN PRODUCT TONS)	15304	18422	22055	22119	24173	28120	28837	39805
N TOTAL (IN N TONS)	3827	5093	6109	6273	7148	8934	8845	10373
P2O5 TOTAL (IN P2O5 TONS)	1488	1659	2147	2159	2494	2622	3048	4538
K2O TOTAL (IN K2O TONS)	887	975	848	986	823	443	624	817

NOTE: ASI=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(20) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- EASTERN TOTAL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	702	1064	1388	1523	1767	1734	2083	3216
AMMONIUM SULPHATE (1)	543	527	356	359	199	243	300	395
AMMONIUM SULPHATE (2)	0	0	0	0	0	0	0	3
AMMONIUM PHOSPHATE	0	0	0	0	0	0	297	86
COMPLEX (1)	1553	1690	2197	1518	2355	2680	2239	5158
COMPLEX (2)	0	0	0	0	339	124	61	260
COMPLEX (3)	40	353	415	1358	382	3	15	0
COMPLEX (4)	0	0	0	0	0	0	0	4
TRIPLE SUPER PHOSPHATE	17	21	42	51	29	17	7	12
MURIATE OF POTASH	264	360	359	282	254	227	323	500
SULPHATE OF POTASH	1	0	8	13	2	0	0	0
OTHER NITROGEN FERTILIZER	0	0	0	2	0	0	0	0
TOTAL (IN PRODUCT TONS)	3120	4015	4765	5106	5327	5028	5325	9634
N TOTAL (IN N TONS)	753	991	1215	1284	1461	1413	1540	1372
P205 TOTAL (IN P205 TONS)	325	401	521	531	619	573	604	1137
K20 TOTAL (IN K20 TONS)	165	269	282	380	210	137	197	301

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(21) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- CENTRAL TOTAL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	8087	10722	12605	15774	17243	19231	20772	23997
AMMONIUM SULPHATE (1)	5542	6636	9515	6728	4751	3676	4722	2989
AMMONIUM SULPHATE (2)	0	141	0	21	134	0	0	0
AMMONIUM PHOSPHATE	0	0	0	0	0	0	735	192
COMPLEX (1)	5486	5181	7439	5870	8667	16648	12196	18979
COMPLEX (2)	0	0	0	0	1428	45	223	879
COMPLEX (3)	2388	2917	1514	2435	2403	572	583	18
COMPLEX (4)	23	172	27	2	3	69	37	17
TRIPLE SUPER PHOSPHATE	101	30	48	443	37	27	113	8
MURIATE OF POTASH	474	286	292	310	260	211	346	547
SULPHATE OF POTASH	117	0	53	27	30	5	0	2
OTHER NITROGEN FERTILIZER	0	0	0	0	0	0	0	0
TOTAL (IN PRODUCT TONS)	22218	26085	31493	31610	34956	40484	39727	47628
N TOTAL (IN N TONS)	6341	7846	9512	10215	11387	13047	13261	15702
P205 TOTAL (IN P205 TONS)	1503	1499	1739	1744	2440	3442	2970	4095
K20 TOTAL (IN K20 TONS)	703	521	430	564	532	220	298	332

NOTE: ASI-21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(22) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- WESTERN TOTAL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	1084	1468	1829	1975	2699	2859	3269	3105
AMMONIUM SULPHATE (1)	265	315	315	138	35	87	144	50
AMMONIUM SULPHATE (2)	12	14	0	0	0	0	0	0
AMMONIUM PHOSPHATE	0	0	0	0	0	0	214	98
COMPLEX (1)	919	1756	3798	2385	2581	3072	4307	6191
COMPLEX (2)	0	0	0	0	238	346	311	396
COMPLEX (3)	2360	1947	791	2193	1790	500	310	3
COMPLEX (4)	2	6	0	0	0	0	7	10
TRIPLE SUPER PHOSPHATE	14	7	3	10	240	16	68	5
MURIATE OF POTASH	113	124	161	99	89	142	238	295
SULPHATE OF POTASH	0	0	0	0	0	0	3	0
OTHER NITROGEN FERTILIZER	0	0	0	0	0	0	1	0
TOTAL (IN PRODUCT TONS)	4769	5637	6897	6800	7672	7022	8871	10153
N TOTAL (IN N TONS)	1095	1389	1786	1744	2088	2103	2553	2787
P205 TOTAL (IN P205 TONS)	544	647	880	810	950	776	1110	1378
K20 TOTAL (IN K20 TONS)	422	367	216	389	322	160	191	178

