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TA 7762-NEP Preparation of the
Agricultural Development Strategy (ADS)

Inception Report

Prepared for

Government of Nepal

With the support of

**ADB, IFAD, EU, FAO, SDC, JICA,
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Kathmandu, 5 September 2011

PREFACE

This document¹ is the Inception Report for the Asian Development Bank’s Technical Assistance (TA) No. 7762-NEP on *Preparation of the Agricultural Development Strategy*.

The Inception Report draws upon the consultations and analytical work conducted by the TA Team of consultants in collaboration with senior officers from Ministry of Agriculture and Cooperatives. The report takes into account the consultations held with numerous stakeholders including the participants to the Inception Workshop held on 14 July 2011 in Kathmandu and the comments by Ministry of Agriculture and Cooperatives, Asian Development Bank, and IFAD.

The views presented in the report are the responsibility of the TA Team and do not necessarily reflect the view of the Government of Nepal, Asian Development Bank, and IFAD.

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Kathmandu, 9 September 2011

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ABBREVIATIONS

ACI	Agrifood Consulting International
ADB	Asian Development Bank
ADBN	Agriculture Development Bank Nepal
AGDP	Agricultural Gross Domestic Product
AIC	Agricultural Inputs Corporation
AICL	Agricultural Inputs Company Limited
AoA	Agreement on Agriculture
APP	Agriculture Perspective Plan
APP-IAP	APP Implementation Action Plan
APP-ISR	APP Implementation Status Review
APPMU	APP Monitoring and Analytical Unit
APPSP	Agriculture Perspective Plan Support Programme
AR	Agricultural Roads
ARs	Agricultural Research Stations
ASCs	Agriculture Service Centers
ASPR	Agriculture Sector Performance Review
BA	Bangkok Agreement
BIMST-EC	Bengal Initiative for Multi-sectoral Technical and Economic Co-operation
BISEP-ST	Biodiversity Sector Support Programme – Siwalik Terai
BMI	Body Mass Index
BSP	Biogas Support Programme
CADIC	Central Agriculture Development Implementation Committee
CBOs	Community Based Organizations
CBS	Central Bureau of Statistics
CDO	Chief District Officers
CDR	Central Development Regions
CF	Community Forestry
CGISP	Community Groundwater Irrigation Sector Project
CGS	Competitive Grant System
CLDP	Community Livestock Development Project
CPI	Consumer Price Index
DADC	District Agricultural Development Committee
DADOs	District Agriculture Development Office/Officer
DDC	District Development Committee
DDCN	Dairy Development Corporation Nepal
DFCC	District Forest co-ordination Committee
DFID UK	Department for International Development
DFO	District Forest Officer
DLS	Department of Livestock Services
DLSO	District Livestock Office
DOA	Department of Agriculture
DOF	Department of Forests
DOI	Department of Irrigation
DOLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DOLS	Department of Livestock Services
DOSTAMI	Department of Shallow Tube Well and Minor Irrigation
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
DSCW	Department of Soil and Water Conservation
DTO	District Technical Office
DTWs	Deep Tube Wells
EA	Executing Agency
EDR	Eastern Development Regions

EIA	Environmental Impact Assessment
EU	European Union
FAO	Food and Agriculture Organization
FCO	Fertiliser Control Order, 1999
FECOFUN	Federation of Community Forestry User Groups Nepal's
FFE	Food for Education
FFW	Food for Work
FG	Farmer's Group
FIs	Fertilizer Inspectors
FSN	Food Security and Nutrition
FTA	Free Trade Area
FU	Fertilizer Unit
FWDR	Far Western Development Regions
FY	Fiscal Year
GAP	Government Action Plan
GATT	General Agreements on Tariffs and Trade
GDP	Gross Domestic Product
GEED	Gender Equity and Environment Division
GI	Geographical Identification
GO	Government Organizations
GON	Government of Nepal
GTZ	Gesellschaft für Technische Zusammenarbeit, GmbH
ha	hectare
HARP	Hill Agriculture Research Project
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HLTF	High Level Task Force
HMGN	His Majesty Government of Nepal
HRD	Human resources development
HRM	Human resources management
HRP	Hill Research Programme
HVCA	Hazard, Vulnerability and Capacity Assessment
HVCs	High Value Commodities
IAPP	Interim Agriculture Perspective Plan
IAU	Independent Analytical Unit
ICT	Information and Communication Technologies
IDA	Iron Deficiency Anemia
IDD	Iodine Deficiency Disorder
IEE	Initial Environmental Examination
IFAD	International Fund for Agriculture Development
INGO	International Non Government Organizations
IP	Irrigation Policy
IPC	Integrated Food Security Phase Classification
IPM	Integrated Pest Management
IPNMS	Integrated Plant Nutrient Management Systems
JICA	Japan International Cooperation Agency
km	kilometer
LF	Leasehold Forestry
LFP	Livelihoods and Forestry Programme
LSC	Livestock Service Centre
LSGA	Local Self Governance Act
M&E	Monitoring and Evaluation
MDG(s)	Millennium Development Goal(s)
MFN	Most Favored Nation
MFSC	Ministry of Forest and Soil Conservation
MOAC	Ministry of Agriculture and Cooperatives
MOE	Ministry of Environment

MOEN	Ministry of Energy
MOF	Ministry of Finance
MOI	Ministry of Irrigation
MOH	Ministry of Health
MOLD	Ministry of Local Development
MoST	Ministry of Science and Technology
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
mt	Metric ton
MTEF	Medium Term Expenditure Framework
MWDR	Mid Western Development Region
NADC	National Agriculture Development Committee
NAP	National Agricultural Policy
NAPA	National Adaptation Programme of Action to Climate Change
NARC	Nepal Agriculture Research Council
NARDF	National Agriculture Research and Development Fund
NBS	National Bio-Diversity Strategies
NDAC	National Development Action Committee
NEA	Nepal Electricity Authority
NEPAP	Nepal Environmental Protection Action Plan
NFP	National Fertilizer Policy 2002
NGO	Non-Governmental Organization
NGO	Non Government Organisation
NITP	New Irrigation Technology Projects
NLSS	National Living Standard Survey
NPC	National Planning Commission
NSC	National Seed Company Private Limited
NSC	National Support Committee
NTFPs	Non Timber Forest Products
O&M	Operation and Maintenance
OFMP	Operational Forest Management Plan
PF	Private Forests
PPP	Prioritized Productivity Package
PPP	Public Private Partnership
PPS	Pocket Package Strategy
PRA	Participatory Risk Assessments
PRSP	Poverty Reduction Strategy Paper
PTA	Preferential Trade Agreement
RADC	Regional Agriculture Development Committee
RAP	Rural Access Programme
RARS	Regional Agricultural Research Station
RCA	Root-cause analysis
REDP	Rural Energy Development Programme
RIP	Rural Infrastructure Development Policy
RO	Rural Organization
Rs	Nepali Rupees
RTAs	Regional Trading Agreements
SAFTA	South Asian Free Trade Area
SAPL	Second Agriculture Programme Loan
SAPTA	South Asian Preferential Trading Arrangement
SC	Service Centers
SDC	Swiss Agency for Development and Cooperation
SOP	Standard Operations Procedures
SPS	Sanitary and Phyto-Sanitary Measures
SRI	System of Rice Intensification
SSC	Service Sub Centers

SSN	Social Safety Nets
STWs	Shallow Tube Wells
TA	Technical Assistance
TLDP	Third Livestock Development Project
TRIPs	Trade Related Intellectual Property rights
TU	Tribhuvan University
TWT	Technical Working Team
VAD	Vitamin A Deficiency
VAM	Vulnerability Assessment Map
VARG	Vulnerability and Adaptation Resource Group
VAT	Value Added Tax
VDC	Village Development Committee
WDR	Western Development Regions
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization
WUAs	Water User Associations

SUMMARY

1. The Inception Report for the Technical Assistance (TA) 7762-NEP *Preparation of the Agricultural Development Strategy* presents the objectives, the approach and methodology, and the work plan for the TA. It also provides a short review of trends and key issues that will be analyzed more in detail over the subsequent phases of the assignment. The TA is funded by Government of Nepal with support of the Asian Development Bank (ADB), International Fund for Agricultural Development (IFAD), European Union (EU), Food and Agriculture Organization (FAO), Swiss Agency for Development and Cooperation (SDC), Japan International Cooperation Agency (JICA), Denmark Agency for International Development (DANIDA), and United States Agency for International Development (USAID). Other development partners including WFP, the World Bank, USAID, AusAID, CIDA, FINNIDA, and DfID, have expressed interest in engaging in the process of preparation of the strategy. The Executing Agency (EA) is the Ministry of Agriculture and Cooperatives (MOAC). The Steering Committee is co-chaired by Ministry of Finance (MOF) and MOAC.

2. The objective of the TA is to prepare an agriculture development strategy (ADS) with a 20-year vision and a 10-year planning horizon. The impact is sustainable growth in value in an agriculture sector that is more resilient to climate change. The outcome is a draft of the ADS submitted to the MOAC and approved. The preliminary review of trends and issues conducted in the inception report has highlighted a number of findings to guide the preparation of the strategy:

- a) **Growth Potential.** In spite of considerable challenges, the agricultural sector in Nepal has the potential of growing tremendously and making a significant contribution to overall GDP increase, poverty reduction, and sustainable use of natural resources.
- b) **Food Security and Commercialization.** While the need for increasing cereal productivity will be an important part of the ADS, most agricultural growth in Nepal will rely upon realizing its comparative advantage in high value products such as horticulture, livestock, fisheries, spices, and medicals and aromatic plants. This will require commercialization and development of agribusiness.
- c) **Appropriate Technology.** The country has an extraordinary variety of agroecological environments and social diversity. Green revolution type of technologies might be appropriate in some part of the Terai; different types of technologies and interventions will be needed in the hills or mountains and for different type of commodities (crops, livestock, fisheries, and forestry). The ADS will need a sophisticated understanding of the processes of generating and disseminating technologies. It will need to consider both the supply side and the demand side of technology, including the key aspect of adoption of technology.
- d) **Trade and Competitiveness.** The ADS will require a clear and sustainable strategy to increase competitiveness. Competitiveness of Nepal agricultural products is low and declining. Most exported products are in raw form and value addition is done in destination markets. The potential for high value food and agricultural exports is limited by the lack of a well functioning system for quality and safety control, low technology, difficulty of doing business, and poor infrastructure. A pegged exchange regime with India has resulted in erosion of competitive edge of Nepalese products in exports to India as well as in domestic markets. A highly subsidized agricultural system in India makes it harder for Nepali products to compete.

- e) **Level and Effectiveness of Investment.** The ADS will be a strategy aimed at sustainable growth and poverty reduction. To achieve the aim will require considerable increase in investment from government, private sector, cooperative sector, and development partners. One of the key performance indicators will be the amount and the effectiveness of investment projects realized in the country.
- f) **Gap between Policy and Implementation.** Nepal has already a rich body of policies that are often well formulated and appropriate. While the existing policies can be improved and new policies are needed, one main issue is the large gap between policy and implementation. This is the outcome of a number of factors related to weaknesses in planning and institutional capacity, lack of supporting legislation, irregular and inadequate funding, limited human resources (both size and skills), weak accountability systems, and irregular and weak policy and program monitoring and evaluation. The ADS will need to address these “software” aspects in as much detail as the “hardware” aspects of technology and infrastructure.
- g) **Social and Geographic Inclusion.** The direct beneficiaries of the ADS will be the smallholder farmers forming the backbone of the agricultural sector in Nepal, the small and medium enterprises involved in the commercialization and value addition of agricultural products, and the workers and communities involved in agricultural production and post-production activities in different geographic areas of the country. Indirectly, the ADS will benefit the overall society through the supply of food and agricultural products, the sustainable management of natural resources, and the generation of productive employment in the rural non-farm sector.
- h) **Climate Change.** As underlined by the National Adaptation Programme of Action (NAPA) Climate Change “threatens to reduce the effectiveness of development initiatives across Nepal”. Hence, effective climate change adaptation is required to counter the negative effects of climate change on development.

3. The scope of the ADS includes: (i) Food security, agricultural productivity, connectivity and resilience; (ii) Sustainable production and resource management through climate change mitigation; (iii) Adaptation and improved land and water management and water allocation; (iv) Increased private sector development (including cooperative sector), delivering fair reward to all stakeholders in the value chain; and (v) Policies, institutions, and investments.

4. The approach of the TA is based on the combination of three pillars: (i) a broad view of the agricultural sector; (ii) external peer reviews; and (iii) effective communication and broad consultations. The TA will be implemented over 4 phases.

5. *Phase 1-Assessment* will address the key question: Where are we now and why? This will involve a review and assessment of the agricultural sector, its trends, the key constraints, and the policy and institutional issues and gaps. *Phase 2-Vision* will address the key question: Where do we want to be over the next 20 years? This will entail to articulate a long-term vision for the agricultural sector in Nepal. *Phase 3-Policy Options* will address the key question: How do we go from where we are (the current situation of agricultural sector in 2011) to where we want to be (the vision for 2030)? The effort will be to explore different options for policy and investments. *Phase 4-Road Map and Action Plan* will address the key question: what road map will we choose and what milestones will be along the road map? The idea here is to select the strategy and formulate action plans that guide the implementation of the strategy.

6. A number of mechanisms ensure that the preparation of the ADS is based not only on sound analytical work but also on extensive consultations with a broad range of stakeholders. Consultations will involve: (i) key informants interviews; (ii) policy roundtables; (iii) national and regional workshop; (iv) a national conference; (v) thematic groups; (vi) external reviews; (viii) field work; and (ix) steering committee meetings. There will be 13 thematic groups on different topics to help the TA Team improve formulation of the ADS. The work plan and deliverables in each phase are detailed in the following table:

Phase	Period	Activities	Deliverables
Phase 1: Inception and Assessment	April 2011 to September 2011	1.1 Mobilization and Start up 1.2 Office Refurbishing 1.3 Data and Literature Review 1.4 Initial Consultations 1.5 Policy Roundtable 1.6 Initial Strategic Meeting 1.7 Inception National Workshop 1.8 Inception Report 1.9 Field Work 1.10 Analysis and Consultations 1.11 Thematic Group Meetings 1.12 Project Steering Committee Meetings 1.13 Initial Assessment Report 1.14 Regional Workshops 1.15 National Assessment Workshop	Inception Report Assessment Report
Phase 2: Vision	October 2011 to November 2011	2.1 Regional Workshops 2.2 Field Consultations 2.3 ADS Conference and Vision Workshop 2.4 Vision and Preliminary Strategies Report 2.5 Thematic Group Meetings 2.6 Project Steering Committee Meetings	Vision Report ADS Conference Proceedings
Phase 3: Policy Options	December 2011 to March 2012	3.1 Develop Strategy and Policy Options 3.2 ADS Options Workshop 3.3 ADS Options Report 3.4 Thematic Group Meetings 3.5 Project Steering Committee Meetings 3.6 Field Consultations	ADS Options Report
Phase 4: Implementation Plan and Road Map	April to December 2012	4.1 Prepare ADS 4.2 Prepare Road maps 4.3 Thematic Group Meetings 4.4 Project Steering Committee Meetings 4.5 Prepared Cost Estimates 4.6 ADS Regional Workshops 4.7 ADS National Consultations 4.8 ADS Draft Report 4.9 ADS Final Workshop 4.10 ADS Final Report 4.11 Field Consultations	ADS Draft Report (Sep 2012) ADS Final Report (Dec 2012)

1 INTRODUCTION

7. This document is the Inception Report for the Technical Assistance (TA) 7762-NEP on *Preparation of the Agricultural Development Strategy* (henceforth, the TA will be referred as simply “ADS”). The TA is funded by Government of Nepal (GON) with support² by Asian Development Bank (ADB), International Fund for Agricultural Development (IFAD), European Union (EU), Food and Agriculture Organization (FAO), Swiss Agency for Development and Cooperation (SDC), Japan International Cooperation Agency (JICA), Denmark Agency for International Development (DANIDA), and United States Agency for International Development (USAID).

8. The report presents the objectives, the approach and methodology, and the work plan for the TA. It also provides a short review of trends and key issues that will be analyzed more in detail over the subsequent phases of the assignment.

1.1 Background and Rationale of the TA

9. Since 1995, the long-term (20 year) strategy for the agricultural sector has been the Agriculture Perspective Plan (APP), a strategic document that was formulated in the mid-1990s with the support of Government of Nepal and development partners. The APP has been reviewed at different stages; an early review was in 2001-2005 during the Agricultural Sector Performance Review (ASPR) funded by ADB and more recently in 2006 with the APP Implementation Status Report (APP-ISR).

10. In the period subsequent to 2007, it was increasingly perceived by different stakeholders in the Government of Nepal (GON) and society at large that the initial formulation of the APP required revision in view of several factors including (i) a new national and international context; (ii) a general perception that the APP had not been successful in achieving its main targets; and (iii) the practical matter of the period of validity of the APP (1995-2014) approaching its end and the need of a new long-term strategy.

1.1.1 New National Context

11. The reference to the new context has both national and international dimensions. New dimensions in the national context include (i) better connectivity (roads, internet, mobile); (ii) outmigration and remittances; (iii) moving towards decentralization and community participation; and (iv) new political context.

12. The implications of these new dimensions for the agricultural context are numerous and suggest a new way of thinking about agricultural development. Better connectivity implies not only easier access to markets, but also improved and faster access to information and ideas. This is true not only for sophisticated and well-endowed urban consumers, but also for poor rural households.

² The number of development partners supporting the preparation of the ADS is growing. Ongoing discussions include the World Food Programme, the World Bank, DfID, CIDA, AusAID, UNICEF, and Government of Finland.

The success of e-choupal in India³ and ICT penetration in Southeast Asia has demonstrated innovative options for linking smallholder farmers to markets and access to technology.

13. Outmigration, particularly youth from rural areas, has reached major size, with an estimated 200,000 (see Dahal 2011) youth in 2010 migrating abroad in search of productive employment not available at home⁴. Official workers' remittances in 2008/09 were Rs. 209 billion (almost \$3 billion) according to the Ministry of Finance (see Economic Survey 2009/10). While this social response has considerable social costs in terms of feminization of agriculture, an unbalanced social texture in rural areas, and a problem of absorption of this labor force when it eventually will reenter Nepal (as in the case of periodic crisis); it has also some positive aspects in terms of remittances and bringing back new skills and capacity. Remittances provide a safety net for many Nepali families and a source of investment. Allegedly most of the investment made possible by remittances is oriented towards non-agricultural uses. It could conceivably be also a source of investment in the agricultural sector (and agribusiness) if a more favorable investment climate were to emerge as a result of a new agricultural development strategy.

14. The move towards decentralization and community participation has a policy and legal basis in the Local Self Governance Act (LSGA) of 1999. The dissatisfaction in several rural communities arising from their long-term neglect by the central government has accelerated this movement toward decentralization and community participation. The interaction between central and local government in the planning and implementation of agricultural program will be a key issue to be addressed in the ADS.

1.1.2 New International Context

15. New dimensions in the national context include (i) unstable and increasing world food prices; (ii) climate change; (iii) rapidly growing regional markets.

16. After almost two decades of long-term decline in commodity prices in the 1980s and 1990s up to the mid 2000's, prices of commodities, including most food commodities have started to rise and become unstable. In 2008, there was talk of a food crisis, and more recently prices are rising again. After 2008, most food prices seem to have reached a new plateau at a higher level than pre-crisis. This presents challenges and opportunities for a country like Nepal. If its agricultural trade continues to be weak and foods are imported, high international prices might have a negative impact on food security. On the other hand, as a potential large exporter of agricultural commodities (including horticultural products and high value products such as spices, essential oils, medicinal plants, beverages), Nepal could also benefit from high international prices of commodities provided that its productivity and competitiveness increase.

³ See World Resources Institute 2003, ITC's E-Choupal And Profitable Rural Transformation, What Works Case Study, available at http://www.nextbillion.net/lib/assets/documents/eChoupal_Case_Study.pdf

⁴ Madan Kumar Dahal 2001, Nepalese Economy: Obsolescence, Underpinnings and Approaches to Sustainable Development. The crude estimation suggests that size of foreign employment surpassed 2 million spread over several leading destinations comprising Malaysia, South Korea, Saudi Arabia and Gulf Countries, Hong Kong and other countries. In addition, it is estimated that approximately 1 million workers are employed in India.

17. Climate change issues at the forefront. In the early 2000, spearheaded by the Kyoto Protocol, climate change issues have become progressively at the forefront of the development debate. Research, training, policies, and institutions have been established to address the issues of mitigation and adaptation to climate change (see Box 1). Impact on agriculture is being assessed and the issue will become more pressing over the next two decades.

Box 1 Climate Change and Agriculture

Nepal as largely an agrarian economy is highly sensitive to changes in climate and natural resources availability. Climate change threatens to reduce the effectiveness of development initiatives across Nepal. For example, drying – added to a trend of warming – will impair food security and affect the availability of water resources. This will increase the vulnerability of marginalized and poor people in both rural and urban areas of western Nepal. Further increases in the intensity of rains in other parts of Nepal – particularly those where the topography is broken and soils eroded – will experience increased flooding and landslide risks threatening human security, water supplies, and urban infrastructure. Hence, effective climate change adaptation is required to counter the negative effects of climate change on development.

Source: Ministry of Environment (2010) National Adaptation Programme of Action (NAPA) to Climate Change.

18. Nepal is located among two large and rapidly growing economies (India and China). The proximity and a number of trade relations established over the years provide enormous opportunities for trade in food and agricultural products and a considerable source of investment finance. So far, these opportunities have not been seriously tapped. Considerable effort is required in order to increase competitiveness of Nepali products and ensure an increasing share of value addition to these products is undertaken in Nepal.

1.2 Objectives, Impact, and Outcome of the Assignment

19. The Government of Nepal (GON) has decided to develop a long-term strategy for the agricultural sector and has requested development partners to support technical assistance (TA) towards preparation of the strategy. APPENDIX 1 contains the terms of reference (TORs) for the TA. The policy and advisory TA for the preparation of the Agricultural Development Strategy (ADS) is supported by a number of donors including ADB, IFAD, EU, FAO, SDC, and JICA. Other donors have also expressed interest in supporting the ADS (see APPENDIX 3)

20. The ADS TA started in April 2011. The Steering Committee⁵ is co-chaired by the Secretaries of Ministry of Finance (MOF) and Ministry of Agriculture and Cooperatives (MOAC). Several thematic groups are being organized around the key policy issues affecting the sector (see Chapter 6).