NOTE: ASI-21% AS2-26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(23) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
 - MID-WESTERN TOTAL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	134	257	318	334	473	348	383	791
AMMONIUM SULPHATE (1)	117	182	187	125	73	74	47	117
AMMONIUM SULPHATE (2)	0	3	0	0	0	0	0	0
AMMONIUM PHOSPHATE	0	0	0	0	0	0	1	0
COMPLEX (1)	248	650	616	677	776	523	655	1566
COMPLEX (2)	0	0	0	0	37	96	220	299
COMPLEX (3)	132	33	161	92	118	143	185	43
COMPLEX (4)	0	0	0	0	0	0	0	0
TRIPLE SUPER PHOSPHATE	3	9	10	20	11	2	0	1
MURIATE OF POTASH	46	127	107	78	104	59	60	116
SULPHATE OF POTASH	0	0	0	0	1	0	0	0
OTHER NITROGEN FERTILIZER	0	0	0	0	0	0	0	0
TOTAL (IN PRODUCT TONS)	672	1261	1399	1326	1593	1245	1551	2933
N TOTAL (IN N TONS)	156	292	333	329	415	325	396	777
P205 TOTAL (IN P205 TONS)	71	140	152	159	187	149	209	389
K2O TOTAL (IN K2O TONS)	47	81	89	61	81	57	64	76

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(24) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
- FAR-WESTERN TOTAL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	55	149	149	183	141	94	165	287
AMMONIUM SULPHATE (1)	42	94	37	26	2	1	5	7
AMMONIUM SULPHATE (2)	0	0	0	0	0	0	0	0
AMMONIUM PHOSPHATE	0	0	3	0	0	0	0	41
COMPLEX (1)	120	147	202	198	320	232	389	614
COMPLEX (2)	0	0	0	0	0	11	91	88
COMPLEX (3)	138	402	324	317	111	24	45	17
COMPLEX (4)	0	0	0	0	0	0	0	0
TRIPLE SUPER PHOSPHATE	0	7	1	0	0	0	12	7
MURIATE OF POTASH	22	39	22	23	28	16	23	37
SULPHATE OF POTASH	6	0	0	0	0	0	0	0
OTHER NITROGEN FERTILIZER	0	0	0	0	0	0	0	0
TOTAL (IN PRODUCT TONS)	383	838	738	747	602	378	738	1098
N TOTAL (IN N TONS)	79	178	166	177	147	96	183	286
P205 TOTAL (IN P205 TONS)	45	93	91	87	81	53	110	168
K2O TOTAL (IN K2O TONS)	37	84	62	62	33	13	21	25

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Table II-4(25) CONSUMPTION OF FERTILIZER IN NEPAL BY TYPE AND BY REGION
 - GRAND TOTAL -

	1975	1976	1977	1978	1979	1980	1981	1982
UREA	10062	13660	16289	19789	22323	24266	26672	31396
AMMONIUM SULPHATE (1)	6509	7754	10410	7403	5060	4081	5218	3558
AMMONIUM SULPHATE (2)	12	158	0	21	134	0	0	3
AMMONIUM PHOSPHATE	0	0	3	0	0	0	1247	417
COMPLEX (1)	8326	9424	14252	10648	14699	23155	19786	32508
COMPLEX (2)	0	0	0	1569	2042	622	906	1922
COMPLEX (3)	5058	5652	3205	6395	4804	1242	1138	81
COMPLEX (4)	25	178	27	2	3	69	44	31
TRIPLE SUPER PHOSPHATE	135	74	104	524	317	62	200	33
MURIATE OF POTASH	919	936	941	792	735	655	990	1495
SULPHATE OF POTASH	124	0	61	40	33	5	3	2
OTHER NITROGEN FERTILIZER	0	0	0	2	0	0	1	0
TOTAL (IN PRODUCT TONS)	31162	37836	45292	47185	50150	54157	56204	71446
N TOTAL (IN N TONS)	8424	10696	13013	14115	14480	16984	16799	19373
P205 TOTAL (IN P205 TONS)	2488	2780	3383	3692	4277	4993	5003	7167
K20 TOTAL (IN K20 TONS)	1374	1422	1079	1456	1178	587	771	912

NOTE: AS1=21% AS2=26% CX1=20:20:0 CX2=23:23:0 CX3=15:15:15 CX4=5:6:7

Annex II-5

FERTILIZER RESPONSE IN NEPAL

Table II-5(1) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL

- Nitrogen Fertilizer on Improved Paddy -

Agroclimatic Variation	Location	Application Level (Nkg/ha)				(Yield: kg/ha)
		0	30	60	90	
Hill	Khumal	3,737.4	4,616.1	5,236.8	5,596.8	5,695.2
Terai	Parwanipur	2,578.0	3,070.0	3,454.0	3,730.0	3,898.0
Inner Terai	Rampur	3,093.6	3,720.9	4,204.2	4543.5	4738.8

Note: At the fixed level of 60kg P₂O₅ and 30kg K₂O per ha.

Source: Division of Soil Science and Agricultural Chemicals, DOA.

Table II-5(2) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL
 - Phosphate Fertilizer on Improved Paddy -

Agroclimatic Variation	Location	Application Level (P ₂ O kg/ha)			(Yield: kg/ha)	
		0	44.8	89.6		
Hill	Khumal	4,435.5	45,25.5	4,580.9	4,605.4	4,597.9
Terai	Parwanipur	3,584.8	3,600.9	3,609.0	3,609.1	3,601.2
Inner Terai	Rampur	4,941.3	5,089.4	5,185.4	5,229.2	5,220.9

Note: At the fixed level of 60kg P₂O₅ and 30kg K₂O per ha.

Source: Division of Soil Science and Agricultural Chemicals, DOA.

Table II-5(3) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL
 - Nitrogen Fertilizer on Local Paddy -

Agroclimatic Variation	Location	Application Level (N kg/ha)				(Yield: kg/ha)
		0	20	40	60	
Inner Terai	Rampur	2,740.0	3,113.8	3,363.6	3,489.4	3,491.2
E. Terai	Birathagar	2,403.6	2,490.4	2,517.2	2,484.0	2,390.3
W. Terai	Nepalgunj	1,546.8	1,705.0	1,714.6	1,560.6	1,250.0

Note: At the fixed level of 60kg P₂O₅ and 30kg K₂O per ha.

Source: Division of Soil Science, and Agricultural Chemicals, DOA.

Table II-5(4) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL

- Nitrogen Fertilizer on Improved Wheat -

Agroclimatic Variation	Location	Application Level (N kg/ha)				Yield: kg/ha
		0	30	60	90	
Hill	Khumal	1,665.6	2,308.2	2,884.2	3,396.6	3,836
Terai	Parwanipur	1,527.8	2,186.3	2,691.8	3,098.3	3,387.8
Inner Terai	Rampur	2,523.6	3,343.8	3,876.0	4,120.2	4,076.4

Note: At the fixed level of 60kg P₂O₅ and 30kg K₂O per ha.

Source: Division of Soil Science and Agricultural Chemicals, DOA.

Table II-5(5) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL
 - Phosphate Fertilizer on Improved Wheat -

Agroclimatic Variation	Location	Application Level (P ₂ O kg/ha)			(Yield: kg/ha)	
		0	44.8	89.6		134.4
Hill	Khumal	3,889.6	4,089.2	4,152.4	4,079.1	3,869.3
Inner Terai	Rampur	2,527.2	3,244.8	3,669.5	3,801.1	3,639.7
Tarai	Bhairahawa	3,361.1	3,512.0	3,630.9	3,725.7	3,796.4

Note: At the fixed level of 60kg P₂O₅ and 30kg K₂O per ha.

Source: Division of Soil Science and Agricultural Chemicals, DOA.

Table II-5(6) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL

- Nitrogen Fertilizer on Improved Maize -

Agroclimatic Variation	Location	Application Level (N kg/ha)			(Yield: kg/ha)	
		0	60	120		180
Inner Terai	Rampur	965.8	1,587.4	1,985.8	2,161.0	2,113.0
	Khumal	1,830.8	8,397.8	5,309.6	6,066.2	6,167.6
M. Hill	Kakani	1,821.0	2,003.4	2,121.0	2,173.8	2,161.8

Note: At the fixed level of 60kg P₂O₅ and 30kg K₂O per ha.

Source: Division of Soil Science and Agricultural Chemicals, DOA.

Table II-5(7) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL

- Phosphate Fertilizer on Improved Maize -

Agroclimatic Variation	Location	Application Level (P ₂ O kg/ha)				(Yield: kg/ha)
		0	40	80	120	
Hill	Khumal	4,393.2	4,562.4	4,686.8	4,766.4	4,801.2
Inner Terai	Rampur	2,033.2	2,332.0	2,502.8	2,545.6	2,400.4
M. Hill	Kakani	2,328.0	2,206.0	2,556.0	2,646.0	2,720.0