21. The formulation of the ADS will be based on in-depth assessment of the current situation, participatory formulation of a long-term vision for the agriculture sector, the identification and analysis of alternative policy and investment options to achieve the vision, and the preparation of implementable plans. During the process of preparation of the ADS the TA Team will be guided by

⁵ The composition of the Steering Committee is in Table 18.

the Steering Committee and benefit from consultative meetings with numerous stakeholders at central, regional and local levels.

22. The objective, impact and outcome of the TA are presented in Figure 1.



Figure 1 Objective, Impact, and Outcome of the TA

23. This report is organized into 9 chapters as follows:

Chapter 1.	Introduction
Chapter 2.	Past Trends
Chapter 3.	Quick Review of APP
Chapter 4.	Current Issues
Chapter 5.	Opportunities and Threats
Chapter 6.	Looking Ahead – Scenarios and Strategies
Chapter 7.	Approach and Methodology
Chapter 8.	Work Plan and Deliverables
Chapter 9.	Progress so Far and Next Steps

24. The report includes 6 appendices as follows:

Appendix 1.	TOR for Consultants
Appendix 2.	TA Team
Appendix 3.	Development Partners’ Engagements in the ADS
Appendix 4.	Agricultural Sector Institutions
Appendix 5.	Plans, Policies, and Acts
Appendix 6.	Persons met

2 AGRICULTURAL SECTOR TRENDS

2.1 Introduction

25. For the purpose of the ADS, the **agricultural sector goes beyond the domain of only one central agency such as the Ministry of Agriculture and Cooperatives (MOAC)**. During the preparation of the ADS, the TA will refer to an agriculture sector that:

1. Includes crops, livestock, forestry, and fisheries
2. Includes production, trade, processing, and marketing
3. Spans across different ministries and agencies
4. Includes not only government agencies but farmers and their organizations, private sector enterprises and their organizations, and NGOs.

26. The objective of this chapter is to present a summary discussion of major trends in the agricultural sector of Nepal that are relevant to the preparation of the ADS and the discussion of key issues in chapter 4. A more detailed analysis of trends will be available in the Assessment Report to be prepared by September 2011.

2.2 Rural Population and Poverty

27. The rural population remains large and increasing despite urbanization, from about 18 million (89% of total) in 1996 to 24 million (82%) in 2010 (Table 1). Agriculture employed about 5.9 million persons in 2001, 66% of the total skilled and semi-skilled workforce⁶, with a further unidentified number in subsistence and unskilled agricultural livelihood.

Table 1: Population and Poverty

Census Year	Total Population	Rural Population	Population below Poverty Line
1981	15,023,000	14,062,000	40%
1991	18,491,000	16,790,000	42%
2001	23,151,000	19,933,000	31%
2010 estimated	28,043,000	24,432,000	25%

Source: EIC Survey 1977; National Living Standards Survey 1995, 2005; Central Bureau of Statistics 2009

2.3 Agricultural GDP Growth and Composition

28. The agriculture sector including forestry and fishing, continues to grow in value (see Figure 2), and is a major component of the national economy although declining in share, contributing 40% of gross domestic product (GDP) in 1996 and 35% in 2010⁷ and up to 80% of exports⁸.

⁶ Total employment 8.9 million, agriculture employment 5.9 million, 2001 census.

⁷ In constant 2001 prices.

⁸ Including timber, non-timber forest and rangeland products and other agro-based products (APP Implementation Status Report, vol.1 2006, MOAC). Food, live animals, tobacco, beverages, animal and plant fats and oils comprise 30% of exports (MOAC Statistics 2010).

29. Agricultural sector growth has averaged 3.0%, slightly below the total national GDP average growth of 3.5% in the past decade⁹ (Figure 3 - Figure 4). A declining trend line is of concern, and the erratic growth is a sign that sector performance is highly vulnerable to weather conditions and incidence of pests and diseases. Without extensive year-round irrigation, agricultural performance is directly dependent on adequate monsoon rainfall, and with limited agricultural diversification and low technology, the sector is highly sensitive to natural disasters and pests and diseases. Conflict, loss of workers from agriculture into overseas labor, and inadequate level of support services are other factors that have had a negative effect on production growth.

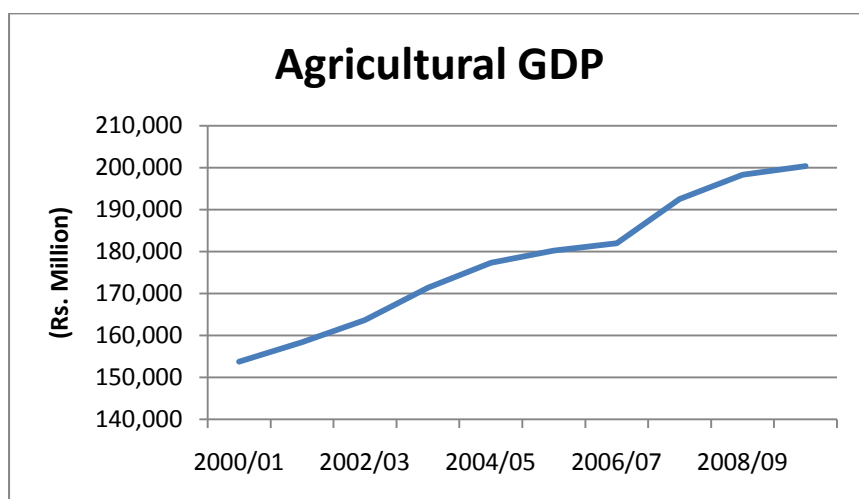


Figure 2: Agricultural GDP

Source: MOAC Statistics, 2011 (constant prices)

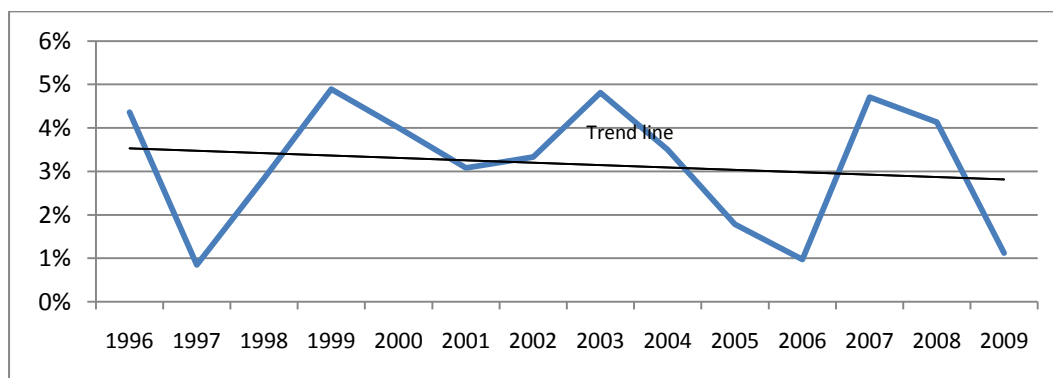


Figure 3: Agricultural GDP growth

Source: MOAC Statistics, 2011 (year on year constant prices)

⁹ CBS, Nepal 2011.

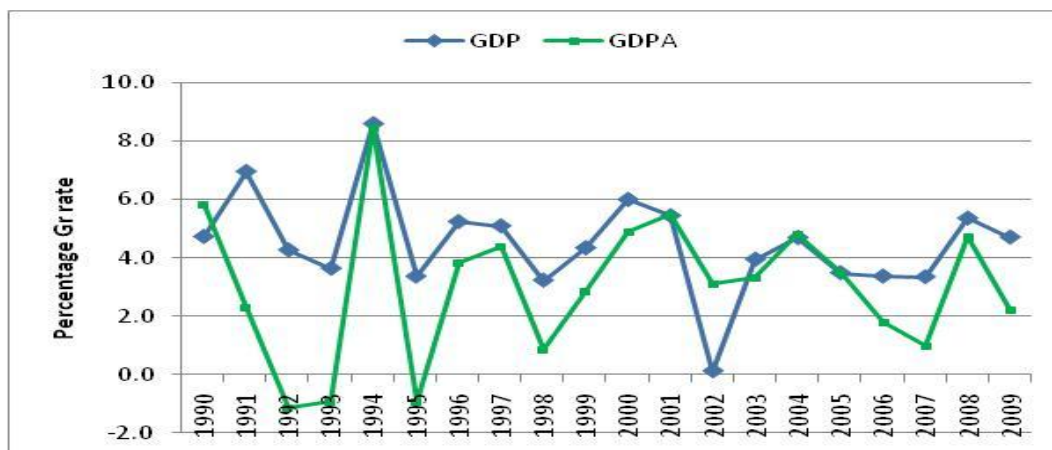


Figure 4: Annual Growth Rate of GDP and GDPA in Nepal (1990 - 2009)
 Source: MoF, 2009 and ADB, 2010. Note: Years shown refer to FY year ending.

30. Between financial years 2002 and 2011, cereal production contributed almost half of agricultural GDP (AGDP) but its share declined (Figure 5). Other sectors except forestry and poultry increased their contribution to AGDP, particularly vegetables (including floriculture and nurseries), dairy, fruits and spices (including tea and coffee). Given that cereal yield was up in 2010/11 due to adequate rainfall, this reflects a strengthening of higher value products, which was a priority strategy of the Agricultural Perspective Plan (APP 1996). It may also reflect farmers switching into more commercially profitable agricultural enterprises, facilitated by improving road access to markets.

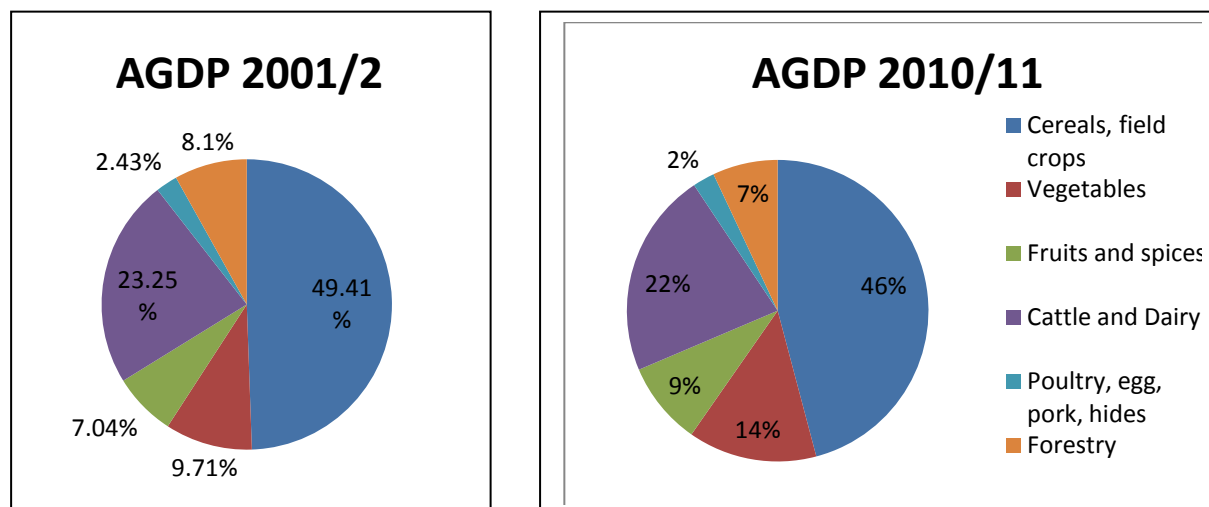


Figure 5: Composition of Agricultural GDP FY2001 and FY2011
 Source: MOAC Statistics, 2011

2.4 Government Support to Agriculture

31. Government expenditures on the agricultural sector include both capital and recurrent expenditures and are presented in Figure 6. There are two clear patterns. First, a dip in sector expenditures in the early 2000’s possibly related to the conflict but also to declining donor assistance (see next section). Second, recurrent expenditures were higher than capital expenditure

during most of the 2000's, an indication that investment programs might have been reduced during this period.

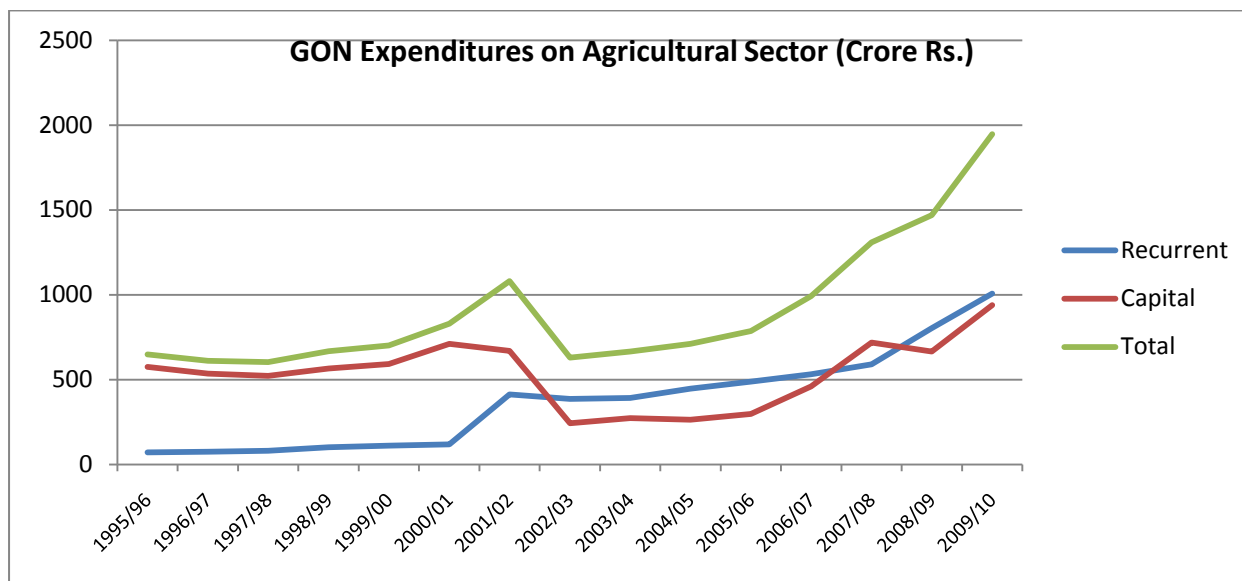


Figure 6 Trends in Government Expenditures in Agricultural Sector

Source: Economic Survey 2010, Ministry of Finance

Note: Agricultural Sector includes: Crops, livestock, Forestry, Irrigation, Land Reform, and Survey

2.5 Donor Assistance to the Agricultural Sector

32. For the first five years after the Government of Nepal began implementing APP, **donor assistance** to agriculture, irrigation and forestry stayed relatively constant until a major change in donor strategy in 2001 away from loans and increasing assistance in grant form (Figure 7). Both loans and grants increased following cessation of conflict in 2006 until 2009.

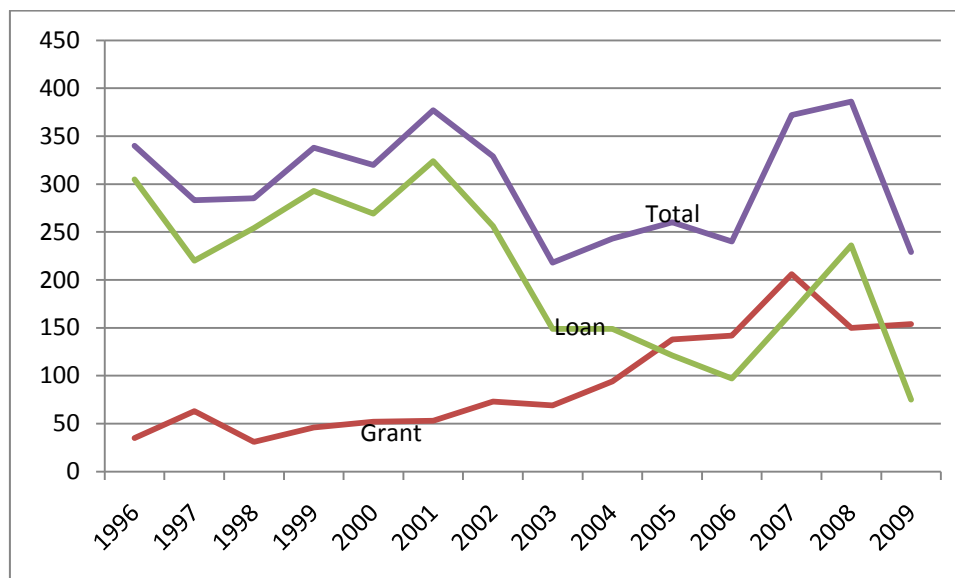


Figure 7: Donor Assistance to the Agriculture Sector (Rs 10 million)

Source: Economic Survey 2010, original data from Financial Comptroller's Office
Includes agriculture, irrigation and forestry.

2.6 Production**2.6.1 Crops**

33. Over the period of the APP (1995/96 to 2009/10), cereals production grew at an average annual rate of 1.84% (see Table 2) which is slightly below the estimated population growth of 2% for most of this period. Most of the production growth is based on yield growth of 1.49%. Within the two subperiods (each of about 7 years) of 1995/96 to 2002/03 and 2002/03 to 2009/10, cereals sector has witnessed a declining growth in terms of production (from 2.64% to 0.81%), yield (from 2.23% to 0.51%), and area (from 0.39% to 0.29%). This overall growth pattern for cereals is mirrored by the growth pattern of rice but is slightly different for other cereals. This is not surprising since rice contributes about 52% of total cereal production. The reduction in yield growth is possibly related to the lower use of modern inputs, declining seed quality and care of crop husbandry and irrigation systems during a period of internal conflict, reduced support to the agricultural sector, increasing outmigration from rural areas, and reorientation of agricultural investment toward higher value crops.

34. Within cereals, maize has been performing well with yield growth above 2%, partly explained by programs of technology transfer with the support of international agricultural centers (such as CYMMIT) and perhaps the increasing demand for feed by the poultry industry.

Table 2 Growth of Cereals by Subperiod

Commodity	Variable	Growth Period			Commodity	Variable	Growth Period		
		1995/96 to 2009/10	1995/96 to 2002/03	2002/03 to 2009/10			y	1995/96 to 2009/10	1995/96 to 2002/03
PADDY	Area	0.01%	0.44%	-0.43%	WHEAT	Area	0.73%	0.24%	1.22%
PADDY	Prod.	1.09%	2.54%	-0.28%	WHEAT	Prod.	3.21%	3.90%	1.45%
PADDY	Yield	1.08%	2.09%	0.15%	WHEAT	Yield	2.45%	3.66%	0.23%
MAIZE	Area	0.80%	0.83%	0.79%	BARLEY	Area	-2.56%	-5.25%	-0.69%
MAIZE	Prod.	3.01%	2.60%	2.97%	BARLEY	Prod.	-2.79%	-3.92%	-2.41%
MAIZE	Yield	2.19%	1.76%	2.17%	BARLEY	Yield	-0.22%	1.40%	-2.10%
MILLET	Area	0.15%	-0.11%	0.57%	CEREAL	Area	0.35%	0.39%	0.29%
MILLET	Prod.	0.18%	-0.14%	0.66%	CEREAL	Prod.	1.84%	2.64%	0.81%
MILLET	Yield	0.03%	-0.03%	0.09%	CEREAL	Yield	1.49%	2.23%	0.51%

Source: Calculations by TA Team based on MOAC Statistical Yearbook (2010)

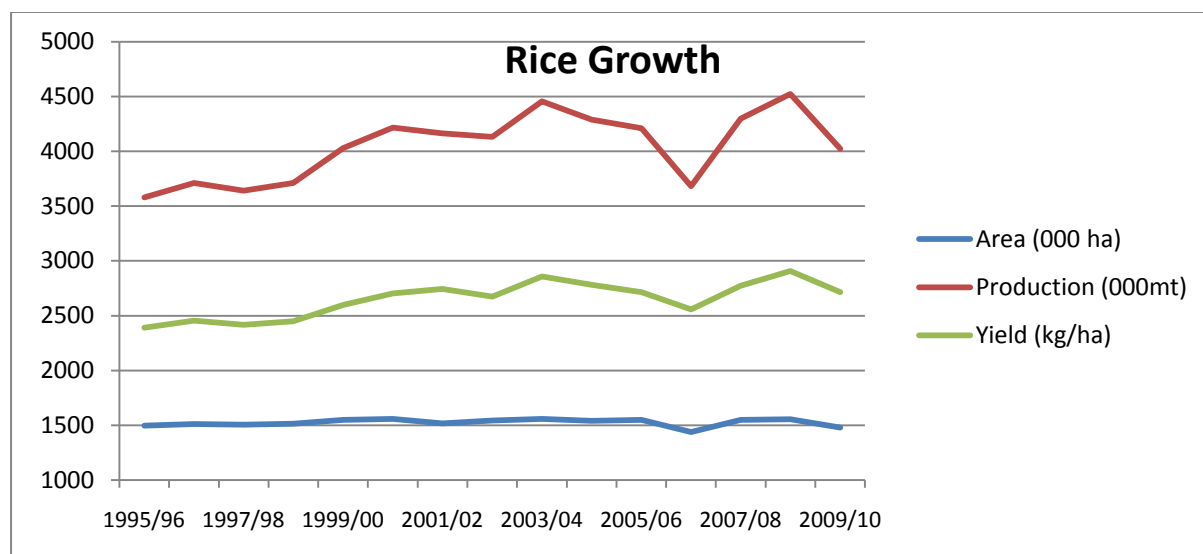


Figure 8 Rice Area, Production, and Yield over 1995/96 to 2009/10

35. Annual productivity growth of pulses and horticulture was 1.5% and 3.7%, respectively, over the 12 year period 1997/1998 to 2009/2010. Cash crop production increased by 87.5% or 7.3% per annum, while production area increase was only 28% or 2.3% per annum with the balance of the increment coming from higher yields and increase cropping intensity, especially for potato with a 51% increase (4.2% pa) and sugarcane with a 21.7% increase (1.75% pa) yield increase.