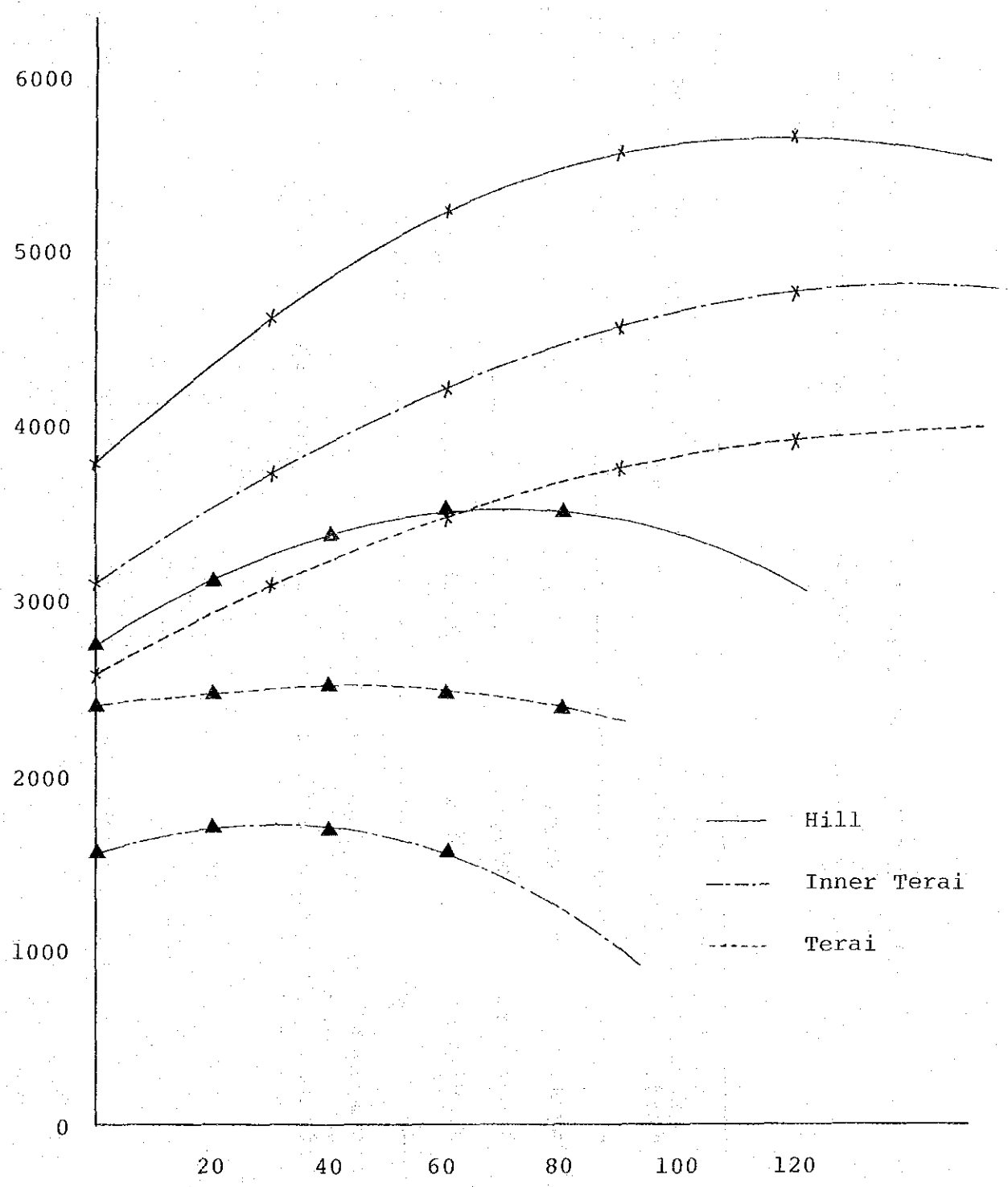
Note: At the fixed level of 60kg P₂O₅ and 30kg K₂O per ha.

Source: Division of Soil Science and Agricultural Chemicals, DOA.

Figure II-1(1)

FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL

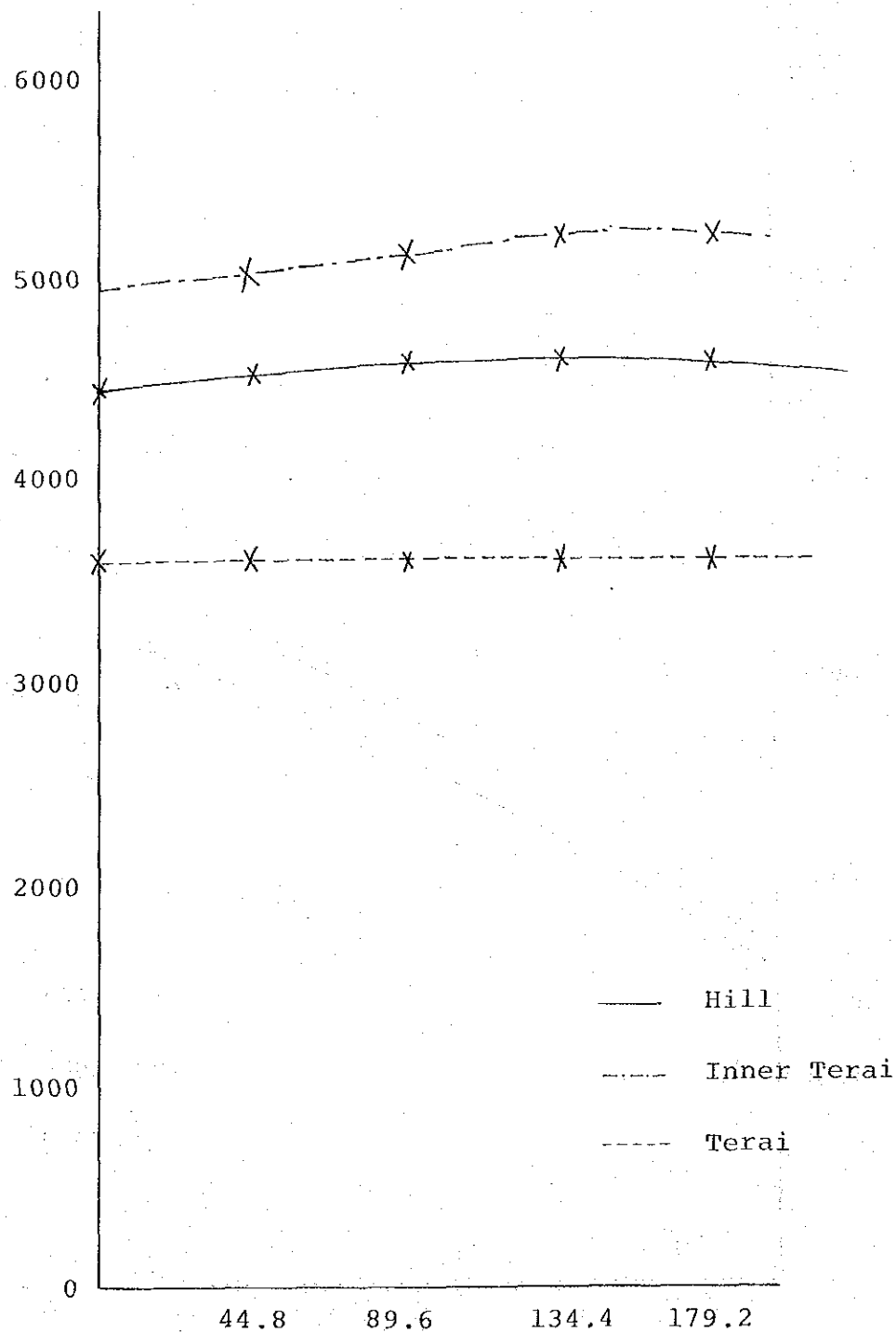
- Nitrogen Fertilizer on Paddy -



Source: Tables II-5(1) and II-5(3)