36. Beverages (Tea and Coffee) were not included in the APP. However, they offer considerable growth potential in the future as unique Nepali products. The area under beverages (Tea and Coffee) has seen a dramatic increase in recent years, though it remains limited relative to other crops. Between 1994/95 and 2007/08, the area of coffee increased by 7.5 times from 200 ha to 1,495 ha, and the area under tea grew 19-fold from 900 ha to 17,500 ha. The Tea policy introduced in the 9th Plan has assisted the good progress of tea estate expansion and production. In 2009/2010 the area of tea was 17,100 ha producing 16,100 mt of tea at an average yield of 0.94 mt/ha, which is low, when compared to good tea yields in India of close to 2 mt/ha. For Arabica coffee the area of 1,650 ha produced only 308 mt of parchment coffee or 246 mt of green bean /ha, which is extremely low, but perhaps some young un-cropped areas may have reduced observed yields. Generally, 0.6 to 2.0 mt/ha of green bean is the usual range for smallholder Arabica coffee.

37. Mulberry and silk production while growing at around 4% pa for silk are still a tiny industry of 26 mt in 2009/2010. Bee Hives and Honey production have grown respectively by 175 fold and 11 fold in the 12 year period 1997/98 to 2009/2010. The base production is still small at around 1100 MT in 2009/2010, but the importance of bees for pollination of many crop species, dictates their attention in ADS. Also, Nepal honey can be made into a good niche product provided close attention is paid to quality and freedom from pesticides in the honey and honey bee disease vigilance is an ongoing essential priority.

38. Mushrooms are a tiny but growing industry for Nepal. Private sector and targeted technology inputs by private sector and NGO's seem to be the preferred intervention modalities. Floriculture has progressed rapidly in Nepal both to satisfy home demand and for exports. Nursery plants, Gladiolus and Roses are the dominant in production followed by Gerbera and orchids. Floriculture is potentially a very high income earner for smallholders.

2.6.2 Livestock

39. The livestock sector contribution is estimated to be nearly 9% of national GDP and about 26% of AGDP ¹⁰(MOAC 2010). Buffalo contributes 65% in meat and 70% in milk production. Average milk production in buffalo is 900 liters per lactation with potential to produce 2000 liters. Average milk production in cattle is 450 liters per lactation with a potential to produce 3000 liters ¹¹(Thakur et al. 2010). Dairy cattle show potential of increasing milk production at a faster rate along highways and around urban areas. Goat production in recent years has become very popular for income generation programs.

40. The livestock sector contribution to AGDP was expected to rise from 31% in pre-APP period to 45% at the end of plan period. APP projected growth rate of 2.9% in pre APP year to 6.1% during plan period. However, this growth rate could not be achieved and contribution of livestock in AGDP has come down to 26% from 31% during the plan period (MOAC 2010).

41. Total milk production in the country is 1.496 million metric tons which has increased with an average annual growth rate of 3.41% during APP implementation period (MOAC 2010). Besides government dairy processing plants, there are 774 private mainly established during this period, with a combined capacity of more than 400,000 liters per day. The Pokhara Milk Supply Scheme was privatized in 2004, as recommended by APP. A total of 158,000 people are employed in the dairy sector. Per capita milk consumption is 51 liters per year (DLS 2010).

42. Total meat production in the country is 250,000 mt and has increased at an average annual rate of 3.35% during APP implementation period. Share of meat production from buffalo, goat, poultry and pig are 65%, 20%, 7% and 7% respectively. Except poultry, domestic meat production is not enough to meet the demand. Per capita consumption of meat is 9 kg per year (MOAC 2010). Total egg production is 65 million per year and it is increasing at an average annual growth rate of 4.31%. Per capita consumption of eggs is 23 per year (DLS 2010). Total wool production in Nepal is 582 mt decreasing at an average of 0.62% per year (DLS 2010).

43. The private sector has invested quite strongly in dairy processing and marketing. Few of these dairies existed before APP implementation. In addition, private sector cheese factories are producing over 400 tons of cheese each year (DLS 2010). Similarly, private sector investment in the poultry sector is about Rs 21 billion.

2.6.3 Fisheries

44. The aquaculture production program in Nepal began in 1981/82 with the execution of the Aquaculture Development Project supported by the Asian Development Bank and the United Nations Development Program. In 1981/1982 aquaculture production was estimated to be 750 mt. It reached 8,317 mt in 1992/93. Aquaculture production continued to increase significantly by the end of the project and reached 20,000 mt in 2003/2004 (MOAC, 2004)¹². From the overall development of aquaculture production trends, pond fish culture was developed into the major production

¹⁰ MOAC (2010). Statistical Information on Nepalese Agriculture, Kathmandu, 2010.

¹¹ Thakur, U.C, Nirmal, B.K and Poudel, L.N. (2010). Need and Sustainability of DCIP:

¹² Ministry of Agriculture and Cooperatives (MOAC) 2004. Statistical information on Nepalese Agriculture 2003/2004. HMG, Ministry of Agriculture and Cooperative Agri Business and Statistical Division, Nepal

system and in 2003/2004 accounted for over 90 percent of production and area coverage in the country. Official data have shown a gradual increase in fish seed production for last 3 decades (DOFD, 2004)¹³. Private sector contribution to the total fish seed production is also on an increasing trend.

45. Aquaculture production was around 28,000 mt in 2009/2010 representing an increase of 18,000 mt from around 10,000 mt in 1994/1995 pre APP (MOAC, 2006)¹⁴. This growth well exceeded the targets of the APP. However, the annual fish catch from natural water systems has not increased in a similar fashion. Over the last 10 years from 1999/2000 to 2009/2010 the increase in capture fisheries production was 3600 mt or 20% averaging 2% per annum.

2.6.4 Forestry

46. Out of the total land area of 14.72 million ha of Nepal, forest and shrub-land comprise about 29.0% (4.27 million ha) and 10.6% (1.56 million ha). About one third area of forests is located in the Mid-hills followed by the High Mountains (30%), Siwaliks/Churia (17%) and Tarai (8%). Area of forests has decreased from 37.4% in 1986 to 29% in 1994 whereas the areas covered by shrub-land has increased by about 5% during the same period. The overall deforestation rate of the country is 1.7%/year.

47. The total biomass of forests (stems, branches and leaves) is 429 million mt (air dry) However, the productivity of the forests has decreased from 537.2 million cubic meter (1978) to 388 million m³ (1994). The average productivity of Terai forests is 6 m³/ha, and that of hills and mountains is estimated to be 3 m³/ha. Similarly, total sustainable production of wood is estimated to be 21.64 million m³ per year of which Tarai forests comprises 8.34 million m³.

48. Government-managed forest, private forest, community forest, leasehold forest, religious forest and protected forest are the prevailing modes of forest management. Of the total area of forests about 64% area is still under government control while the Community Forestry (CF) comprises about 23% of total forests area. Protection forest is the third largest mode of forestry and other remaining modes of forestry (religious, leasehold and private forestry) comprise less than one percent.

2.7 Irrigation and Water Resources

49. The APP summary identifies the main targets to be achieved over the plan period with well-controlled year-round irrigated land increasing from 459,000 ha in 1994/95 to 1.13 million ha in 2014/15, requiring the addition of 34,000 ha/year to the irrigation inventory. The groundwater irrigated area would increase from 141,000 ha to 612,000 ha, with an average of 24,000 ha added per year, of which deep tubewells would contribute 2,000 ha/year. At 2.5 ha per shallow tubewell (STW) and 50 ha per deep tubewell (DTW), the area translates to an average of 8,800 shallow and 40 deep tubewells per year.

¹³ DoFD, 2004. Fisheries sub sector profile, GoN, MOAC, DOA, Directorate of Fisheries Development, Balaju

¹⁴ Ministry of Agriculture and Cooperatives (MOAC) 2006. Statistical information on Nepalese Agriculture 2005/2006. HMG, Ministry of Agriculture and Cooperative Agri Business and Statistical Division, Nepal.

50. By 2010, the APP anticipated that there would be around 516,000 ha of ground water irrigation, 491,000 ha of year-round and 318,000 ha of monsoon (seasonal) irrigation, for a total of 1.325 million ha. While the total irrigated area was not very far short of this level as at mid-2010, with 1.227 million ha irrigated, the areas of groundwater irrigated and year-round surface water irrigated are far below target. Analysis to date suggests that the APP was correct in its emphasis on groundwater irrigation, based on Nepal's large groundwater resources, and the relatively low cost of development compared to surface water irrigation.

51. The area with year round irrigation (defined as supporting a cropping intensity of at least 200% or a summer and winter crop) was about 475,000 ha in 2007 or only 42% of the area anticipated by APP for 2015. A majority of the winter irrigated area is from groundwater, and only about 25% of the surface irrigated area is double or triple cropped. Around 85-90% of the developed surface irrigable area receives supplementary irrigation in the summer (monsoon) season, but lacks sufficient water to complete a second (winter) crop. Irrigation areas in the high hills are too cold for effective double cropping. It is also notable that less than total command area is irrigated during the summer season (though more than the 67% indicated by Table 1), This suggests that (i) some water sources lack capacity to supply the whole command area, (ii) inefficient irrigation with high seepage and run-off preventing irrigation of the tail areas of schemes and canals, (iii) damage to intakes and canals (eg, through landslide) which temporarily or permanently cuts water supply.

52. Progress in irrigation development has thus been patchy and the results limited compared to the ambitious APP targets. It is however, noted that the data are inconsistent, and work in DOI following the end of fieldwork will focus on obtaining up-to-date information and as far as possible reconciling the data.

53. In order to increase year-round irrigation to meet APP targets, an additional 655,000 ha would need to be provided with sufficient water for at least a winter irrigated crop. GWRDB estimate that there is current demand for around 100,000 STWs which could irrigate at least 300,000 ha, leaving 355,000 to be (if possible) brought under year-round surface irrigation. In practice this is impossible in the medium term, and maybe even in the long-term. Current plans for surface water development are substantial, in terms of both new development and upgrading. There are also plans for inter-basin transfer to increase year-round water availability in a number of sub-basins. Details need to be defined in discussion with DOI's surface water division.

54. In common with agricultural activities, irrigation in Nepal is divided into three zones. Mountain area irrigation mainly comprises small hillside schemes, with a total irrigated area in 2010 of 50,000 ha or 4% of the national total. Hill areas account for 182,000 ha (15%) and the Terai for almost 1 million ha (81%). The irrigated area is approximately 84% of the potentially irrigable area in the mountains, 50% in the hills and 74% in the Terai. Irrigated area is evenly divided between Western (36%), Central (31%) and Eastern Region (33%) (Figure 9).

55. As evident from the figures, irrigation development up to 2001 was relatively rapid. However, according to the data, the pace of development has slowed over more recent years. From 1991/92 to 2000/01, irrigated area expanded by an average of 54,000 ha per year, but since then, the rate of growth has declined to 17,000 ha per year. The key reason is the insurgency post 1996, plus budget limitations and the withdrawal of subsidy and reduced involvement of ADB/N in the agriculture sector. It appears to be picking up now with GWRDB reporting 7000 STW constructed for 2010/11, 9000 planned for this year, and expectations to increase this to 20,000 per year for five years to meet all current demand.

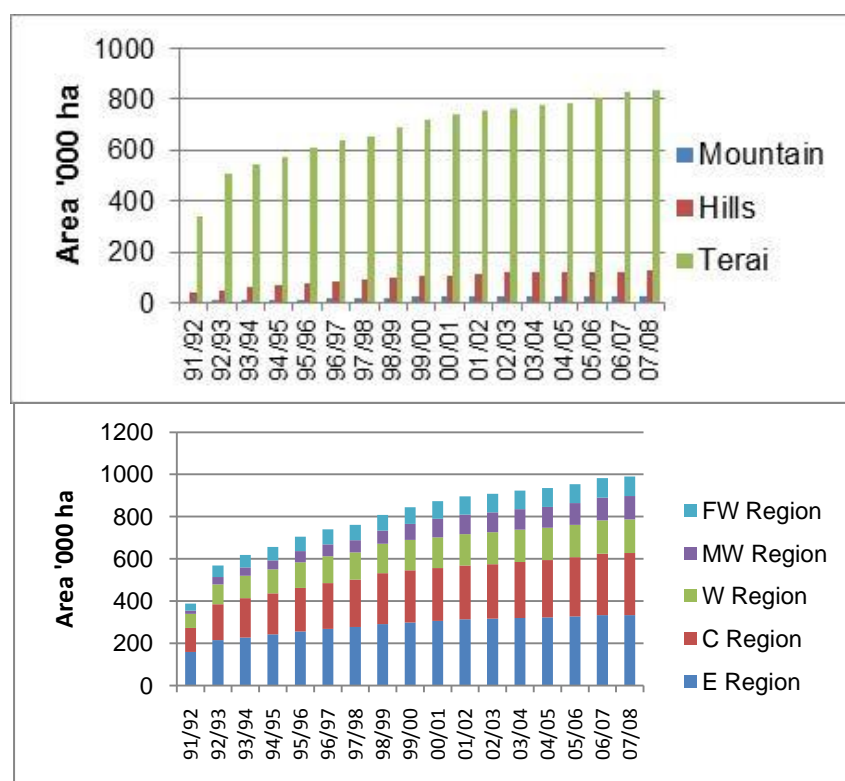


Figure 9 Irrigation development 1995-2008 by zone and region

Note: Data will be updated to 2010

Source: MOAC Agricultural Statistics, various years, based on data provided by DOI

56. Irrigated agricultural statistics in Nepal are very basic. Essentially they comprise a base in around 1990 when the Master Plan for Irrigation was prepared. At that time the area of FMIS was estimated. Over time, DOI has developed new irrigation schemes and assisted in the upgrading of around half of all FMIS. Where data have been available to the DOIs in the districts, they have compiled the increase in area resulting from these activities which are then added to the total estimated at the end of the previous year to provide a new and up-to-date total. To these are added the area of groundwater development, estimated on the same basis. In more recent years, the areas of non-conventional irrigation (including those supported by donors and NITP of DOI) and investments by DOLIDAR and DOA are added, to give a cumulative total. While this is a seemingly comprehensive approach, it suffers from several drawbacks: (i) it does not account for new farmer managed schemes or small individual or group schemes; (ii) it does not account for withdrawal of land from irrigation due to subdivision or sale for housing, closing of schemes (such as Batar in Nuwakot) or disasters such as land slip or aquaduct collapse; (iii) it does not account for expansion of command area in existing FMIS schemes; and (iv) it has failed to define irrigated area changes by district since 2006/2007.

57. In this context, it is clear that a new system of irrigation statistics is required and will be suggested in the IAWR ADS assessment report.

58. Irrigable areas in 2007 were estimated by DOI as follows:

Table 3 Irrigated Area in 2006/07

Type	Net area developed	Summer	Winter	Spring	Annual total	
Total Surface	661486	445575	183515	14987	644077	42.4%
Groundwater	278158	278158	278158	278158	834474	55.0%
NITP	13011	13011	13011	13011	39033	2.6%
Total	952655	736744	474684	306156	1517584	100.0%
		48.5%	31.3%	20.2%	100.0%	

Note: The area of summer irrigation estimated in 2006/07 was substantially underestimated, since zero irrigation was included for a number of substantial irrigation systems. In practice, summer irrigation is likely to exceed 85% of the irrigable command area.

Source: DOI 2007 Irrigation Database Final Report - Department of Irrigation

59. In 2010/11 irrigated area is estimated at 1.3 million ha, substantially more than DOI estimates, due to increase in groundwater irrigated areas estimated by Groundwater Resources Development Board (GWRDB.)

Table 4 Nepal: Irrigated Area in 2010/11

Irrigation type	Area	Total by class
A Surface water Irrigation		
Agency managed	325919	
Agency supported	352658	
Agency supported total	678577	
Traditional FMIS	274203	
Surface irrigation total		952780
B Ground water Irrigation		
Shallow tubewells	318280	
Deep tubewells	45135	
Groundwater total		363415
Total		1316195

Note: DOI statistics indicate total groundwater development of 299496 ha in 2007

The data in this table reflect detailed data from Groundwater Resources Development Board

Source: DOI & GWRDB

2.8 Trade

60. **The role of agriculture trade in Nepalese economy is not substantial because of subsistence farming and low agro-industrialization and commercialization, though its role has been increasing over the period.** The share of agriculture exports in agricultural gross domestic product (GDP) was 4.4 percent and the share of agricultural imports in gross domestic consumption was 4.2 per cent in 2009/10.¹⁵ The average share of agriculture goods in total imports was 16.3 percent and in total exports it was 25.4 percent during the period 2005-2009. The growth of agriculture exports and imports are moving almost in parallel - average growth of 9.1 percent and 10 percent respectively during 2005-2009. However, because of differences in the trade base, the

¹⁵ TA Team's calculation based on Trade and Export Promotion Centre, Nepal Foreign Trade Statistics 2009/10 and Ministry of Finance, Economic Survey 2010/11, Kathmandu, 2011. The definition of agriculture goods has been adopted from Article 2 of WTO Agreement on Agriculture.

export of agricultural products as a percentage of imports stood at an average of 48.3 percent during the period 2005-2009, indicating large trade deficits in agricultural products.¹⁶ Nepal needs either to enhance its exports or substitute its imports to turn trade balance in its favor.

61. **Agricultural trade constitutes mainly food items.** The average share of food items in total imports was 81.86 per cent and in exports was 94.47 percent during the period 2005-2009. India is the major market for agricultural goods. Nepal exports agriculture goods in primary forms and without any substantial value addition, however, some proportion of imports constitutes partly processed food items. Table 5 presents major exportable and importable agriculture products.

Table 5 Major Exported and Imported Agriculture Products 2009/10

Exports		Imports	
Descriptions	Value (Rs. million)	Descriptions	Value (Rs. million)
Lentils	3744.92	Crude soybean oil	5963.42
Vegetable products	1351.95	Crude palm oil	3756.03
Cardamom	1171.59	Betel nuts	3352.62
Black tea fermented	1160.82	Oil cakes	2232.18
Water, non-alcoholic beverage	848.28	Milled rice	2279.76
Betel nuts	479.10	Tobacco steamed/striped	1982.64
Ginger	456.01	Rape of colza seeds	1537.39
Plants and parts of plants	440.46	Crude sunflower oil	1472.74
Mixture of juice	410.20	Maize corn	1309.99
Uncooked pasta	337.05	Potatoes	0.58

Source: Trade and Export Promotion Centre, *Nepal Foreign Trade Statistics 2009/10*, Kathmandu.

62. **Government of Nepal has adopted policies and programs to enhance agriculture production and promote agriculture exports.** Recent key agricultural policy documents are National Agriculture Policy 2004, agriculture chapter in Three Year Plan (2010-2013) and Agribusiness Promotion Policy 2006. The National Agriculture Policy builds on the Agriculture Perspective Plan 1995-2015, aims to contribute to food security and poverty alleviation through higher economic growth realized through commercial and competitive agricultural system. The Agri-Business Promotion Policy intends (a) to assist market-oriented and competitive agricultural production; (b) to contribute to capturing domestic markets and export promotion by developing agro-industry; and (c) to assist poverty alleviation through agri-business.

63. Similarly, key trade policy documents are Nepal Trade and Competitiveness Study, 2003; Trade Policy 2009 and Nepal Trade Integration Strategy, 2010. The main objectives of the Trade Policy are: (a) to create conducive environment to promote and enable enterprises to compete at international level through simplification of procedures, trade facilitation, institutional and policy reforms and infrastructure development; (b) to reduce trade deficits through the promotion of high value added exports; (c) to promote competitiveness in the trade of goods and services and create employment opportunities; and (d) to establish linkages between domestic and international trade. Nepal Trade Integration Strategy which is a follow-up to the earlier Nepal Trade and Competitiveness Study indicates the priority actions of the Government of Nepal (GoN) in order to expand Nepal's trade, particularly export business. Trade Policy identifies 19 specific export products for special attention out of which 11 are agriculture products (tea, coffee, cardamom, ginger,

¹⁶ TA Team's calculation based the data of UNCTAD, UNCTADstat. Accessed on 16 July 2011.

vegetable seeds, lentils, honey, vegetables, orange, floriculture and herbs and vegetable oils). However, Nepal Trade Integration Strategy identifies only seven agriculture products (tea, cardamom, ginger, lentils, honey and herbs and oils) out of 19 potential exportable products.

64. **The trade regime of Nepal is liberal, there is no quantitative restriction and import licensing and tariffs are at moderate level.** The level of nominal protection for agriculture products is slightly higher than that of non-agriculture sector (**Table 6**). Within the agriculture sector, average most favored nation (MFN) tariff is high for beverage and tobacco, coffee and tea whereas for cereals it is less than 15 percent¹⁷. The government also imposes agriculture development fee of 5 percent on all agriculture products imported for which customs duties are exempted¹⁸. The rationale for imposing agriculture development fee is to protect Nepalese farmers from cheap Indian imports by circumventing the provision of Nepal-India trade treaty, which provides market access free of *basic* customs duty. Nepal does not have significant non-tariff barriers except a quarantine standard and product composition standard.

Table 6 MFN Tariff Rates (in percentage of tariff lines), 2007

MFN Rates	Agricultural products	Non-agricultural products
Duty free	0	0.1
0<= 5	9.8	30.0
5<= 10	60.5	28.0
10<= 15	19.1	27.1
15<= 25	1.8	11.5
25<= 50	7.3	2.6
50<= 100	1.4	0.7
>100	0	0
Simple average	14.0	12.4

Source: WTO. Tariff Profiles 2008.