Figure II-1(2) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL

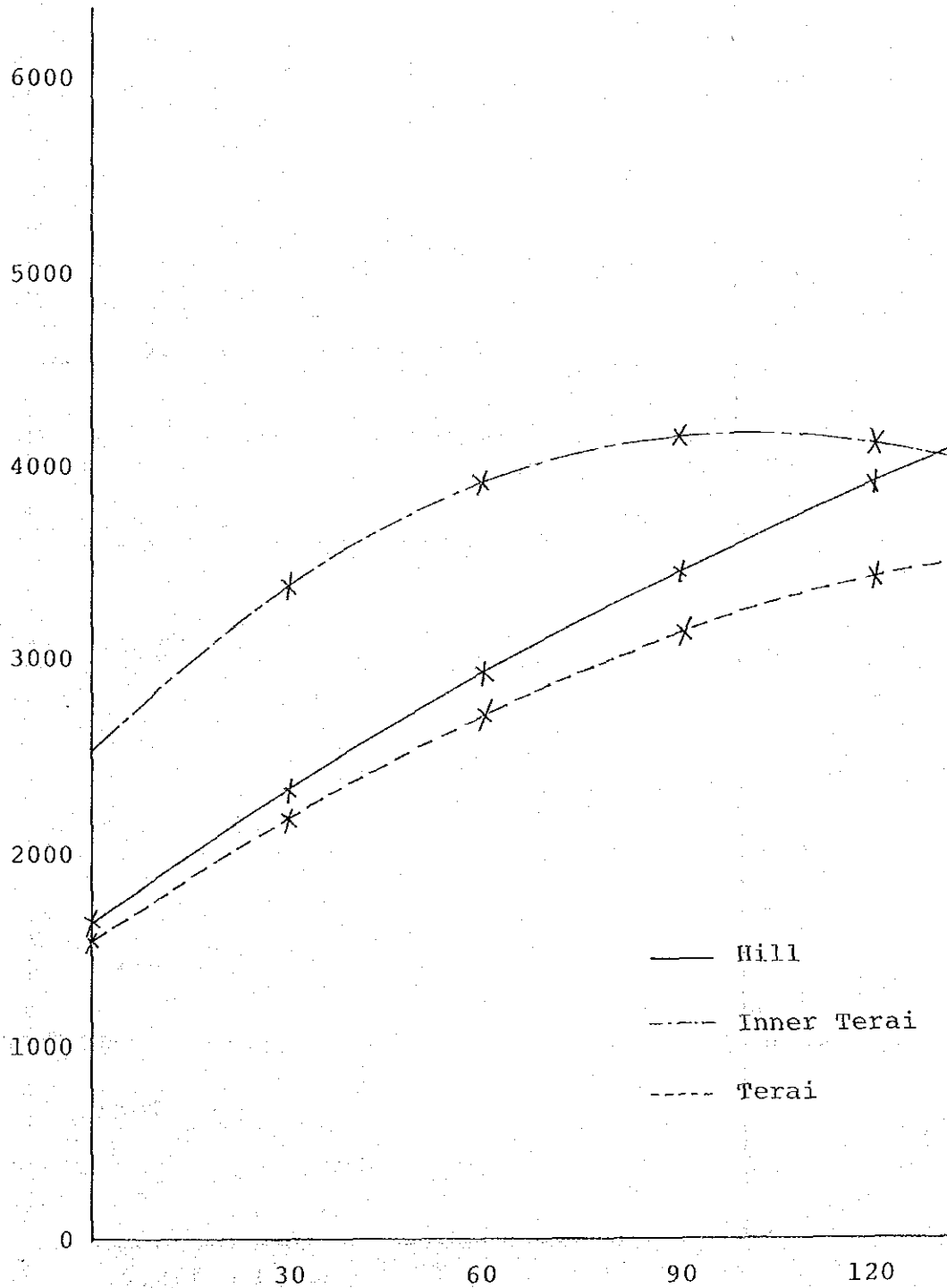
- Phosphate Fertilizer on Paddy -



Source: Table II-5(2)