65. **In an attempt to broaden and diversify its economic and trading relationships, Nepal also signed its bilateral trade agreement with India, joined regional trading arrangements (RTAs) such as South Asian Free Trade Agreement (SAFTA), Bay of Bengal Initiatives for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Free Trade Area and also became a member of the World Trade Organization (WTO).** Bilateral trade agreement with India, which provides reciprocal duty free market access on agriculture and primary products, has significant bearing on the agriculture development of Nepal. However, within the agreement may occur situations not in Nepal's favor. For example: (i) during 2008 to mid-2011 India banned exports of rice, citing domestic food sufficiency need; (ii) India subsidizes its agricultural industry more extensively than Nepal, which undermines Nepal's price competitiveness; (iii) India has banned export of its domestically produced fertilizer to Nepal, again citing domestic need. Nepali farmers consider that the highly subsidized nature of Indian agriculture causes substantial and unfair completion, both within Nepal and for exports to India.

2.9 Taxes

¹⁷ WTO, Tariff Profiles, 2008

¹⁸ Ministry of Finance, Finance Bill 2011

66. **Income Tax:** There is no tax on income derived from agriculture as envisaged in the Income Tax Act 2002. The income received from agriculture during an income-year by a person is exempted, other than the income from an agriculture business derived by a registered firm, or company, or partnership, or a corporate body, or through the land above the landholding ceiling as prescribed by in the Land Reform Act 1964.

67. **VAT:** According to Value Added Tax (VAT) Act 1997 most of the agricultural products are exempted. VAT is exempted on goods and services of basic needs which include rice, pulses, flour, fresh fish, meat, eggs, fruits, flowers, edible oil, piped water, and wood fuel. VAT is also exempted on basic agricultural products such as paddy, wheat, maize, millet, cereals and vegetables. The expense of buying goods and services required to grow basic agricultural products are tax exempt, which include live animals, agricultural inputs including machinery, manure, fertilizer, seeds and pesticides.

68. **Customs and Excise Duties:** As of Customs Act 2007 charges for agricultural reforms were levied on food imported from India at the rate of 5 percent, and 10 percent on the imports from third countries. Import duties are exempted on chemical fertilizer, pesticides, and tractors. Imports duties on agricultural tools are confined to 10 percent and fee for forest products are leveled at Rs. 500. Similarly, no tax is levied on exports. Excise duty is levied on certain goods (tobacco, alcohol, plastic, cement, vehicles, marble) produced in and imported to Nepal. The rates may be ad-valorem as well as specific.

69. **Revenue Assignments for Local Bodies:** As envisaged in the LSGA 1999, local bodies¹⁹ (VDCs/Municipalities/DDCs) were authorized to collect land-revenue at a nominal rate ensuring ownership and entitlement of the land against the small sum of payments. However, local bodies are unable to effectively implement Acts and regulations and collect revenues from all sources as envisaged in the LSGA 1999 primarily due to administrative inefficiency and unwillingness of local politicians to raise taxes during election times.

70. The central taxation system is favorable for agricultural growth for two main reasons: (i) no tax on farm income or on agricultural cooperatives; and (ii) no VAT or official import taxes on the major agricultural inputs including fertilizer, pesticides and agricultural machinery. Local taxes may be levied under the LSG Act, but generally these are not collected in the current political climate, and they do not constitute a significant burden.

71. The fiscal issues are more related to the somewhat erratic use and governance of subsidies as instruments to overcome market failures and farmers' capital constraints in accessing fertilizer, irrigation, and other agricultural inputs. There is also opportunity to use tax deduction incentives to stimulate agribusiness, for example for qualifying research and development, for contract farming and tax holidays for agro-infrastructure establishment. Government experience will be

¹⁹ The revenue assignments provisioned by LSGA 1999 to VDCs include: house and land tax; land revenue and land tax; *haat bazaar* (weekly market); vehicle tax; entertainment tax; rent and tenancy tax; advertisement tax; business tax; commercial video tax, natural resource utilization tax; and service charges on tourist entrance, park, garden, picnic spots, view towers. Likewise, DDCs have no land tax but impose tax on roads, paths, bridges, irrigation, ditches, ponds, tax on wools, turpentine, herbs, worn and torn goods, stones, slate, sand, bone, horn, wing, and leather. Similarly, municipalities collect land revenue and house and land tax (alternatively known as integrated property tax), rent tax, enterprise tax, vehicle tax, property tax, entertainment tax, commercial video tax, parking charge, advertisement tax, and service charges.

assessed and proposed for the ADS, for example, the export income tax deduction incentive, and tax holiday for constructing hydro-electric business.

72. One major problem facing Nepal's economy is how to transfer excessively dependent population from agriculture to more productive non-agriculture sector by creating employment opportunities, thereby reducing the extent of poverty. Once this process of economic transformation is achieved, there would be ample scope to tax more productive and vibrant agriculture sector and mobilize internal resources on a greater quantum with mass participation.

2.10 Infrastructure

73. While a wide range of agriculture infrastructures contribute to the growth of the agricultural sector in Nepal, this section focuses on the following key infrastructure types:

- a. Rural/agricultural roads
- b. Electricity and power
- c. Telecommunications
- d. Others (market infrastructures etc)

2.10.1 Rural Roads

74. Nepal has a significant proportion of its total population living in areas not served by a motor road, and it is estimated that the country needs approximately 30,000 km of rural roads to meet Millennium Development Goal No. 1 – *Reduction in Absolute Poverty* - by 2015²⁰. It is estimated that up to 36 percent of the hill/mountain population are more than 4 hours walk from an motor road, and that 13 percent of the Terai population are more than 2 hours walk from a road. Vast areas that cannot be reached by roads will need to be served by means of trails and trail bridges. These areas of poor accessibility are strongly correlated with incidence of poverty and low levels of human development²¹.

75. Access improvement in Nepal essentially covers 3 main infrastructure components of the rural transport infrastructure (RTI):

- a. Strategic Roads Network (SRN)
- b. Rural Road Network (RRN)
- c. Foot trails and trail bridges, *tuins*²², etc.

76. Lack of access is more severe in hill districts and those without connection to the Strategic Road Network (SRN i.e. highways and feeder roads). Nepal's total road stock, network density and quality are all low²³. The SRN include about 11,000 km (see Table 7).

²⁰ ADB Rural Reconstruction and Rehabilitation Sector Development Project (RRRSDP) Report November 2007 - Appendix 2: Sector Analysis.

²¹ Sector-Wide Road Programme & Priority Investment Plan (April 2007) – Section 7.1

²² Wire bridges (Tuin) are an indigenous technology and one of the most common structures for river crossing in rural Nepal. It usually has single wire rope, pulley and a simple wooden trolley

²³ World Bank – RAIDP Project Appraisal Report (May 2007) – paragraphs 3, 107.

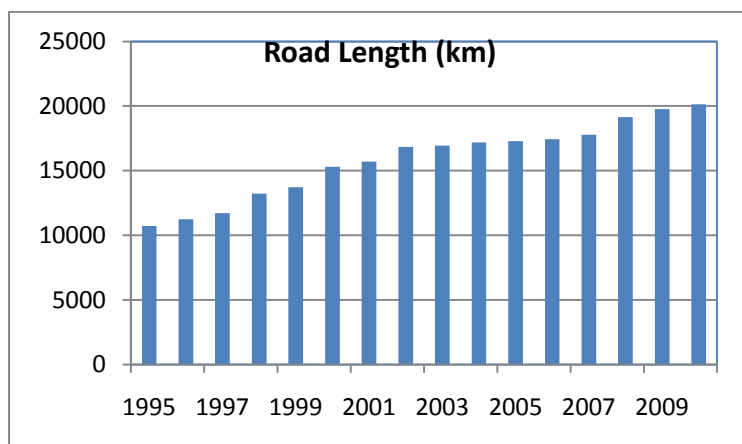
Table 7 Strategic Road Network (SRN) Length (1998-2009/2010)

Year	Description	Road Length (Km)			Total
		BT	GR	ER	
1998	9th (5 years plan) 2054	2905	1656	179.00	4740.00
2000		2974	1649	171.00	4794.00
2002	10th (5 years plan) 2058	3028.74	1663.94	168.38	4860.96
2004		3494.73	883.51	614.49	4992.73
2006/07		4258.20	2061.7	3079.48	9399.38
1009/10		4952.11	2065.15	3917.76	10835.02

BT = Black top, GR= Gravel Road, ER = Earthen Road

Source – Statistic of strategic road network 2009/10, Published by DOR

77. Currently, 5 out of the 75 districts are not connected by a motor road, although some very big districts have only a fraction of their population connected by road to district headquarters. **Figure 10** below shows the growth of total road length, which is essentially a network of roads connecting the highways with regional and district headquarters. Its length is currently around 20,000 km. Its growth has been slow but this road network is usable all year round and connects a large number of the rural population.

**Figure 10 Increase in the Total Road Length**

Source: Economic Survey Fiscal Year 2009/10 MoF, GoN, 2010.

78. The RRN is predominantly dry-weather/season roads, often becoming impassable during the wet period (June to September). The District Development Committees (DDC) are primarily responsible for the development of RRN with the technical from the Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) under the Ministry of Local Development (MoLD).

79. The current strength of RRN is not available. The most recent estimate is 24000 km (RTI SWAp Framework, MoLD, 2009) but it is assumed that nearly 50% of this length is non-motorable due to lack of proper maintenance. However, the growth in the rural road network is rapid and impressive. A number of joint Government and Development Partners' programmes are addressing rural transport infrastructure covering roads, bridges, trails, tracks, trail bridges, cable cars, and ropeways. Additionally, significant amount (around 60% or more) of Block Grants provided to the DDC by the MOLD goes in the development of rural road network of the districts.

80. With the rapid growth in the rural roads sector, there are a number of key issues in the design and implementation of rural roads program:

- a. There is little coordination between the Ministry of Agriculture and the Department of Local Infrastructure and Agricultural Roads (DOLIDAR) under the Ministry of Local Development in designing of priorities.
- b. The road network, despite good level of growth is not sustainable. It is not usable all year round in the absence of bridges and with earthen surface.
- c. Rural transport services are expensive due to limited competition among the vehicle owners.
- d. The construction process is predominantly machine (bulldozers or excavators) based where the engineering inputs are often very low and of poor quality.
- e. As a result of this construction approach used, the maintenance costs are high due to absence of drainage systems, retaining structures and haphazard soil disposal practices.
- f. There is high degree of financial irregularities associated with rural roads construction which means that leakage disallows necessary investments in development of quality network.

2.10.2 Energy Sector

81. Only 23.71% of the population of Nepal has access to electricity and only 4.23% of the rural population has access to electricity.

82. Despite significant hydro potential, the bulk of Nepal's energy supplies come from traditional sources, mainly from fuel wood, agriculture waste and dung production by livestock. The Energy Mix of Nepal is detailed in the table and charts below (see Table 8 and Figure 11).

Table 8 Structure of Energy Consumption

Energy Source	2005/06	2006/07	2007/08	2008/09
Traditional	7698	7854	8015	8185
Fuel wood	6862	6999	7149	7301
Agri. Waste	329	337	337	344
Animal Dung	507	518	529	540
Commercial	1093	1031	1038	1147
Coal	243	144	193	181
Petroleum	686	709	655	775
Electricity (Hydro)	164	178	190	191
Others	53	59	59	64
Total	8844	8944	9112	9396

Source: Economic Survey Fiscal Year 2009/10 Statistical Tables Vol .II MOF, GON, 2010. Figures in Tons of Oil Equivalent (TOE).

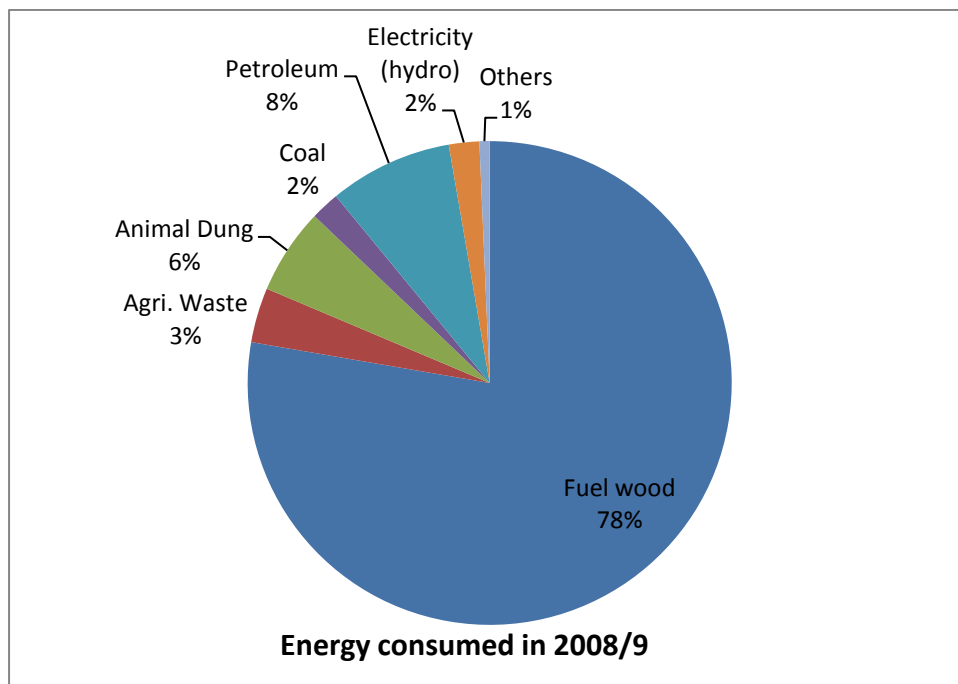


Figure 11 Share of different types of energy sources used in Nepal

Source: Economic Survey Fiscal Year 2009/10 Statistical Tables Vol .II MoF, GoN, 2010. Figures in mt of Oil Equivalent (TOE).

83. The figure shows that 78% of the energy used in Nepal comes from traditional sources, mainly firewood, which adversely impacts the natural environment. The use of electricity is very low (2.03% of the energy used).

84. The key issue is the problem of interruptions in the supply of electricity. Periodic load-shedding damage machinery and equipment, and contribute to losses in production and spoilage.

85. The development of micro-hydro, despite potentials to reach out to remotely located farmers is slow for a number of institutional factors, including capacity and financial resources.

2.10.3 Telecommunications

86. Telecommunications is another sector after Rural Roads that is making rapid growth in Nepal, and with the services expanding faster into the rural areas. Currently²⁴, Nepal has six telecom operators in the domestic telecom market, with the major three (NT, Ncell, and UTL) covering 98% of the users.

²⁴ Based on information yet to be confirmed: Nepal Telecom (NT) which covers 53% of the total users; Ncell that covers 40% of the total users; United Telecom Limited (UTL) 5% of the total users; Other network providers 2% of the users.

87. Together, these service providers provide access to telecommunication (including internet) services. The total number of telecom service users is 11.87 million equivalent to 41.5% of the population. Mobile users account for 36.27%, land telephone line 2.95 % and other telecom services 2.29 %. As of March 2011, total internet users in Nepal are 4,535,427 (MOIC).

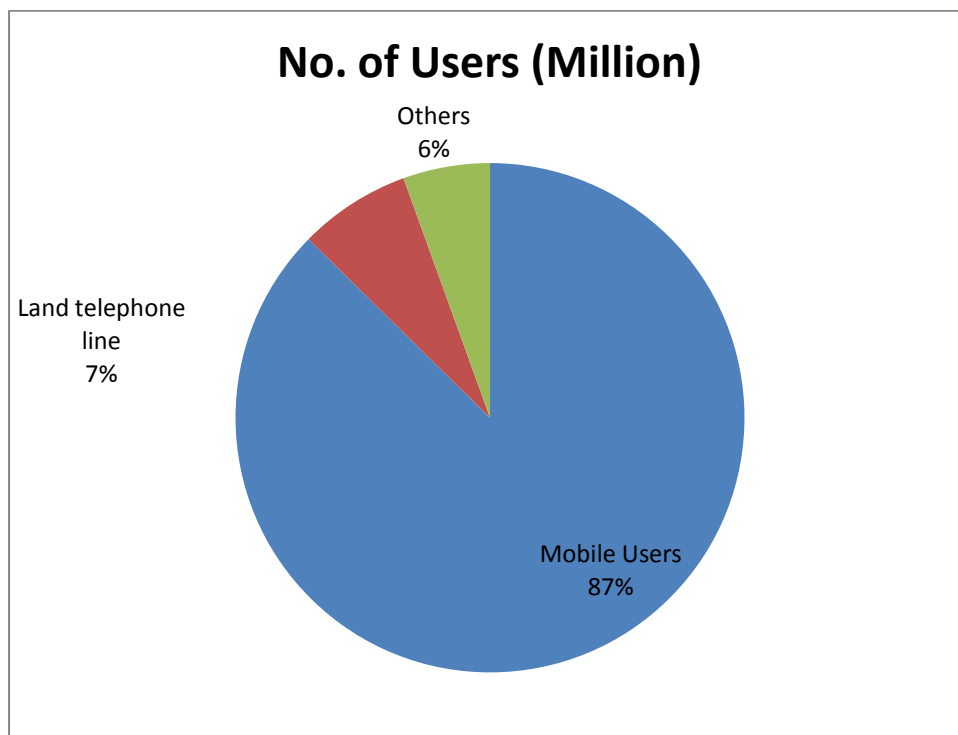


Figure 12 Users of different type of telecommunication systems

Source: Ministry of Information & Communication

2.11 Research and Extension

88. Nepal invests just 0.17 percent of its GDP on agriculture research. Moreover, even this has been declining. Over the period 2001/02 to 2007/08 MOAC's budget declined from 3.9 percent of the national budget to 2.5 percent. Over the same period NARC's share of MOAC's budget declined from 14.7 percent to 8.8 percent. In 2007/08 NARC received an annual budget of around NRs 400 million (approx. US\$5.5 million). Of this, only 30 percent went to research, and this is not adequate to address the research agenda. The picture is similar with respect to donor funding, reflecting a declining trend of donor support to agriculture.

89. The investment on agriculture research is mainly through NARC. Figure 13 shows the amount provided to conduct research thorough NARC from 2002/03 to 2011/12. The budget allocation for NARC from 2002/03 to 2007/08 was almost constant. Significant increase is indicated in 2010/201.

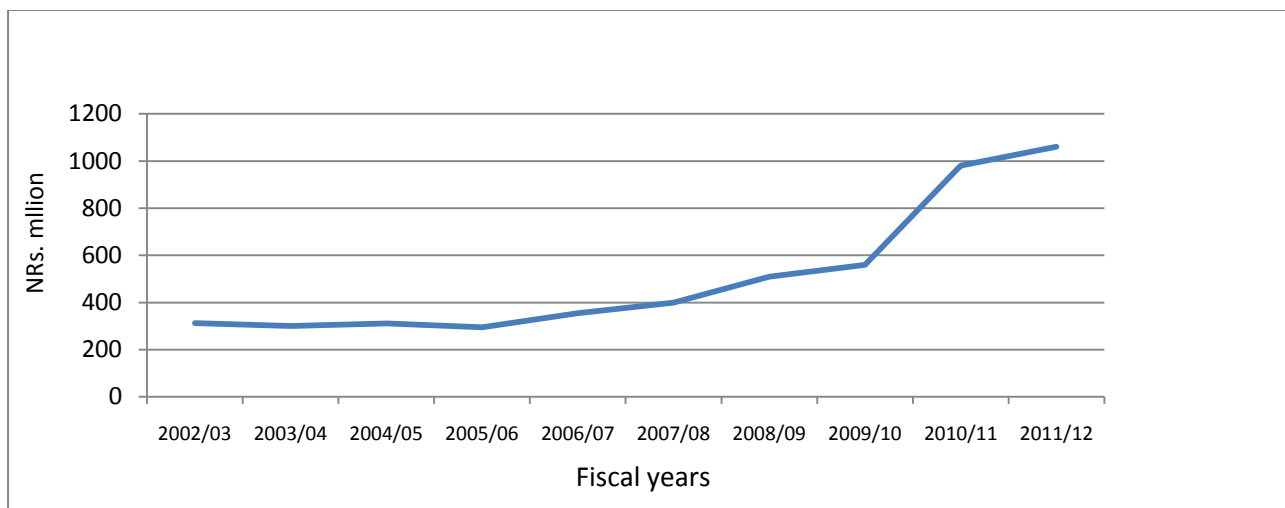


Figure 13 Public investment on Agriculture Research through Nepal NARC

Source: NARC's Strategic Vision for agricultural research (2011-2030) and MoF (red book).

90. Taking a reference of budget allocation for NARC in FY 2009/2010, it can be stated that manpower of NARC has been under utilized. About 59 percent of total budget is expended for staffs salaries and benefits, and only 11 % of the budget is available for operational activities (Figure 14). Operational activities include the research cost and maintenance of research inputs, laboratories and infrastructure.

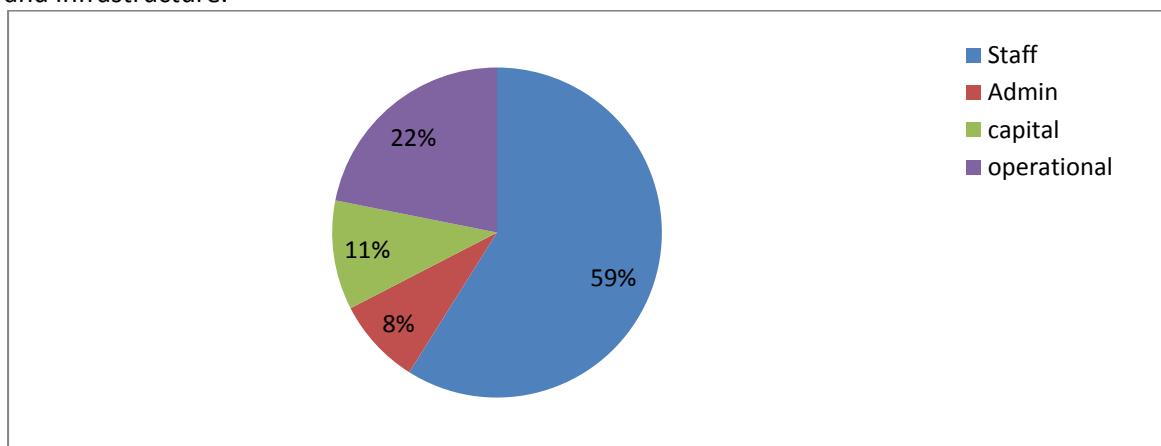


Figure 14: Breakdown of NARC budget for FY 2009/10 into four categories

Source: NARC's Strategic Vision for agricultural research (2011-2030)

91. **The National Agriculture Research and Development Fund (NARDF)** is based on a competitive grant system (CGS) in order to facilitate the agriculture and development activities. A secretariat has been established under MOAC to operate and mobilize the fund. A series of calls for proposals is announced. Once the proposals are submitted to the secretariat, an independent peer group reviews them and recommends whether or not funding should be granted on a case-by-case basis.