Figure II-1(3) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL

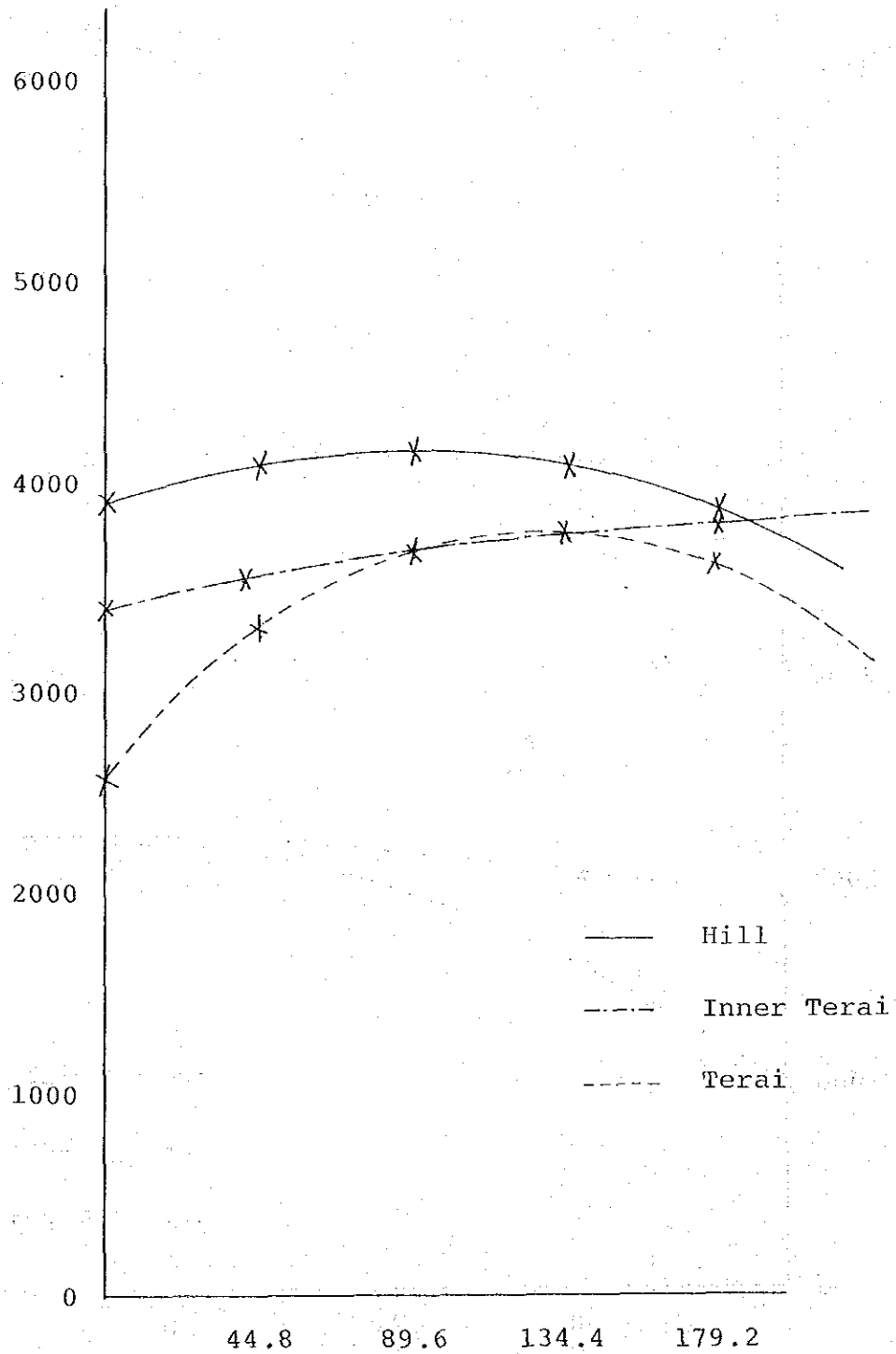
- Nitrogen Fertilizer on Wheat -



Source: Table II-5(4)

Figure II-1(4) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL

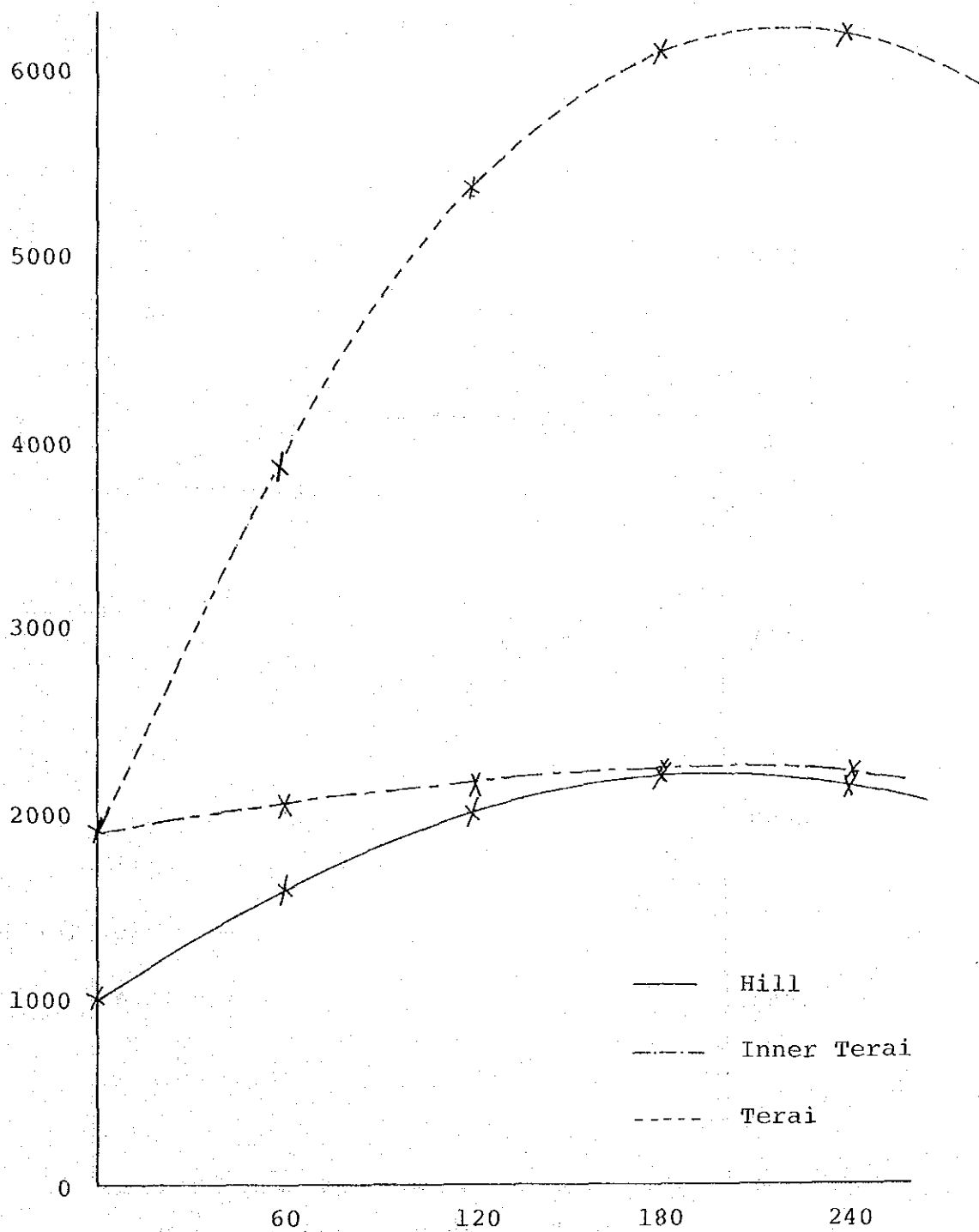
- Phosphate Fertilizer on Wheat -



Source: Table II-5(5)