92. Through its calls over the period 2003 to 2008, NARDF has implemented a total of 101 projects. A number of NARDF-funded projects have yielded results that could potentially deliver important impact on agriculture productivity and improve livelihoods. However the agricultural extension system did not seem to use the findings of NARDEF.

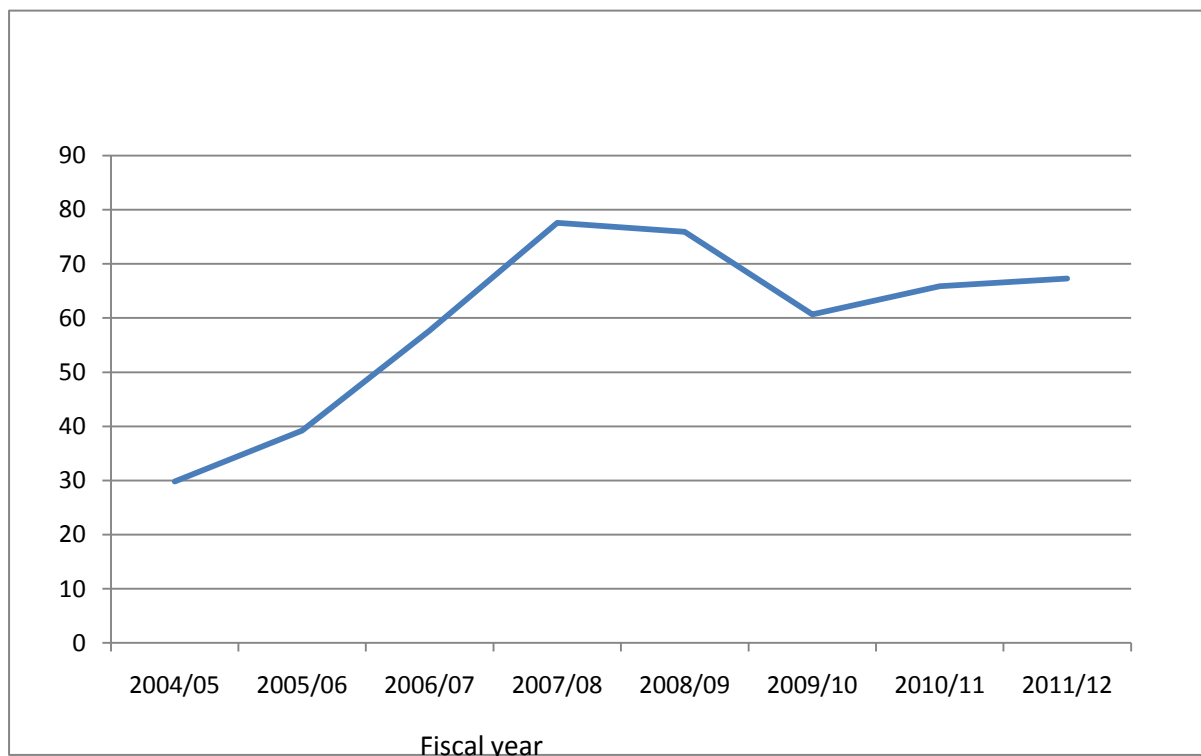


Figure 15: Pattern of budget received by NARDF from GON to conduct research based on CGS

Source: Annual Reports of NARDEF from 2005- 2010, MOAC, 2010.

93. In recent years, the investment on research through NARDF is not encouraging. NARDF received about 76 million NRs in 2008/09 which is the maximum amount in the last four years. The resource of the fund has not been expanded as it was intended during its establishment.

94. Although **Institute of Agriculture and Animal Science (IAAS)** was primarily established to produce higher level manpower in the crop and animal science sector, faculties are also contributing to conduct agricultural research through the Directorate of Research of this institute. A grant is made available to the outstanding proposals from students and faculty. Despite fact that the outcomes of the research from IAAS are publicly available, a gap between the IAAS research wing and extension system of MOAC still exists.

95. Few non-governmental organizations at national and international level are also contributing to generate the practical solutions of the farms' problems. LIBIRD, IDE, CYMMIT are the key organizations that conduct action research in the agriculture sector. Development of Soap Water Technology, Multiple Use System of water, crop varieties through participatory breeding system are the outstanding outcomes of the research done by NGOs.

96. Department of Agriculture (DOA) and Department of Livestock Services (DLS) are responsible for delivering agriculture extension services to farmers and other stakeholders (e.g. agro processors). DoA and DLS provides extension services either through their own organizations or by hiring/contacting private service providers depending on the technology to be delivered. The human resources of these departments can be grouped into four categories a) staff for design and implementation of policy; b) subject matter specialists; c) supporting technicians; and d) administrative staff. Out of the 4979 staff in DOA, 687 subject matter specialists, 2123 supporting technicians, and 32 policy level officials are currently providing extension services in the crop sub sector.

97. Similarly, Department of Livestock Services has a mandate to conduct extension services for livestock owners, livestock entrepreneurs. Subject matter specialists for livestock development and veterinarians, para veterinarians are the three major categories of the human resources with DLS. Eighteen (18) policy level officials, 42 senior veterinarians, 136 veterinarians, 132 livestock experts and 2227 supporting technicians are currently involving in the livestock extension (Annual Report, DLS 2011).

2.12 Social Inclusion

98. Gender inequality is a major constraint to agricultural development in Nepal. About 11% of households have land under female ownership (CBS, 2001) even though more women work in agriculture (64%) in comparison to men (29%); moreover women are paid less than their male counterparts (CBS, 2004). Women often do not have access and control over the product and income they generate. Such disparities affect women's ability to increase productivity as they, despite being the main work force in agriculture, lack capability to invest.

99. The GON is aware of this serious constraint and there are programs, particularly in the education sector that have been successful in promoting gender equality (see Table 9).

Table 9 MDG Goal 3: Promote Gender Equality and Empower Women

Millennium Development Goals and Key Indicators	Baseline 1990	1995	2000	2005	Latest Figure	Target 2015
Ratio of girls to boys in primary education	0.56	0.66	0.79	0.86	0.95	1
Ratio of girls to boys in lower secondary education	0.43	0.56	0.7	0.82	0.85	1
Ratio of literate women to men of age group 15-24 years	0.48	0.56	na	0.73	na	1
Proportion of seats held by women in parliament (%)	3.4	3.4	5.9	na	33	na

Source: GoN sources, UNICEF, UNFPA

100. Class differentiation. The bottom 40 percent of the agricultural households operate only 9 percent of the total agricultural land area, while the top 6 percent of households occupy more than 33 percent of the land (NESAC, 1998). This is further supplemented by the data from the National Living Standards Survey (NLSS CBS, 2004) which states that more than 50% agriculture households in Nepal operate in less than 0.5 ha land which is insufficient to sustain a family of average size, the bottom 47% of agriculture households operate only 13% of total agricultural land area whereas the

top 8% of large farmers occupy 31% of land (CBS, 2004). There exists a state of conflict between the land owners and tillers in the absence of an effective program of land use to improve production system.

101. Incidence of landlessness is increasing rapidly. According to the first NLSS the percentage of agricultural households with land decreased by 5% in the decade of 1995/6 to 2003/04. An increasing number of smallholders are being marginalized and transformed into landless workers depending on scarce wage employment.

102. Vulnerability means exposure to risks and defenselessness. It has two dimensions: the external dimension of exposure to shocks, stress and risk; and the internal dimension of defenselessness, meaning a lack of means to cope without damaging loss. Loss can take many forms – becoming or being physically weaker, economically impoverished, socially dependent, humiliated or psychologically harmed (Chambers, 1981). Many of the landless and small farmers with low resource endowment are relatively at greater risk.

103. Caste and ethnic stratification has been embedded in Nepali society since a long time. The *Dalits* (so called untouchables in the Hindu hierarchy) and some indigenous people live in a vulnerable state. The *Dalit* represent 11.8% of total population in Nepal, and own just one percent of total arable land, with only three percent owning more than one hectare (Deuja, 2008).

104. Along with caste, land holding is strongly associated with ethnicity. Historically, *Janajatis* (mostly indigenous people) have entitlements over natural resources and land but now they have low official ownership in comparison to others. Currently, 73.9% of Hill *Janajatis* and 47.9% of Terai *Janajatis* own land and highest percentage of landlessness is among the Santhal, Jhangad, Kisan and Munda (GSEA, 2010).

105. Female farmers are reluctant to receive services from the male agricultural extension workers whereas some of them do not visit the service centers simply because they do not have adequate communication skills to talk to the officials. Census (2001) shows 48.6% of people speak Nepali and the rest speak their own mother tongue. Although, Nepali and some other regional languages are used as lingua franca, the communication is not easy among the resource poor and excluded communities.

3 BRIEF REVIEW OF APP

3.1 Introduction

106. The objective of this chapter is to provide a preliminary review of the Agricultural Perspective Plan (APP). A more in-depth review will be presented in the Assessment Report of September 2011.

107. The APP was designed to increase agricultural growth whereby per capita AGDP will grow from its 1995 level of 0.5% to 4% per year. This growth was expected to stimulate nonagricultural growth in employment-intensive goods and services in both urban and rural areas. This would open up job opportunities for the poor, particularly poor women, and thereby help reduce the number of rural poor. With implementation of the APP the incidence of poverty was expected to come down from 42% in 1991/92 to 14% in 2014/15, whereas the latter figure without the APP would have been 29%. Poverty in 2010 is estimated at 25%, which is still far from the APP target (see Table 1 on page 8). The increase in agricultural productivity was also expected to help protect the environment by removing the most fragile land resources from agriculture and putting them under suitable forest cover and other sustainable uses.

3.2 Targets and Performance

108. Agricultural sector growth has been less than the APP target of 4 percent annual AGDP growth, achieving an average of 3.0 percent, slightly below the national GDP average growth of 3.5% in the past decade²⁵. APP targets and achievements are summarized in Table 10.

Table 10 Summary of APP targets and achievements

Item	Targets	Achievement	Data Source
Inputs			
Irrigation	1.44 million ha	1.23 million ha (2009)	DOI, 2010
Fertilizer	131 kg/ha Reform of AIC Ltd	102 kg/ha (2001) Partial reform, subsidy amount fluctuated. Illegal fertilizer imports supply 70% of needs	Agriculture Sector Performance Review, 2001, ADB Y. Thapa. (2006) Informal Cross Border Trade, FAO
Technology services	No target, but aim to support priorities.	Limited responsiveness to farmer needs. NARC priority on cereals, not high value products. Government Investment growth rate: Extension 8% vs. Research 1.2% (1996-2005) Devolution issues remain	APP Implementation Status Report, MOAC, 2006. NARC Research review report. MOAC, 2005
Roads and Power	6,200 km rural roads	840 km (2004) About 30,000 km seasonal roads with continuing development through external funding.	APP Implementation Status Report, MOAC, 2006.
Credit	109.5 billion estimated need, 75% from ADB/N	ADB/N and Small Farmer Development Bank loans to agriculture about 50 billion	ADB/N 2011 APP Implementation Status Report, MOAC, 2006.

²⁵ CBS, Nepal 2011.

Item	Targets	Achievement	Data Source
Outputs			
Livestock	45% of Ag GDP	29.4% in 2011 Private sector investing in dairy and poultry	MOAC Statistical Yearbook 2011
High Value Crops	5.8% of Ag GDP	11.8% (fruit and vegetables) in 2011	As above
Agribusiness	No target, except institutional development, and private investment	Commodity associations and Agri-Enterprise Center in FNCCI formed. Dept. of Agribusiness Promotion established. Investment growth (1996-2006): dairy 201%, floriculture 73%, tea 37%, seeds 16%, poultry 2%	APP Implementation Status Report, MOAC, 2006. CBS, 2011
Forestry	2.3% of Ag GDP Establish CFUGs	8.6% of Ag GDP average 2001-2011 About 13,800 community forestry user groups (CFUGs) established.	CBS, 2011 FECOFUN, 2010

109. The overall performance of APP has been mixed. Cereal production growth and overall agricultural growth has been considerably below expectations. Some subsector have done well and even exceeded expectations, including horticultural and high value crops, fisheries, and rural roads.

110. The implementation of the APP was not helped by the conflict that plagued the country during approximately the first 10 years of the APP period. Combined with a reduced investment in the sector by both the Government and donors, program implementation could not be according to plan. The dramatic reduction of government and donor support from the agricultural sector after 2001/2002 was largely linked to the escalating conflict. The period between 2001/2002 and 2007 witnessed also the lowest growth of cereals.

111. Other subsectors like horticulture, roads, and fisheries have however fared relatively well, in spite of lower government and donor support to agriculture. **The explanation of the weak performance of the APP therefore cannot be solely attributed to one factor, namely reduction of government and donor support** during the years (2001/02 to 2006/2007) of intensification of the conflict.

112. In addition to the reduced government and donors' support there are other factors that have been presented to explain the weak performance of the APP including:

- a) Lack of Coordination
- b) Withdrawal of Subsidies on Fertilizer and Tube Wells (shallow and deep tubewells)
- c) Faults in the Design and Economic Assumptions of the APP
- d) Weak institutional capacity on project/programme implementation
- e) Lack of Attention to Legal Issues
- f) Lack of Attention to Social and Geographic Inclusiveness
- g) Low Attention to Land Management Issues
- h) Inadequate Consideration of Regional Trade

113. A more in depth analysis of these factors will be presented in the Assessment Report due at the end of September 2011.

3.3 Legal Aspects

114. While most of the explanations for the weak performance of the APP reported in paragraph 112 have been elaborated at different points by different authors, the legal explanation is something new. The following paragraphs make some initial remarks and, as in the case of other explanation, a more in depth review will be presented in the Assessment Report of September 2011.

115. The APP Report was not accompanied by a legal annex nor are there similar annexes to any of the subsequent agricultural sector policies adopted by the GON²⁶. The APP did not establish targets and performance indicators for legislative enactments. In fact despite the importance of the APP to the economic development of Nepal the APP failed to address the impact of existing legislation on the implementation of the APP nor did it propose specific legislative changes that would be necessary to implement it. This holds true also for policies adopted after the APP. As a result, many of the policies were implemented on the basis of pre-existing legislation which apart from being outdated also was not adapted to the policies of the Government. While in recent years an active effort is made to start the process of drafting new legislation (new Umbrella Land Act, new Water Resources Act) there remains a backlog in the legislative agenda.

116. Moreover, it appears that to date a full-fledged review on the legislative changes required for the implementation of the APP has not been carried out. While some reviews of the APP point out to legislative inconsistencies and gaps in implementing legislation a systematic review is still lacking.

117. In initial discussions with stakeholders different views have been expressed on the question whether the poor implementation status of the APP and other policies should be attributed to lacunae in legislative provisions, to over-legislation or whether the legislation is adequate and the problem lies in the realm of implementation. The assumption of the TA Team is that all three factors might be present in different areas of intervention and that there is no single factor that is a dominant one. The fact is however that neither the APP nor subsequent policies were accompanied by legislative annexes which may lead to the conclusion that no systematic review of legislative provisions in light of policies that are adopted takes place. In other words, while the GON and the parliament adopt policies and new legislation, there is not necessarily a connection between the two parallel efforts.

118. The need for adequate legislation cannot be underestimated. The rule of law and the certainty it provides for the stakeholders involved in the economy is one of the cornerstones for the development of a sustainable economy in which the rules of the game are clear and not subject to random interpretation or application. More specifically, there is a need to ensure that there is an enabling legislative framework that allows the function of users organizations to operate, maintain and develop irrigation systems, that there is adequate legislation to allow the functioning of cooperatives in the value chain of the agricultural production with adequate governmental oversight, that trade legislation and agreements enhances the ability of HVC growers to export their produce and that the Nepalese farmers have the tools to allow them to meet the food safety and quality standards of import markets, to name but a few.

²⁶ See for example Section 1.4.13 of the 2004 Irrigation Policy which states that "The legal and institutional reform shall be made for the achievement of the objectives of this Policy as per necessity." No legislative document was attached.

4 KEY ISSUES FOR ADS

4.1 Introduction

120. The objective of this chapter is to provide a quick review of some of the issues that have to be addressed in the ADS. The review in this chapter is only a preliminary review, based on the initial work of the TA Team. Over the next two months the analysis and the assessment will be deepened through data analysis and consultations.

121. The key messages of the brief review presented here can be summarized in the following list of 10 issues:

Table 11 Summary of 10 Key Issues for the ADS

No.	Category	Issues
1.	Productivity	There is considerable potential for growth of agricultural productivity in Nepal. Currently the level and the growth of productivity is low due to a number of factors including an ineffective and underfunded agricultural research and technology transfer system, lack of effective mechanism for linking research extension and farmer, the low availability of year-round irrigation, the limited availability and affordability of key inputs (fertilizer, seed, breeds, etc.) including access to credit, and high incidence of pests and diseases.
2.	Competitiveness	Improvement in competitiveness of Nepal agriculture could result in a strong performance of high value exports. Currently competitiveness of agricultural products from Nepal is low and declining. Most exported products are in raw forms and value addition is done in destination markets. The potential for high value food and agricultural exports is limited by the lack of a well functioning system for quality and safety control, low technology, difficulty of doing business, and poor infrastructure.
3.	Trade	Key four issues in agricultural trade include (i) Nepal-India Trade Treaty has de facto created free trade among the two countries and resulted in Indian products outcompeting some of the Nepalese agricultural produce in Nepalese domestic market, particularly in the cereal market; (ii) Due to lack of good farming and manufacturing practices, it has been difficult for Nepalese farm products to comply with international quality standards. As a result, Nepalese products face non-tariff barriers in the form of sanitary and phyto-sanitary (SPS) and technical standards in the export markets; (iii) It has been argued that pegged exchange regime with India has resulted in erosion of competitive edge of Nepalese products in exports to India as well as in domestic markets; and (iv) One of the issues of agriculture trade is how to use trade policy instruments in securing food security through self reliant food economy.
4.	Commercialization	Agriculture and agribusiness investment are constrained by lack of suitable policies (e.g. contract farming), competition with state enterprises and cooperatives, lack of services and infrastructure to support value chain development (eg agribusiness incubators, agroindustrial parks), absence of

		agricultural insurance, and a transparent and stable tax and incentive system to promote innovation and reduce risk. The key issue is how to increase sustainable and profitable investment in agriculture and agribusiness that could accelerate growth and modernization of agriculture.
5.	Food and Nutrition Security	Food and nutrition security is a multidimensional concept that entails the aspect of food availability, food access, food use and utilization, and stability. There is a need to clarify to what extent food and nutrition security in Nepal requires achievement of foodgrains self sufficiency and to what extent nutritional security requires an emphasis on a more diversified agricultural production system with a larger role of animal and horticultural products than foodgrains. As urban markets and international food trade increase, food safety issues will become more important.
6.	Policy and Institutions	In spite of considerable rhetoric indicating agriculture as a priority sector for growth and poverty reduction in Nepal, credibility is eroded by (i) frequent changes in the leadership of agencies and organizations responsible for the agricultural sector; (ii) low budgetary support to the sector, both in terms of capital and recurrent expenditures; (iii) enormous gaps between policy formulation and implementation; and (iv) weak system for policy monitoring and evaluation. Moreover, institutional capacity to implement policies and programs is constrained by limited size and skills of human resources, insufficiently and inadequately trained staff, and lack of hardware and investment funds to carry out programs. Accountability and transparency in program implementation need considerable strengthening, including linking monitoring and evaluation systems to performance evaluation and incentives.
7.	Climate Change and Natural Resource Management	Available evidence on climate change in Nepal indicates increasing temperatures and different patterns of monsoon precipitations. The impact of climate change on agriculture in Nepal is currently studied, but even the preliminary evidence suggests the need of introducing appropriate adaption mechanisms to increase resilience of farmers to climate change. At the same time it is important to understand the feasibility of mitigation mechanisms including clean development mechanisms and disaster risk reduction that could be beneficial to farmers. The issue is how to ensure sustainable modernization of agriculture and commercialization while strengthening resilience to climate change.
8.	Legal	Although policy formulation in Nepal has addressed several dimensions relevant the agricultural sector development and by and large there is a general agreement that most policies are acceptable, the main problems arise in the implementation stage. One critical aspect explaining the weakness of policy implementation is the limited legislative effort made in ensuring that the legal aspects of the policy implementation are well thought out and clear. In order to address this weakness, the ADS will need to incorporate legal provisions and a legal framework. Some of the initial issues that require further review include food quality and safety, commerce and trade, land and water, and public enterprise reform.
9.	Farm Size	Farm size has important implications for the formulation of the agricultural development strategy. Rural population could be roughly classified into three groups comprising 18% of small commercial farmers (with 1 to 5 ha of land); 17% of subsistence farmers (with 0.5 to 1 ha of land); and the landless and near landless (less than 0.25 ha) comprising about 65% of the rural population. Similarly, the livestock herd size averages 2 to 3 livestock units. An effective agricultural strategy will directly benefit the small commercial farmers and could substantially raise the productivity of the subsistence farmers, whereas the impact on the landless and near landless will be mostly through employment effects. Subsistence farmers might require the formulation of a special extension

	program.
10. Social Inclusion	Poverty, social and geographic exclusion, and massive youth outmigration have multiple and complex links with agricultural development. The high differentiation of Nepal society has led in the past to polarization and social conflict. The ADS will need to identify mechanisms that value diversity, eliminate or reduce polarization, and create cooperative arrangements for mutual benefits of the parties involved. This will need to be realistically formulated given the economic stage of development, the resources available, and the support of a leadership able to promote consensus around the strategy and its implementation.

4.2 Productivity

122. Given its wealth of agroecological environments, Nepal is almost unique among small countries for the variety of agricultural products that it could produce. Low productivity is related to access and adoption of suitable technology (both on farm and post-harvest), availability of inputs (planting material, breeds, fertilizer, feed, plant and animal health protection, irrigation, electricity, finance), limited investment in the sector.

123. Productivity gaps for a number of selected products are indicated in Table 12. The table shows that potential for improvement is huge in several subsectors of agriculture.

Table 12 Productivity Gaps for Selected Agricultural Commodities

Product	Units	Current Production	Potential Production
Fish	t/ha/year	3.6	(6)10
Timber	³ m /year	0.337	13.4
Paddy	t/ha/year	2.72	(5) 10-12
Vegetables	Mt/ha/year	12.8	(17)
Buffalo-Milk	Liters/Lactation	900	2000

Sources: For fish, ²⁷DOFD, 2010; for timber, ²⁸MPFS, MFSC, 1988, DFRS, 1999, for paddy, ²⁹MOAC 2010, & Dir. Crop Dev. DOA, for vegetables, MOAC 2010 & Dir. Veg.Dev. Dir.DOA, for buffalo-milk, ³⁰DLS 2010.

124. One set of constraints to the realization of such potential is the **availability of inputs**. For example feed ingredient supply is the major input to poultry and 60% is imported at relatively high

²⁷ DOFD, 2010. Annual progress report, MOAC, DOA, Directorate of Fisheries Development, Balaju, 90pp.

²⁸ MPFS, 1988. Master Plan for Forestry Sector, Main Report, Ministry of Forest and Soil Conservation, Nepal.

²⁹ MOAC 2010. Statistical Information on Nepalese Agriculture.

³⁰ DLS, 2010. Annual Technical Report, Animal Production Directorate.

cost. Production of livestock is highly vulnerable to price spikes and supply disruptions in the feed supply chain (DLS 2010). Inbreeding in goats, sheep, pigs, and fish and low productivity of local cattle and buffalo breeds (DLS 2010, Mahapatra and Rai 2007) calls for new breeding programs. Similarly low seed replacement ratio in cereals, limited availability of quality and affordable seeds, and insufficient fertilizer availability limit both the cereal and horticultural productivity improvement. In the case of timber, forest technologies are not site-specific, they are too general and inadequate (See Ebregt et al 2007 and MOSFSC, 2008³¹). Driving factors for the bridging of the gaps include reliable and stable access to information (eg demonstrations and extension advice), markets (eg competitive providers supplying quality inputs at affordable prices), credit to overcome cash constraints, and insurance mechanisms to reduce risk.

4.2.1 Seeds

125. It is estimated that use of improved seed contributes about 20 to 30 percent increase in crop yield. The majority of farmers use their own seed harvested from local or improved varieties. Continuous use of such seed for years in a conventional way results in degeneration of seed yielding much less than their capacity. It is said that seed replacement rate should be 25 percent to achieve preserve most of the properties of good open pollinated cereal seeds; however, seed replacement is only eight percent. Similarly, there are reports which indicate that only five percent of the good quality seed requirement is met from formal sector in major food crops and the rest is fulfilled from informal system. Statistical data published by MOAC in 2010 records that only 4530 tons of improved seeds was distributed by Nepal Seed Company in 2009/2010. In case of vegetable seeds, about 830 metric tons of vegetable seed was produced in Nepal in 2006, out of which 30 metric tons were exported and the rest was sold in domestic market (CEAPRED, 2009). It should be noted that domestic production meets only about 50 percent of estimated vegetable seed requirement. However, it appears that vegetable seed production has not eventuated as planned in APP and local open pollinated vegetable seed is produced in only limited quantities, while most hybrid vegetable seed is imported. In 2009/2010, vegetable seed production has been estimated at 981 tons (Annual Report of Directorate of Vegetable Development, DOA, 2010).

126. Vegetable seed production was quite beneficial for the small and resource poor farmers in hilly and mountain districts of Nepal. Till two decades ago, Mustang, Dolpa, Jumla, Rukum, and Parbat districts used to produce considerable quantities of different types of vegetable seeds. The program was supported by international and national projects and a system was working well. The seed enterprise was encouraging and very profitable that time. Increase in accessibility, higher cost of production, alternative employment opportunities and meagre increase in seed price and termination of external supports discouraged seed growers to continue the enterprise. In the current situation reliable seed production and supply mechanism is lacking in the high mountain districts that could support the timely renewal of seed and adoption of newly recommended varieties. Lack of technical know-how on crop husbandry, lack of decentralized seed supply scheme, lack of varieties especially for rain fed conditions, use of poor seed quality and degenerated variety, inadequate soil fertility management, and insect, pest and disease are the main reasons for low and declining productivity of seeds. Among other factors, this can be explained by the fact that major part of the required seed is obtained from informal sources. Informal seed supply tends to be

³¹ MOFSC, 2008. The Future of Nepal's Forests Outlook for 2020, Asia Forestry Outlook Study, Country Report, Ministry of Forest and Soil Conservation, Kathmandu, Nepal, Food and Agriculture Organisation of the United Nations, Regional Office for Asia and Pacific, Bangkok

inconsistent in terms of quality and such seed is vulnerable to new pests and diseases. Also, commercial vegetable growers now prefer to grow hybrid seeds that are all imported.

4.2.2 Irrigation

127. There is significant potential to use Nepal's comparative advantage through further developing irrigation systems and improving their operation. Irrigation remains a policy and investment priority. From the economic perspective, investment is required, but it must be for feasible and well-managed irrigation based on adequate economic rate of return from high value crops, multiple field crop systems, and including feeds and fodder for dairy and poultry.

128. Subsidy strategy for shallow tube wells and groundwater needs to be resolved, and the conditions under which they are economically appropriate must be clearly identified, keeping into account that the performance of an irrigated agricultural enterprise must be able to cover operation, maintenance and replacement costs.

129. Irrigation and agricultural policy and implementation should not be in isolation – irrigation is an input to profitable agriculture, not an end in itself. Program experience³² is that sustainable farmer incomes are achieved through a cluster or pocket approach involving a critical number of farmers, and that provides not only irrigation, but also raises farmer skills in crop management, provides access to inputs and technology, post-harvest facilities and market linkages. Therefore access to complementary services is necessary. There is an institutional gap between irrigation and agricultural ministries and their line agencies which needs to be reduced.

4.2.3 Fertilizer

130. Fertilizer supply remains critically below demand. The state-owned AIC Ltd has not been able to achieve timely, sufficient and profitable fertilizer supply and distribution. Deregulation demonstrated that private sector can import and distribute large quantities of fertilizer, but cannot compete well with smuggled fertilizer (which is lower cost due to India's subsidy) when there is high price differential between Nepal and India. A substantial amount of fertilizer is imported illegally, much of which is fake or adulterated causing under use and financial damage to farmers who purchase fertilizer in the market.

131. Policy needs revision to include private sector in fertilizer import and distribution in order to meet demand. Fertilizer smuggling does not result in reliable and sufficient supply of quality fertilizer, but more importantly, if uncontrolled it prevents government and legal private sector from efficiently supplying the required amount of fertilizer. The Government 2011 budget for fertilizer subsidy³³ is Rs 3.0 billion (\$42 million) applied to the AIC Ltd target import of 240,000MT fertilizer, a level of subsidy equivalent to 40% of the international price of fertilizer. AIC Ltd estimates the total demand for fertilizer is about 500,000MT, and to apply subsidy to this quantity would be a high fiscal cost. A more clear assessment of the fertilizer situation in country (including assessment of use and demand) should be made in order to evaluate the costs and benefit of the current and any future

³² M. Michaud (2011). "Report on Lessons Learned EU Food Facility INGO Projects, EU Cooperation Office, Kathmandu 30 June 2011

³³ A Government Committee fixes the selling price of fertilizer (Rs 18/kg, 2011). The subsidy is applied to the difference between the international buying price (about Rs 37/kg, 2011), and the fixed sale price.

subsidy policy. The fertilizer subsidy must be reviewed in light of effective targeting and impact on smuggling, effect on demand, use, and productivity, as well as its budget implications.

4.2.4 Soil Fertility

132. Decline in soil fertility all over the country from Terai to mountains is one of the key factors constraining increase in production and productivity in almost all crops and type of farming systems. The main reasons of soil fertility decline in Nepal can be summarized as follows:

- Mostly hilly sloppy areas are more vulnerable to soil erosion due to rain and wind and the rate of erosion is also high there in upland as well as in marginal land.
- Occurrence of organic matter depletion in both Terai and Hills.
- Acidification of soil due to parent material and more use of acidic fertilizers.
- Micronutrient deficiency affecting the production of cereals, vegetables and fruit crops
- Problem of siltation such as Seti river irrigated area and Narayaani irrigation sector command area.
- Degradation of forest and marginal land.
- Multi-cropping in a year.
- Mono-cropping for long period.
- Low quality of fertilizer.

133. At present farmers use 2.5-3 ton/ha of organic manure for fertility management. Mid-hill soils are receiving more organic manure than in Terai where cropping intensity is higher. The national average use of chemical fertilizer is about 30 kg/ha which is not possible to meet the nutrient demand of crops (Proceeding of a workshop on Integrated Plant Nutrient Management, 2000). Thus, there is a large gap between nutrient uptake from soil by crop plants and nutrient supply into the soil resulting into a decline in soil fertility year after year. Focusing on the importance and need for soil fertility management, DOA is implementing the regular programs such as promotion of organic manure and compost, green manuring, balanced use of chemical fertilizers, soil analysis service, trainings, demonstrations, etc., however, these programs cover only a limited number of farmers due to constraints in human resource, physical facility and linkage and coordination.

4.2.5 Finance

134. The need for viable rural financial services remains a constraint to rural commercial development. ADBN has moved away from agricultural financing (Figure 16), but commercial banks have not yet filled the gap. In this sense credit disbursement has not reached APP targets. The relevant policy is government's Financial Sector Reform Program (2009), implemented in coordination with the International Monetary Fund (IMF), World Bank and ADB. The ADB-financed Rural Finance Sector Development Cluster Program (2006-12)³⁴ implemented by the NRB is developing an enabling environment for the rural finance sector through policy, legal, regulatory, and institutional reforms. The program helped reinstate ADBN as a strong financial institution focused on agricultural and rural development, and improved the delivery mechanism for rural finance. The institutional development of the major rural finance institutions is expected to result in

³⁴ Sub-program 2, Project Number: 36169-02 was approved May 2010.

a credit environment with improved supervision and regulation. The institutions are moving toward eventual privatization.³⁵

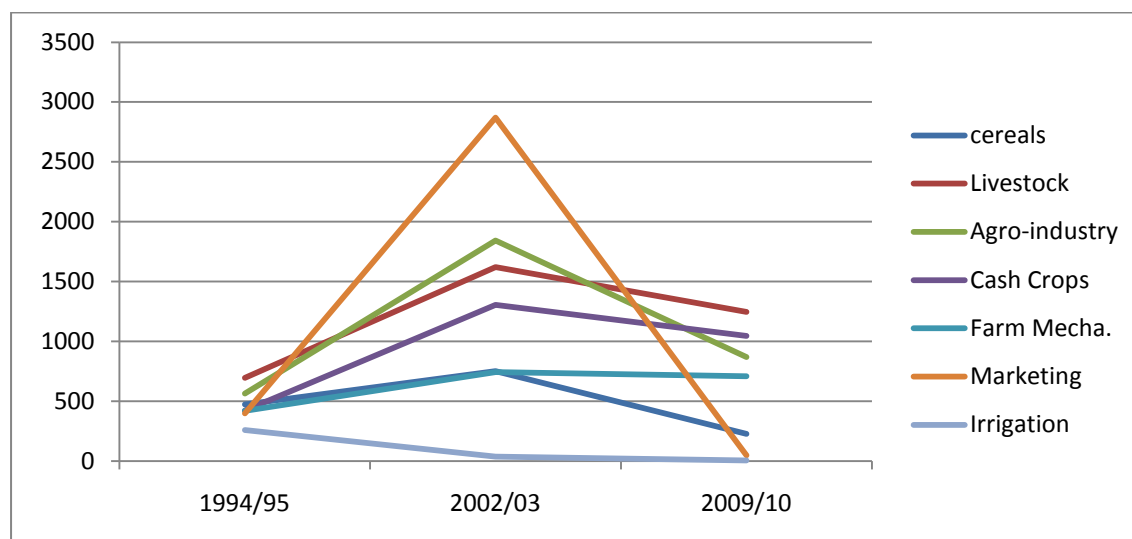


Figure 16: ADBN: Top 7 purposes of agricultural loans (Rs Millions)

Source: Agriculture Development Bank Nepal, 2011

4.2.6 Research and Extension

135. The Nepal Agricultural Research Council (NARC) is a key player in Nepal's agricultural research system. Its priority in the past was on technology generation, mainly on rice, wheat, maize, oilseeds and legumes for irrigated and high input conditions. Few efforts have been made in recent years to develop technologies for rain-fed and resource-poor environments. Moreover, where successful models have been demonstrated, there have been only limited efforts – if any – to upscale them in an integrated manner that encompasses technology generation, capacity building and access to inputs, credits, markets and extension services.

136. NARC's projects are mostly mono-disciplinary, rather than targeted and issue-based multidisciplinary interventions. Although its projects are broad-based and have had some spillover effects on marginal farm households, NARC's organizational structure is not geared to addressing pro-poor issues in terms of critical mass, teams, policy or flexibility.

137. NARC's outreach research activities have not been dynamic enough to design, implement research and disseminate the findings among the intended client base. The sites are limited and poorly resourced, and they are located in the vicinity of NARC research centers, located in different agro-ecological zones. Therefore there are inadequate opportunities for carrying out participatory R&D in the target environment with the active participation of the clientele.

138. NARC's capacity to conduct research has become seriously eroded over the past several years. At present NARC is critically understaffed, with nearly 45 percent of its scientific positions vacant due to recruitment problems. The critical mass of scientists needed for multidisciplinary

³⁵ ADB (2009). "Country Assistance Program Evaluation: Nepal—Delivering Assistance in a Challenging Environment". Manila. 2009

teams is simply not there at most centres. NARC is weak at all levels, from production to processing and packaging.

139. In order to build substantial linkage between the research institutions and extension systems, Technical Working Groups were established at regional and national level. These fora aim to provide opportunity to discuss on researchable problems and identify the area of research that reflects the problems of farmers. The idea is laudable, but so far the impact has not yet been visible. More strengthening of the mechanism is needed to ensure effectiveness of the linkage between research and extension.

140. **Decentralization and devolution.** Nepalese public extension system is led by the activities of the two departments under the Ministry of Agriculture and Cooperatives- the Department of Agriculture and the Department of Livestock Services. Although both the departments have setup their parallel district offices and field offices (service centers) in all the 75 districts of the country, they have devolved the extension services to the district level pursuant to the decentralization policy of the Government of Nepal and Local Self Governance Act of 1999. However, this devolution has remained incomplete. The push for decentralization was not accompanied by the preparation of measures to implement the Act by the local government. The decision to devolve the sector budget from central level to local level was poorly implemented. The local level (DDC) was responsible for planning and spending but the responsibility for the expenditures rested with the central level.

141. Both departments have retained their command in practice. So, the devolution has remained within the district level, not reaching to the VDC level where the programme and activities are actually implemented. This is weakest link in Nepal's current decentralized extension service. The link between backstopping technical department and the District (DADO) has also been weakened. Often, local resources are not used for agricultural sector but for other purposes.

142. **Coverage.** In 2003, the Government of Nepal reorganized the MOAC with a view to right size it as part of the Governance Reform Programme (GRP) agreed with the Asian Development Bank. However, this reorganized structure further reduced extension coverage and access of the farmers to extension services. This coverage does not match with country's difficult terrain, physiographic situation, limited transport facilities and physical infrastructure.

143. **Outreach and inclusion.** Both the departments have been delivering services to farmers using commodity group approach since 1990. The number of groups in each district ranges from 100 to 400. Government statistics show 22,358 and 14,360 farmer groups under the DOA and DLS respectively³⁶. In fact there are statistics available at the district level. This coverage is less than 5% of the total farming households. Adoption of the group approach makes sense as it is more efficient and cost effective than the individual approach. However, the reality is that a large majority of farmers are still unreached. The most unreached farmers are the large mass of very poor, ethnic and religious minorities. Recent years have seen commercial and large farmers tended to remain in groups because of government subsidies and assistance being channelized these through farmer groups. While this could lead to increased control of government subsidies and assistance by these groups, there is no evidence to substantiate it. There is no research and studies and monitoring by the departments to assess the distribution of subsidies and assistance. Likewise, the Departments have no proper statistics on the number of active, semi-active and defunct groups and the groups which have already been transformed into cooperatives as well. The departments have not devised

³⁶ Agriculture Extension Directorate, Annual Programme and Statistics, (2009-10).

programmes to graduate groups and categorize them based on the year of organization/establishment. Statistics may be available at the district level but need to be aggregate at the region or country level.

144. **Coordination and collaboration.** The review of Nepalese extension system shows several examples of progressive policy shift from dominance of public extension system to institutional pluralism with expanded roles and responsibilities to non-government, private and cooperative sectors as well, particularly after the implementation of the Agriculture Perspective Plan 1997 and Issuance of the Guidelines by the Ministry of Agriculture to Involve Private and Non-Government Organizations in 2002. Likewise, most of the externally assisted projects have promoted institutional pluralism with responsible roles to NGOs and private sector and limited monitoring roles to the DADOs and DLSOs. However, review shows that the public extension service has not yet been able to benefit effectively from this opportunity. It appears that they are yet to internalize the change situation, learn and adapt.

145. **Presence and delivery competence of public sector.** To operationalize Priority Productivity Package (PPP) programmes of the APP, the MOAC, formulated "Implementation Guidelines on Pocket Package Strategy (PPS) for Agriculture Development 2055 (1998)" which provided a common framework for defining pocket areas, group formation and development, preparation of pocket profile, identification of priorities, programme formulation, monitoring, and review/evaluation. While the PPS is considered as a concrete mode of implementing APP and a the main way to disseminate core message of APP to farmers, review of PPS implementation shows coverage of less than 5 percent of the total cropped area of the country³⁷. This also suggests that public extension services has been grossly inadequate from both quality and quantity dimensions.

146. **Human resources.** The field extension agents are loaded with non-extension functions such as collection of agricultural statistics and data and transportation of agricultural inputs such as seeds, fertilizers and pesticides and regulatory functions. There will be a need to identify appropriate balance between extension and non-extension functions. This is aggravated by the lack of service standards in agricultural extension service delivery and extension methods. The system is overwhelmingly dominated by norms for expenditures. Key indicators for measuring success of agriculture extension service at district and service centers have not been defined. Moreover, training marketing and agribusiness development has been neglected.

147. **Linkages with research.** The service suffers from weak linkages with national agricultural research systems. Part of the problem has emerged due to weak national research system, lack of resources with it, frequent changes in the institutional leadership and lack of effective mechanisms of research extension linkages. This too suffers from the lack of service standards and road map. Linkage at regional level has functioned to some extent depending on the role of the leadership; linkage at national level is that of hi-hello type.

4.3 Competitiveness

148. Nepal has trade agreements including membership of World Trade Organization (WTO) and South Asia Free Trade Agreement (SAFTA), and has agreements with India and China, on its northern and southern borders, which are also major trade partners. The guiding policies are the Trade Policy

³⁷ APP Implementation Status Review, APPSP/MOAC, 2007

(2009) Nepal Trade Integration Strategy (2010). There are a number of issues constraining competitiveness performance including difficulty of doing business, infrastructure, governance, access to credit, and regulations (Table 13). **Most of the competitiveness indicators are ranked very low in international benchmarking.**

Table 13 Competitiveness indicators for Nepal

Indicator	Rank
Difficulty of doing business across borders	164 of 183 countries
Infrastructure index	139 of 139 countries
Ease of access to loan index	88 of 139 countries
Corruption perception index	146 of 180 countries
Governance effectiveness index	-0.75 (range -2.5 to 2.5)
Regulatory quality index	-0.66 (range -2.5 to 2.5)

Source: World Economic Forum 2010, Transparency International 2010, World Bank 2009³⁸

149. Nepal's agricultural import and export trade comprises about 15.6% of total trade, which includes items such as petroleum, construction materials, vehicles and equipment, consumer goods and others. Agricultural trade is dominated by export of lentils, tea, cardamom, fruit, ginger, and medicinal and aromatic plant products (MAPs), with import of fruit, cereals, vegetables, beans (mostly peas), dairy products, meat animal, and raw materials for processing (oilseeds) and manufacturing (fibers for carpets, garments and textiles). There is good potential for import replacement in vegetables, fruit, beverages, dairy and meat. Export value of the top three high value crops exceeds the value of cereal and dairy imports (Table 14).

150. There is considerable potential to increase value adding in Nepal, including: (i) improving quality, safety and labeling up to Codex Alimentarius standard; (ii) certification to standards for safety, quality, fair trade and organic branding; and (iii) processing and product development, for example the vast majority of spices, pashmina, hides and skins, and MAPs are exported in raw form and most value adding is done in India and China.

Table 14 Import and Export of high value crops, cereals, MAPs and dairy (2009/2010)

	Exports (Rs. Million)	Imports (Rs. Million)	Surplus/Deficit (Rs. Million)
Lentils	3,745	230	3,515
Tea	1,195	35	1,160
Cardamom	1,172	57	1,114
Fruit	486	4,715	(4,228)
Ginger	456	46	410
Vegetables	26	2,097	(2,071)
Coffee	24	14	11
Beans	11	1,379	(1,368)
Sub-total High Value Crops	7,116	8,573	(1,457)

³⁸ Kaufmann, D., Kraay, A. and Mastruzzi, M (2009). "Governance Matters VIII: Aggregate and Individual Governance Indicators, 1996-2008". *World Bank Policy Research Working Paper No. 4978*. World Bank, 2009

Cereals	112	4,195	(4,082)
MAPs	440	Not significant	440
Dairy products	Not significant	861	(861)

Source: CBS 2010

4.4 Agriculture Trade Issues

151. **Nepal-India trade treaty** which provides *reciprocal duty free market access* on selected agriculture and primary products along with open and porous border between two countries have created *de facto* free trade, through formal or informal channels³⁹, in agriculture products and also in the input market between Nepal and India. In addition, because of the differences in productivity due to difference in technology, scale of operation and the magnitude of government supports, Indian agriculture products outcompete some of the Nepalese products in the Nepalese domestic market. The major source for agriculture imports is India, and though positively contributing to price stability, it has displaced Nepalese cereal products in the market as evident from the consistently increasing share of imports of food items in the food consumption.