Figure II-1(5) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL

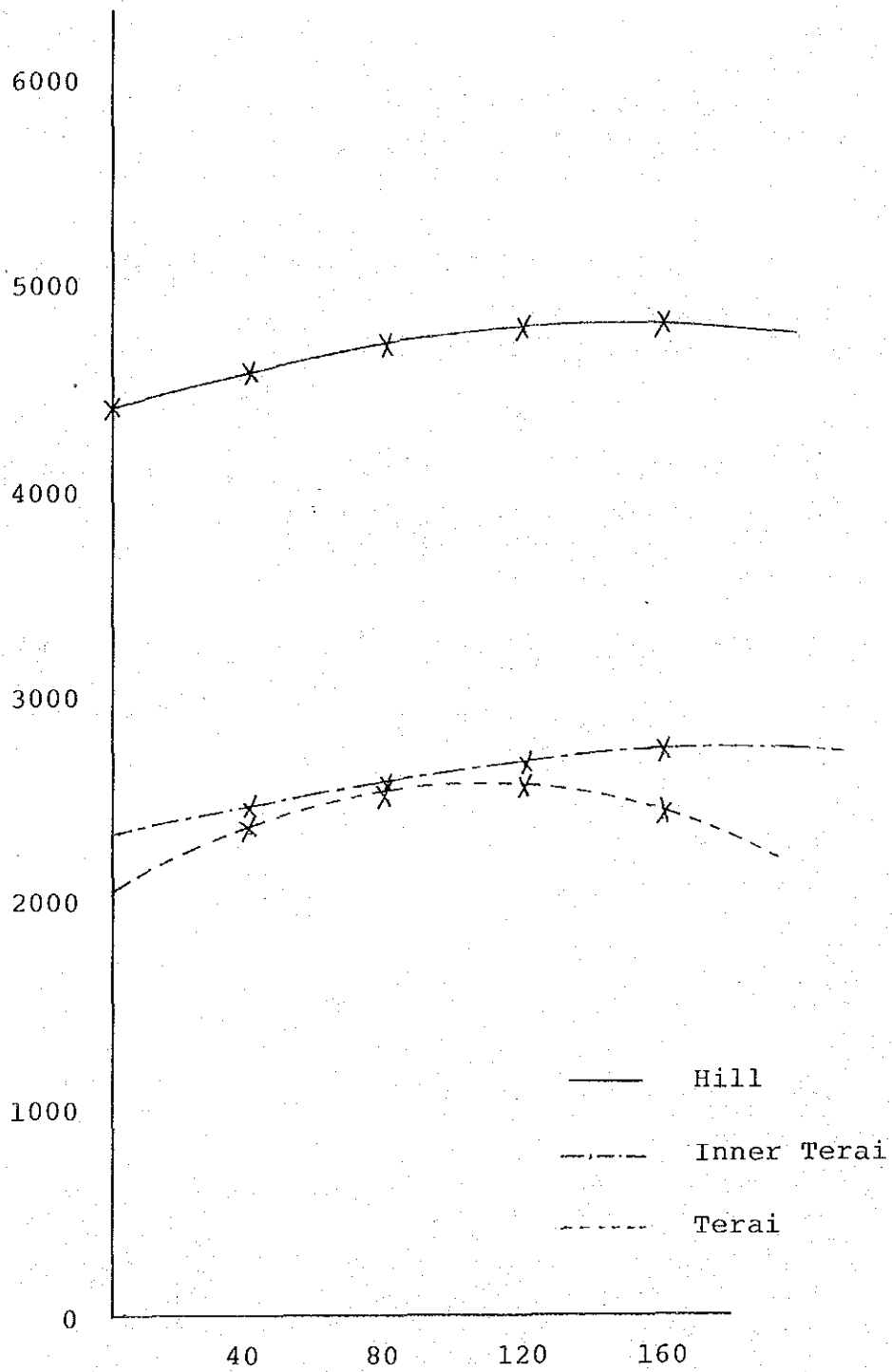
- Nitrogen Fertilizer on Maize -



Source: Table II-5(6)

Figure II-1(6) FERTILIZER RESPONSE OF MAJOR CEREAL CROPS IN NEPAL

- Phosphate Fertilizer on Maize -



Source: Table II-5(7)

Annex III

- Annex III-1 BASIC DATA FOR CARBON DIOXIDE SUPPLIABILITY CONDITIONS AT CEMENT PLANTS IN NEPAL**
- Annex III-2 PRICE INFORMATION IN NEPAL FOR CONSTRUCTION MATERIALS, LABORERS, WORKS, AND INLAND TRANSPORT FROM CALCUTTA**
- Annex III-3 ELECTRIC POWER CONSUMPTION AND OVERALL LOAD FACTOR INCREASE AT THE UREA FERTILIZER PLANT**
- Annex III-4 WATER ELECTROLYSIS PROCESSES**