152. Despite low average tariff rates on imports and no direct distortion practices in export trades, **there are several problems in the existing tariff system**. At first, it has continuously encouraged cascading tariff system as a result of several rates and bands imposed depending upon the stages of production or the degree of fabrication. Such a tariff system discourages production and trading of high value added products that also could generate more employment opportunities. Such a tariff structure may discourage the development of forward and backward linkage industries that use domestic resources⁴⁰

153. Due to lack of good farming and manufacturing practices, it has been difficult for Nepalese farm products to comply with international quality standards. As a result, **Nepalese products face non-tariff barriers in the form of sanitary and phyto-sanitary (SPS) and technical standards in the export markets**.⁴¹ In addition, Nepal lacks an adequate legal and institutional system for the certification of products.

154. **Although Nepal adopted a market determined exchange rate regime in late 1990s, it has maintained fixed exchange rate to Indian currency**. Given the difference in inflation rate in Nepal and India (the wholesale price index rose by 75.9 percent in Nepal compared to 50.9 percent in India during the period 2000/01 to 2008/09) and resulting over valuation of Nepalese currency vis-a-vis

³⁹ Karmacharya, Binod. A study on Cross-Border informal Trade between Nepal and India on Selected Agriculture Commodities. Nepal Council for Development Research (NECDER), Kathmandu, 2010 A

⁴⁰ Khanal, D. R. and Kanel, N. R. (2005) *Macroeconomic Policy, Shocks and Poverty Reduction in Nepal*, Kathmandu: Institute for Policy Research and Development.

⁴¹ ITC. Export Potential Assessment in Nepal. 2007.

Indian currency⁴², it has been argued that pegged exchange regime with India has resulted in erosion of competitive edge of Nepalese products in exports to India as well as in domestic markets⁴³.

155. Another issue looming in the agri-business sector is **data gaps and anomalies**. Authentic database on existing agri-business establishments, their production levels, sales volume, investment patterns and employment generated by the enterprises is lacking. This discrepancy has serious implications, for example in the export of products requiring a certificate of origin under the bilateral treaty agreement of 1996. If statistics are not accurate, certification may be denied on the ground that the expected amount of total production has already been exported.

156.

157. In terms of assuring **food security** through a self-reliant food economy, international trade has positively contributed in country's capacity to finance food imports through export earnings and at the same time, it has helped to stabilize food prices vis-à-vis Indian markets. It might have helped to avoid efficiency loss or direct costs involved in stabilizing domestic food market⁴⁴. Therefore, one of the issues of agriculture trade is how to use trade policy instruments in securing food security through self reliant food economy.

4.5 Commercialization and Agribusiness

158. Commercialization of the agricultural sector is a theme in all the major agricultural policies, and also in the current Three Year Plan 2010/11-2012/13 and the White Paper 2011. The MOAC *Agro-Business Promotion Policy 2006* highlights diversification, service delivery and private sector involvement to transform from subsistence to commercial farming. Specific measures include public private partnership in services delivery, and in infrastructure for post-harvest, marketing and processing have been successful, and could be replicated with further investment.

159. Enterprises registered under the *Companies Act* pay corporate tax, and their employees pay income tax, while those registered under the *Cooperatives Act* do not, resulting in a disincentive for full commercial development and rural employment generation, and constraining fiscal revenue. Companies are required to comply with various legislation including accounting, employment and contracts, while cooperative responsibility is limited.

160. There are also a number of issues in the commercial agricultural environment, on which government has not acted including for example: (i) monopoly of the AIC Ltd on fertilizer import and delivery of its subsidy to a minority of farmers; (ii) lack of decision whether to promulgate the draft Contract Farming Act, or to improve regulation involving land, cooperatives and other aspects so that the existing Contracts Act (2000) is workable for contract farming; (iii) dairy price fixing and the

⁴² Ministry of Finance, Government of Nepal, Economic Survey (various issues) and Ministry of Finance, Government of India, Economic Survey (various issues)

⁴³ Nepal's inflation has been higher than India since the exchange rate was fixed at 1.60 in 1992, which affects the price competitiveness of Nepal's products on both sides of the border, for example the retail price of eggs and milk in Nepal is more than double the price in India.

⁴⁴ Pandey, Posh Raj. 2009. *Trade Policy as an Instrument to Ensure Food Security: A case of Nepal*. Paper for the Asia-Pacific Trade Economists' Conference on Trade-Led Growth in Times of Crisis, Bangkok, Thailand, November 2-3, 2009

subsidization of the Dairy Development Corporation which creates unfair advantage over private dairy and cheese manufacturers.

161. There is insufficient institutional capacity in MOAC to deliver the necessary services and support for commercial skills transfer, post-harvest and value chain development which is essential for commercialization. For these policy aims, partnership with private sector and orientation of research institutions would be appropriate, together with development of competitive funding of research and extension services.

162. Tax policy does not seem to be biased against farmers and agroenterprises (see chapter 2.9); however agribusiness entrepreneurs often complain that they lose competitiveness due duties and taxes levied on agricultural technology inputs, equipment and machinery for production and processing. This discrepancy between the law and what is allegedly happening will need to be further investigated during the Assessment Phase of the TA.

163. Risk is inherent to any business and even more in the case of farming and agribusiness. Investment in agribusiness is often constrained by low returns (as compared to other sectors), high risk, and long-lags. In Nepal, there are few if any risk reduction mechanisms for the agricultural sector. There is not a program or policy for agricultural insurance related to crops and livestock. In the case of livestock, some cooperatives have, with the help of DLS, initiated efforts for cow insurance, but the coverage is still very limited. There are credit guarantee schemes but a system of agricultural insurance has still to emerge.

164. Nepali entrepreneurs needs from the public sector include: (a) better maintained roads and a larger grid of agricultural roads; (b) reliable supplies of electricity; and (c) appropriate research. The gross deficiencies in each of these areas explain much of the slow growth of agribusiness in the past. Significant policy changes are needed to foster agribusiness development, including a specific commitment to the industry, transparent and stable tax structures, transparent rules and regulations, and a commitment to improving quality through enhanced grades and standards.

165. The agribusiness sector provides opportunities for women farmers to achieve some degree of economic independence. Agribusiness sectors in which women dominate include sericulture, dry ginger (*sutho*) processing, cardamom drying, fruit processing, cut flowers, and saffron. The active participation of farmers' associations and NGOs is very crucial in the development of agribusiness. Besides, policy reform is essential toward establishing an environment conducive to private sector investment in expanded market support services and infrastructure.

4.6 Food and Nutrition Security Issues

166. Table 15 highlights the key issues in food security in Nepal, using the World Food Summit definition of food security as a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preference for an active and healthy life.

167. There are at least two aspects related to food and nutrition security (FNS) that needs to be highlighted in the context of the preparation of the ADS. First, although FNS is a different concept from Food Self Sufficiency, there is a large part of stakeholders in Nepal who interpret the objective

of FNS as increasing foodgrains production to achieve self-sufficiency. From this point of view, whether self sufficiency in foodgrains is economically desirable and efficient is not a major consideration; food security is narrowly interpreted as food availability and food availability is interpreted as foodgrain production at a higher level than population requirements. The additional question of whether food self sufficiency ensures nutritional security or not is often neglected, in spite of evidence in Nepal and other countries that food self-sufficiency and even food surpluses can occur even in the midst of persistent food poverty, malnutrition, and food vulnerability.

168. Second, food security is often identified with calorie intake rather than a balanced diet of nutritious food. From a long-term perspective (20 years) the diet in Nepal is expected to change, certainly among the upper quintiles of the population, towards a lower consumption of staples and more diversified consumption of fruit and vegetables, meat and fish products, and dairy products. The strategic implications of this for ADS are crucial, and highlight the issue of the extent to which research and extension work and overall agricultural investment should primarily be directed to foodgrains as in the past, or to other commodities.

169. Food and nutrition security is a complex concept with multiple dimensions. The ADS will need to address several of these dimensions. At the same time, the GON in cooperation with FAO is initiating an effort to prepare a **10-year Food and Nutrition Security Action Plan (FNSAP)**. The team responsible for the preparation of the FNSAP will closely coordinate with the team preparing the ADS. It was agreed between GON and FAO that the FNSAP Team will submit their reports to the ADS TA Team Leader to ensure consistency between the two efforts. Ultimately, the FNSAP will be part of the ADS.

Table 15 Issues in Food and Nutrition Security

Dimension of Food Security	Issues	Evidence
Availability	<ul style="list-style-type: none"> • Low production and stagnant productivity • Population growth higher than the growth of cereal production • Limited Infrastructure for food storage 	<ul style="list-style-type: none"> • Productivity of major crops lowest among South Asia • Nepal net importer of food products
Accessibility	<ul style="list-style-type: none"> • Poor connectivity: impairs both physical and economic access. • Limits the access to various inputs, extension services and marketing opportunity for their produce • Rising food price since 2005/06; food price inflation higher than general inflation. Urban poor are severely affected as they are mostly food buyers • Poorest households allocate almost three quarters of their income to food 	<ul style="list-style-type: none"> • Road density in Nepal 6.39 km/100 sq.km whereas in Himachal Pradesh and Uttarakhand of India, it is 58.5 and 133.6 respectively • Only 30 % of the population has access to all weather roads and more than 60% of the road infrastructure is located in the Terai. • High price of food in Kathmandu and high hills

Absorption and Utilization	<ul style="list-style-type: none"> • Low dietary diversity • Inadequate attention to utilization of minor crops • Social, Geographical and Temporal variation in terms of consumption behaviors and health indicators • Low awareness on food safety • Changing consumption behavior (fast foods, sedentary life style, sugars and fats consumption contributing to obesity and diabetes) • Assessment of food security based only on cereal production and availability 	<ul style="list-style-type: none"> • 40-60% of the population unable to meet the minimum daily per capita intake of 2,144 kcal and about 49% of <5 years old children are stunted, 13% wasted and 39% underweight • About 51% of women suffer from anemia in FWR against 31 % in ER • Vulnerable communities such as Dalits, Adivasi, Janajatis and ex-bonded laborers often struggle to access sufficient food. • Recent report on pesticide use survey by DFTQC showed high pesticide residues (urban, peri-urban)
Stability	<ul style="list-style-type: none"> • Agriculture becoming more volatile • Poorer households more vulnerable and low resilience power • Agriculture labor migration • All weather road vs fair weather road • Weak preparedness against disaster 	<ul style="list-style-type: none"> • Climate change implications on agriculture increasingly visible • Recent flood in eastern region in 2008 had implication in agriculture production and the livelihood of people • Youth migration to middle east countries often motivated by political instability

Source: TA Team based on UNDP 2010, USAID 2010.

170. **Soaring Food Prices, Food Price Volatility and Coping Strategies:** With Nepalese households spending 67 per cent of their income on food, high food prices imply reduction of their food expenditure. The most common coping strategies include: relying on less preferred foods (67 per cent), reducing meal portions (29 per cent), reducing spending on non-food items (26 per cent), and reduced spending on food/ borrowing money for food purchasing (14 per cent). During the high food price crisis in 2008, about 12 per cent of the households skipped food for a day.⁴⁵ The ADS will need to consider strategies to reduce the vulnerability of the poor to soaring and volatile food prices.

4.7 Policy and Institutions

171. **Credibility of Policy.** Policy Implementation cannot be effective unless society believes that government decisions are consistent and sustained over time with adequate institutions, investments, and enforcing mechanisms. Continuous changes in leadership of the institutions involved in the agricultural sector do not allow to build capacity and competences to carry out programs effectively. Gaps between policy statements and implementation (eg. Agribusiness Policy 2005) have a negative effect on investment and compliance with rules and regulations. The push toward decentralization and devolution is not helped by the lack of elected bodies at the local level. The changes in input subsidy policy over the past 15 years (high subsidies, withdrawal of subsidies, and again high subsidies) leave great confusion and uncertainty.

172. **Coordination.** The experience of APP and other programs has shown the difficulty of coordinating effectively across multiple agencies and different administrative levels (central, district, village). Noteworthy, APP coordination was weaker at central level (among agencies such as NPC, MOAC, MOI, ...) than at district level. Even within the same agency, there are difficulties in

⁴⁵ United Nations World Food Programme WFP, 2008.

coordinating related programs. For example, there are different bodies within NPC for food security and nutrition. Within the same irrigation scheme, it is difficult to coordinate between irrigation engineers and agricultural extension officers. There is no national level NGO program coordinating body.

173. **Capacity** is reflected both in terms of (i) institutional capacity and (ii) human resources capacity. Limited capacity of relevant institutions in policy analysis, planning, service delivery, and implementation. There is little analytical work and output related to policy. Formulation of policy occurs often without adequate analytical or evidence-based analysis. Policy implementation is insufficiently monitored and evaluated, or is delayed until it is too late to make adjustments and corrections. Limited human resources to serve large farming population and inadequately trained service providers result in poor quality of service delivery and inability to meet service demand of a large population of farmers and potential agribusiness enterprises. Currently, in the case of crops, there is one extension agent to serve approximately 2,000 farmers⁴⁶. The improvement of capacity of existing human resources is also limited by declining budgets for training and capacity building and limited incentives to provide services, particularly in areas that are not easily accessible.

174. **Accountability.** It is not clear who is accountable for achievement (or lack thereof) of outcomes and outputs of government programs and projects. The system of accountability (rewards and punishments) does not seem to work. Results-based performance systems are not functional. The government is aware of these issues and has expressed concern about transparency of public expenditures. In the recent past, DfID has withdrawn its support to the agricultural sector partly because it found serious cases of misconduct in the implementation of the APP-SP project. More generally, there seems to be a weak link between performance of programs/projects and career growth. Format of performance evaluation for public servants are very general and not specific to the tasks performed

175. **Underfunding and Effectiveness of Investment.** In spite of considerable rhetoric on the critical importance of agriculture, investment in the sector is inadequate and has been declining. Insufficient funding implies a lack of continuity in programs and cuts in resources that are critical to program effectiveness. Even when funding is available, however, a critical issue is the effectiveness of investment and expenditures. In the case of infrastructure such as rural roads and irrigation schemes, the construction is often faulty and operation and maintenance is lacking, both situations resulting in poor returns on initial investments.

4.8 Climate Change and Natural Resources Management

176. The observed data shows consistent warming and rise in maximum temperature at an annual rate of 0.04-0.06 °C. Warming is more pronounced in higher altitude than in the Terai and Siwalik region. Annual precipitation data show a general decline in pre-monsoon precipitation in far- and mid-western Nepal with a few pockets of declining rainfall in the western, central and eastern region. In contrast, there is a general trend of increasing pre-monsoon precipitation in the rest of the country. Monsoon precipitation shows general declining trends in the mid-western and southern parts of western Nepal, with a few pockets of declining rainfall in the central and eastern regions. In

⁴⁶ This was based on estimates by the TA Team of about 2,810 Crop extension workers (including subject matter specialists and supporting technical staff, source www.doanepal.gov.np) and a farmer population of 6.170 million (estimated looking at the population of farmers of 5.062 million in CBS 2001 and a growth rate of 2%).

the rest of the country, monsoon precipitation has generally increased. Post-monsoon precipitation shows increasing trends in most of the mid-western and the southern parts of eastern and central/western Nepal. A general declining precipitation trend is observed in most of the far-western and northern parts of the western, central and eastern Nepal. The winter precipitation trends show overall increasing trends except the northern part of mid-western, western and eastern Nepal (NAPA, 2010).

177. IPCC (2007) projects that there will be a general increase in the intensity of heavy rainfall events in the future and an overall decrease by up to 15 days in the annual number of rainy days over a large part of south Asia. Significant warming particularly at higher elevations results in reduction of snow and ice coverage; increased frequency of extreme events, including floods and droughts and overall increase in precipitation during the wet season while decrease in the mid-hills. Analysis of daily precipitation data for 46 years from 1961-2006 shows an increasing trend in precipitation extremes. About 73% stations (out of 26 total stations selected for study) exhibited increase in the annual count of days when precipitation is greater or equal to 50 mm (Baidya et al., 2008).

178. Loss/degradation of agricultural land, decline in crop and livestock production and loss of local races and crops are some of the impacts in agricultural sector. Similarly, shift in agro-ecological zones, forest fire due to prolonged dry spells, high incidence of pest and diseases, emergence of new alien and invasive species and loss of species and habitats, changes in terms of early sprouting, flowering and fruiting, decline in the productivity of some of the herb and grass species and depletion of wetland are some of the impacts indentified in forest and biodiversity sector.

179. Water resources and energy sector is likely to be affected. The problem of too much and too little water in time and space is likely to be increased. As a result hydroelectricity generation, irrigation, drinking water supply and sanitation are likely to be affected. Studies show that ELA has been shifting up by 25-79 m (1959-1992), majority of glaciers are retreating by 30-60 m (1970 - 1989) and the glacier surface is thinning by nearly 12m (1978-1989). The rate of retreat has accelerated in recent years. Accelerated melting of glaciers has caused creation of many new glacier lakes and expansion of existing ones. As a result, the risk of Glacial lake Outburst Flood (GLOF) is increasing. Analysis of river discharge for the period of 1947-1994 showed a decreasing trend, particularly during the low-flow season. In rivers fed by glaciers, the runoff first increases as more water is released by melting due to warming. As the snow and glacier volume gets smaller and the volume of melt-water reduces, dry season flows will decline to well below present levels.

180. Another important sector adversely affected is irrigation. An increase in temperature by 3°C would cause an increase in annual irrigation water demand by 11%, while other parameters of water demand remaining constant. Nepal is already experiencing water deficit during 4-5 months in the non-monsoon season. Further warming may worsen the situation.

181. Many vector born and water born diseases are sensitive to climate change. The incidence of landslides, floods and drought are likely to be increased and the loss/damages of service infrastructures are likely to be increased.

4.9 Farm Size

182. Farm size distribution has implications for the strategic approach to agricultural sector development. A simple way to classify rural population is to consider three groups: (i) small commercial farmers; (ii) subsistence farmers; and (iii) landless or near landless. We can define **small commercial farmers** as those with holdings of 1.0 to 5.0 hectare, selling more than 30 percent of their output, ready to emphasize increasing their farm incomes and therefore ready for high intensity, high input agriculture. Mostly they are not subsistence farmers. They concentrate on farming, have some capital, are a good risk for lenders, and are willing to take risks to increase their incomes. This set of farmers comprises 25 percent of rural families⁴⁷, farming 54 percent of the land and presumably a somewhat higher proportion of output. If we add the one percent of families with more than five hectares of land and commanding seven percent of the land, then we have a total of 61 percent of the land. That comprises approximately 843,000 families for the research/extension system to concentrate on for small commercial production. It is from these 843,000 small commercial farmers that the engine of growth of the agricultural sector comes, driving rural non-farm employment, food supplies, and national income.

Table 16 Landholdings Distribution

Size of holding	Holdings			Area of Holdings		
	Number ('000)	Percent	Cumulative percent	Area ('000 ha)	Percent	Cumulative percent
less than 0.5 ha	1578.9	47.3%	47.3%	390.2	14.7%	14.7%
0.5 ha and under 1 ha	915.7	27.4%	74.7%	641.7	24.2%	38.9%
1 ha and under 5 ha	817.4	24.5%	99.2%	1428.2	53.8%	92.7%
5 ha and over	25.4	0.8%	100.0%	194	7.3%	100.0%
Total	3337.4	100.0%		2654.1	100.0%	

Source. TA Team's calculations based on Agricultural Census 2001, Central Bureau of Statistics

183. The second category the **subsistence farmer** commanding from 0.5 to 1.0 hectares in size. They comprise 27 percent of rural families (roughly the same in numbers as the small commercial farmer. They farm one-half as much land – 24 percent of the total. Some keep enough livestock to be small commercial farmers. But as a group they are mostly subsistence producers with inadequate land for survival as purely subsistence farmers. They must find substantial rural non-farm employment to survive. They are more risk averse than farmers with more than one hectare of land and the higher incomes that go with that. They are very short of capital and need some kind of loans but will be seen as risky to all lenders, and they spend considerable time in non-farm employment and in search for such employment. That reduces the quality of their husbandry on average.

184. The third category is comprised of the **landless and near landless**. They comprise nearly half of the rural population, 1.6 million families in number but command only 15 percent of the land. Half are landless and half have less than 0.5 hectares of land. Very little can be done to raise the incomes of this group through increased agricultural productivity. Of course a few at the upper end of the range will be able to prosper in horticulture – but with great increase in risk in that they will have to put essentially all their land into horticulture. The contribution of ADS to the landless and

⁴⁷ This is based on Agricultural Census figures for land distribution in 2001. More recent comprehensive data are not available. However, the main arguments should be robust to slight changes in the distribution.

most of 0.1 to 0.5 hectare holdings will be largely through the indirect effects of rapid growth in the rural non-farm sector stimulated by income growth of the small commercial farmer.

185. Those farmers with half to one hectare of land could achieve a substantial increase in family income from improved farming practices. However this group, compared to the small commercial farmer (those with more than one hectare) is more risk averse, focused less on farming relative to search for and performing off farm work, and more deficit in capital and ability to obtain loans. A **specialized approach** is needed for these families calling for a new institutional structure, emphasizing intensive extension services specific to their needs, access to credit and other approaches. Such a specialized body might usefully be housed in the Poverty Commission, although it would need a link with the agricultural research system, perhaps calling for some specialized research oriented to this group. Dairy would be a special focus, and to a limited extent horticulture. The point is that the services covering the small commercial farmer are generally inappropriate to the subsistence farmer, and in the context of institutions keyed to the small commercial farmer the subsistence farmer will be left out except for those very few who can respond to the approaches suitable for the small commercial farmer.

4.10 Legal Issues

4.10.1 Food Safety and Quality (FSQ)

186. The 1967 Food Act is outdated and the FSQ standards and accreditation mechanisms for certification bodies required by international agreements and third countries have not yet been incorporated into Nepali legislation. The legislation which would adequately set standards for value chain in terms of food quality and safety both for consumption in Nepal and more importantly for export to third countries needs to be updated if Nepal wishes to sustain its export agribusiness⁴⁸. There is also no appropriate regulatory framework that would enable a suitable FSQ oversight to take place, to the detriment of agribusiness and trade. At the lower end of the value chain it was pointed out that at present there are confusions with respect to zoning provisions that protect water and land resources used for agricultural purposes from contamination.

4.10.2 Commerce and Trade

187. **International Trade:** The international trading agreements to which Nepal is party are still in the process of being transformed into national law by way of implementing legislation. Although Nepal acceded to the WTO in 2004 the process of adapting the legislation is far behind the schedule set by the MOCS⁴⁹.

188. **National Commerce:** The policy of the government to prefer cooperatives over the private sector, leads in certain instances to an inefficient use of resources. The policy that only the Agriculture Inputs Co. Ltd. (AIC) has the right to receive subsidies and only for supply of fertilizers through Cooperatives to farmers discriminates against the private sector which, if importing fertilizer, does not enjoy the subsidy and can therefore not compete with AIC. According to the

⁴⁸ A consultancy to the Department of Technology and Food Quality at the MOAC is working on a redraft of the Food Act.

⁴⁹ See Revised Legislative Action Plan of March 2011

private sector the trade through AIC and cooperatives causes higher prices for the farmers and also to increased smuggling of fertilizers from India, some of inferior quality.

189. The Consultant understands that a Contract Farming Act is being considered by the Government to address some of the land use practices prevalent in the rural sector. The impact of this on existing legislation and policies will have to be reviewed.

4.10.3 Natural Resources

190. **Water Resources:** The Water Resource Act (WRA) of 1992 is not demand driven or otherwise based on IWRM principles⁵⁰ and the management of Nepal's water resources is still carried out on the basis of administrative rather than hydraulic boundaries. While the WRA and the 2000 Irrigation Rules allow for the formation of water user associations (WUAs) and the Irrigation Regulations provide for the formation of User's Coordination Associations in practice registration of WUAs is carried out sometimes under legal frameworks other than the WRA (under the Societies Act or directly with the District Office of the DOI). Furthermore, there is no provision in the Act or the Rules that would allow the engagement of Service Companies in the Irrigation Sector, for example for maintaining large canals.

191. In discussions with the Nepali Federation of Irrigation Water Users Associations (NFIWUA) the lack of the involvement of WUAs in water resource management and use decisions was repeatedly mentioned. It should be noted that the water resource legislation does not have a built-in structure for public participation and that only in few of the management bodies the users are represented⁵¹.

192. While the WRA requires licenses for certain groundwater water uses, in practice the Consultant has been advised that licenses are neither sought nor issued.

193. Groundwater depletion may be an issue mainly in the Kathmandu valley, and even here depletion is only observed in dry years. In wet years the water more or less recovers during the wet season. GWRDB will enquire, but current advice from Groundwater Division of DOI is that there is not permanent depletion in other valleys, most of which rely on surface water for domestic and industrial use.

194. The agreements with India on the Transboundary Rivers do not cover all rivers nor do they adequately protect the Nepali interests in terms of water allocation, hydropower development and flood control.

⁵⁰ Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment. Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment (definition by the Global Water Partnership – GWP).

⁵¹ For example neither the Water District Committee (Water Resources Rules 2050 (1993) § 8 nor the Water Resources Utilization Inquiry Committee (ibid § 28) both of which deal with water resource related issues include user representatives.

195. **Land Resources:** A review is recommended of the Land Act and its enforcement, of the functioning of the Land Use Council, of the legal framework for land use and zoning policies, of ownership / tenancy rights and of the legal aspects of farmland use for non agricultural purposes and/or keeping farmland fallow, etc.

196. The following examples will demonstrate the need for such review:

1. The policy that imposes a ceiling on land holdings by individuals makes the development of commercial rather than subsistence farming much more difficult. While there appears to be a possibility to exempt agri-industrial enterprises and cooperatives from the ceiling individual farmers can apparently not benefit therefrom.
2. The property rights under the Interim Constitution (Art.19) are subject to the "laws in force". This means that the government, could, by amending Article 25 of the Land Act, reinstate the acquisition of tenancy rights to persons who till the land owned by others. In order to avoid losing land to such tenants land owners have started resorting to leaving land lie fallow, rather than exposing themselves to a change in the law.
3. There are reports on a growing tendency by agricultural land owners to utilize land for non-agricultural purposes. The sanction of the law (fine not exceeding Rs. 10,000) cannot effectively prevent the practice.

4.10.4 Public Enterprise Reform

197. There is a need to review the compatibility of the legal framework of public enterprises (PE) operating in the agricultural sector to their actual functions and the needs of the sector. The key issues that have been defined hitherto include the affiliation of the PEs in the sector to different Ministries which affects coordination and mobilization; the relations between the functions of the PEs and similar private sector enterprises and the question whether government involvement is required in each case; possibility of privatization of functions of PEs; the Agricultural Ministerial oversight over Cooperatives outside the agricultural sector; the need of legal framework for PE intervention in price control and supply guarantee; the possibility of PPP in PEs.

4.10.5 Government Institutions and Planning

198. The Consultant has identified a number of areas which they wish to further study in the course of the Assessment period. These include the existence of a multitude of ministries and other governmental bodies that operate in similar or close areas, such as the MOI, the DOI, the WECS and the Groundwater Development Board to name just some bodies operating in the water/irrigation sphere. While the mandates of these bodies are different, the question of consolidation to form a one-stop shop for the users might be considered.

199. In addition, there appears to be difficulty in the implementation of policies and legislation that are under the responsibility of more than one ministry. Part of the weakness can be attributed to the absence of suitable multi-sector institutional structures that implement policies. The attempt made by the Government to establish the National Support Commission ("NSC") and under that the Independent Analytical Unit (IAU) for implementation of the APP faced difficulties in light of feared encroachment upon responsibilities of line ministries with the MOAC having been responsible for overall implementation of the APP without having received the tools or resources to do so. Accordingly there is at present there is no multi-ministerial framework for the coordination and implementation of a multi-sector policy such as the APP or the National Agricultural Policy 2004.

200. A third area that was indicated deals with the devolution of functions of development line ministries to district level authorities requires revisiting especially with respect to the three line ministries (MOAC, MOI and MOLD) involved in the agricultural sector.

4.11 Social Inclusion

201. Poverty, social and geographic exclusion, and massive youth outmigration have multiple and complex links with agricultural development. The high differentiation of Nepal society has led in the past to polarization and social conflict. The ADS will need to identify mechanisms that value diversity, eliminate or reduce polarization, and create cooperative arrangements for mutual benefits of the parties involved. This will need to be realistically formulated given the economic stage of development, the resources available, and the support of a leadership able to promote consensus around the strategy and its implementation.

202. **ADS, Poverty and Inequality:** An important reason for promoting agriculture in Nepal is that a large proportion of the poor live in rural areas and depend on agriculture for their livelihood. The recently completed Living Standard Survey will provide key information on the multidimensional aspects of poverty in Nepal and indicate some of the most promising paths for reducing poverty. The survey data are currently been analyzed and the ADS Team will closely link with the analytical team of the Food and Nutrition Security Working Group.

203. **Rural Organizations:** Given that a large proportion of the population lives in rural areas, Rural Organizations (ROs) have an important role to play in the development of agriculture. Cooperatives and ROs working in the area of microfinance (Nepal Rural Development Organization, NeRuDO), improving livelihood of resource-poor farmers (Sustainable Agricultural Development Program, SADP⁵²) and empowerment of women (Woman organizing for change in agriculture and NRM, Wocan⁵³) are few examples on which further analysis in later stages of the TA will built up its strategic recommendations.

204. **Linking Smallholders to Value Chains:** The issue of connecting poor smallholders to markets has become increasingly important with income growth and urbanization causing a shift in consumer demand; and supermarkets and processors playing an increasingly important role in food marketing in response to new technology and changing consumer preferences.⁵⁴ Small farmers face several challenges, such as high transaction costs in accessing inputs, credit and marketing facilities. What would make commercial agriculture less risky for smallholders? Special policies need to be formulated that would link smallholders with formal markets.

205. **Political Economy of Agricultural Policy Reforms:** Experience shows that influential rich farmers and politicians may work together towards creating barriers that impede public investment

⁵² <http://sadpnepal.org/about/>

⁵³ <http://www.wocan.org>

⁵⁴ Refer: Thapa, G. (2009). *Smallholder Farming in Transforming Economies of Asia and the Pacific: Challenges and Opportunities*. Discussion Paper, IFAD and Thapa, G. and R. Gaiha (2011). *Smallholder Farming in Asia and the Pacific: Challenges and Opportunities*. IFAD conference on New Directions for Smallholder Agriculture, IFAD: Rome.

in agriculture which specifically benefit the smallholders (Birner and Resnick, 2010)⁵⁵. The ADS will have to take this reality into account and propose ways and means by which the feasibility of equitable development strategies can be enhanced.

⁵⁵ Birner, R. and D. Resnick (2010): The Political Economy of Policies for Smallholder Agriculture, in: World Development, Vol. 38 (10): 1442-1452.

5 SWOT MATRIX

Strengths	Weaknesses
<p>Natural Factors</p> <ul style="list-style-type: none"> ▪ Agroecological conditions favorable to a variety of agricultural products ▪ Abundant water and forestry resources <p>Demand</p> <ul style="list-style-type: none"> ▪ Large and growing domestic demand for food, feed, and agricultural products ▪ Proximity to large and rapidly expanding regional markets <p>Infrastructure</p> <ul style="list-style-type: none"> ▪ Improving rural road network <p>Institutions</p> <ul style="list-style-type: none"> ▪ Strong capacity of MLD and DOLIDAR ▪ Good structure and capacity of relevant departments (e.g. DLS, DOA, DOI, DOFi, and DOFo) to support research and extension <p>Private sector and Farmer Organizations</p> <ul style="list-style-type: none"> ▪ Dynamic pockets in the private and cooperative sectors (e.g. poultry, dairy, tea) ▪ A large number of grass-roots organizations (e.g. farmer groups, community forests, and cooperatives) and commodity trade organizations <p>Human Resources</p> <p>Availability of local expert knowledge on development constraints</p> <p>International</p> <ul style="list-style-type: none"> ▪ Member of several world and regional trade organization ▪ Large flow of remittances 	<p>Human Resources</p> <ul style="list-style-type: none"> ▪ A large pool of illiterate farmers ▪ Limited pool of skilled labor and professionals in agrifood sector ▪ Feminization of agriculture ▪ Massive youth outmigration from rural areas <p>Land</p> <ul style="list-style-type: none"> ▪ Fragmented and small sized farms ▪ Land degradation (erosion, soil fertility, desertification) ▪ Large number of subsistence farmers with low commercialization and productivity <p>Commercialization</p> <ul style="list-style-type: none"> ▪ Low value added and competitiveness of agricultural products ▪ Low FDI in the sector ▪ Low size and development of agroindustry and agribusiness ▪ Poor quality and safety of food and agricultural products ▪ Underdeveloped supply chains and logistics ▪ Limited access to finance both for farmers and SME <p>Technology</p> <ul style="list-style-type: none"> ▪ Limited outreach of research and extension service providers and poor quality of service at grassroots ▪ Unregulated use of pesticides and antibiotics ▪ High incidence of pests and diseases ▪ Poor genetic material ▪ No mechanism for technology generation suited to different niches and needs of farmers, demonstration and adoption by farmer of new agriculture technologies at grassroots level ▪ Underdeveloped postharvest system ▪ Agricultural service centers are defunct ▪ Efforts at bridging yield gaps are ineffective. <p>Trade</p> <ul style="list-style-type: none"> ▪ Non-tariff barriers to trade ▪ Appreciation of currency relative to India penalizes exports and makes domestic agricultural products less competitive <p>Policy and Institutions</p> <ul style="list-style-type: none"> ▪ Strong Government ownership and donor support for ADS ▪ Underfunding of sectoral programs ▪ Low investment in science and technology for agricultural sector ▪ Lack of agricultural insurance (eg. crop insurance, livestock) ▪ Weak macro-management capacity of Allied Sector Ministries (MOAC, MOE, MOI, MOFSC, MLRM) ▪ Poor governance and weak accountability systems ▪ Weak coordination among agricultural related agencies ▪ Weak legislation framework for implementation of policies <p>Infrastructure</p> <ul style="list-style-type: none"> ▪ Limited access to year-round irrigation and largely rainfed agriculture ▪ Weak rural infrastructure (transport, markets, storage) ▪ Poor power infrastructure

Opportunities	Threats
<p>High Value Products and Value Added</p> <ul style="list-style-type: none"> ▪ Accelerated growth of high value products including horticulture, spices, beverages, medicinal and aromatic plants, livestock, and fisheries ▪ Establishment of Nepal brands ▪ Certified organic production <p>Technology</p> <ul style="list-style-type: none"> ▪ Increase in productivity of cereals and livestock ▪ Critical improvements in rural infrastructure and logistics ▪ Rural areas catching up with urban areas ▪ Good practices and certification in production, processing, and distribution ▪ Conversion of rice land to other productive uses consistent with land use planning <p>Commercialization and Agribusiness</p> <ul style="list-style-type: none"> ▪ Integration of smallholders with value chain ▪ Establishment of domestic private agrifood corporate sector ▪ Agroforestry development ▪ Attract FDI <p>International</p> <ul style="list-style-type: none"> ▪ Sustained world commodity prices ▪ Penetration of supermarkets 	<p>Policy and Institutions</p> <ul style="list-style-type: none"> ▪ Social and political instability ▪ Inconsistency of policy (e.g. subsidies) ▪ Limited commitment and leadership by government ▪ Persistent lack of coordination among agencies at the central level, at the local level, and between central and local level. <p>Social</p> <ul style="list-style-type: none"> ▪ Labor shortages ▪ Increasing inequality and social fragmentation <p>Climate Change and Biotic Factors</p> <ul style="list-style-type: none"> ▪ Disasters associated to climate change ▪ Emerging pests and diseases attacks <p>International</p> <p>Price hikes in energy and food prices</p>

6 APPROACH AND METHODOLOGY

6.1 Introduction

206. The preparation of the agricultural development strategy and action plans is a complex task that entails a multi-stakeholders and multi-agency coordination effort. The preliminary review of trends, APP, and sector issues (see Chapter 2 to Chapter 4) points to a number of findings that should guide the preparation of the ADS.

207. **Growth Potential.** In spite of considerable challenges, the agricultural sector in Nepal has the potential of growing tremendously and making a significant contribution to overall GDP, poverty reduction, and sustainable use of natural resources. The most remarkable aspect of agriculture in Nepal over the past 15 years or so is not that it did not grow fast enough as per APP target, but that it grew at all and in fact at a decent rate (3%) in spite of a devastating social conflict, declining support to the sector by government and donors, erratic policy, lack of governance, and a myriad of other issues that have just been surfaced in this report. With adequate strategy and support, the sector should be able to embark on an extraordinary phase of growth.

208. **Food Security and Commercialization.** A narrow view of food security as cereal self-sufficiency was perhaps underpinning the APP and is still frequently heard in public consultations. While the need to increasing cereal productivity in Nepal is a priority that will continue to be an important part of the ADS, there is an increasing realization that most growth of agriculture in Nepal will rely upon exploiting its comparative advantage in high value products such as horticulture, livestock, fisheries, spices, and medicals and aromatic plants. This will require commercialization and development of agribusiness. By increasing the returns to farmers and society commercialization and agribusiness will also contribute to improve access to food and a more diversified diet, thus making a critical contribution to food security.

209. **Appropriate Technology.** A narrow technological focus of the ADS will not be successful. The country has an extraordinary variety of agroecological environments and social diversity. Green revolution type of technologies might be appropriate in some part of the Terai; different types of technologies and interventions will be needed in the hills or mountains and for different type of commodities (crops, livestock, fisheries, and forestry). The ADS will need a more sophisticated understanding of technology generation and dissemination processes. Rather than focusing only on the supply side (“pushing” technology), it will also need to focus on the demand side, including the key aspect of adoption of technology.

210. **Level of Effectiveness of Investment.** The ADS will be a strategy aimed at sustainable growth and poverty reduction. To achieve the aim will require considerable increase in investment from government, private sector, and cooperative sector. Key performance indicators will include the amount and the effectiveness of investment projects realized in the country.

211. **Gap between Policy and Implementation.** Nepal has already a rich body of policies that are often well formulated and appropriate. While the existing policies can be improved and new policies are needed, the main problem is the gap between policy and implementation. This is the outcome of a number of factors related to weaknesses in planning and institutional frameworks and capacity,

lack of supporting legislation, irregular and inadequate funding, weak accountability systems, and irregular and weak policy and program monitoring and evaluation. The ADS will need to address these “software” aspects in as much detail as in the past agricultural strategies had focused on the technology and infrastructure aspects (the “hardware” of development).

212. **Social Inclusion.** The direct beneficiaries of the ADS will be the smallholder farmers forming the backbone of the agricultural sector in Nepal, the small and medium enterprises involved in the commercialization and value addition of agricultural products, and the workers and communities involved in the production and post-production activities related to the agricultural sector. Indirectly, the ADS will benefit the overall society through the supply of food and agricultural products, the sustainable management of natural resources, improved service delivery, and the generation of productive employment. While the ADS will try to address the needs and expectations of a broad range of stakeholders, it would be a mistake to think of the ADS as the panacea for all the social exclusion issues of Nepal society.

6.2 Scope of the ADS

1. Food security, agricultural productivity, connectivity and resilience.
2. Sustainable production and resource management through climate change mitigation.
3. Adaptation and improved land and water management and water allocation.
4. Increased private sector development (including cooperative sector), delivering fair reward to all stakeholders in the value chain.
5. Policies, institutions, and investments

6.3 Approach

213. **Broader View of the Agricultural Sector.** Rather than being the domain of only one or two ministries (typically the Ministry of Agriculture and Cooperatives and the Ministry of Irrigation), the ADS will focus on the multi-agencies and multi-stakeholders that form the agriculture sector (see APPENDIX 4). The agricultural sector for the purposes of the ADS: (i) includes crops, livestock, forestry, and fisheries; (ii) includes production, trade, processing, marketing; (iii) spans across different ministries and agencies; and (iv) includes not only government agencies but farmers and their organizations, private sector enterprises and their organizations, NGOs.

214. **Peer-reviewed and Evidence-based Analysis.** The analysis by the TA Team will be based on logic and evidence gathered from reliable primary and secondary sources. The findings will be tested and validated through a process of peer reviews and numerous consultations with experts in various fields.

215. **Effective Communication and Broad Consultations.** A strong team and sound methodology are necessary but not sufficient conditions for the success of the TA. Unless the TA Team is able to exchange views with stakeholders effectively, the learning will be limited and will not translate into sustainable institutional mechanisms that could be up-scaled and replicated. The Consultant’s Team will keep an open line of communication with the counterpart and stakeholders through well-structured meetings, workshops, and briefings. The opinions, knowledge and ideas of stakeholders will be well circulated and understood by all team members through a continuous effort to translate these ideas into clear statements. While this exchange of information might not guarantee a convergence of ideas, the exchange facilitates the understanding of alternative points of

view and promotes a process of solution-finding. Three principles of effective communication are embodied in the Consultant's approach: (i) respect for the opinion of stakeholders and their ideas and suggestions; (ii) clarity of statements to ensure that message and understood; and (iii) cooperative attitude inspired by a spirit of collaboration with the EA.

6.4 Methodology

216. The assessment of the agricultural sector current situation and key issue will be conducted through:

1. Review of the literature
2. Analysis of secondary data
3. Key informant interviews
4. Consultative meetings at the central and local level
5. Thematic working groups

217. **Review of the literature** has already started during the preparation of the Inception Report and will continue throughout the Assessment Phase. Previous analytical studies such as those supported by ADB (eg the 2002 Agricultural Sector Performance Review or ASPR) and other agencies (eg the 2006 Agricultural Perspective Plan Implementation Status Review or APP-ISR). Recent studies on competitiveness⁵⁶ and subsector studies will be reviewed during the preparation of the Assessment Report and in subsequent phases of the strategy preparation. The references to this Inception Report already includes a large number of studies and documents; it will be further enriched over the course of the TA.

218. **Analysis of Secondary Data.** The ADS team by and large will not conduct collection of primary data through formal surveys. Most of the analysis will rely upon secondary data and insights from primary data collected by other teams. The most important databases that will be utilized by the ADS team will include:

- Statistical Yearbook from Central Bureau of Statistics
- Statistical Yearbook from Ministry of Agriculture and Cooperatives

⁵⁶ For example:

1. B. Shakya (2010). *Exports of Ayurvedic Herbal Remedies and SPS Issues*. Managing the challenges of WTO participation: Case Study 31. WTO 2010;
2. P. R. Pandey (2009). *Trade Policy as an Instrument to Ensure Food Security: A case study of Nepal*. Asia-Pacific Trade Economists' Conference of Trade-Led Growth in Times of Crisis. UNESCAP, Bangkok 2009
3. MOSC (2010). *Trade Conference Proceedings*. MOSC Kathmandu 2010.
4. R.P. Sharma, M.K. Karkee, L.K. Gautam (2004). *Implications of WTO Membership on Nepalese Agriculture*. FAO/MOAC Kathmandu 2004.
5. MOSC (2010). *Nepal Trade Integration Strategy and Action Matrix*. MOSC Kathmandu 2010.
6. C. Sapkota (2009). *Nepal's Long Term Direction in Global and Regional Trade Policy*. UNESCAP, Bnagkok 2009.
7. B. K. Karmacharya (2010). *A Study on cross Border Informal Trade between Nepal and India on Selected Agricultural Commodities*. FAO/ Nepal Council for Development Research, Kathamandu 2010.
8. B. Pyakuryal, Y.Thapa, D. Roy (2005). *Trade Liberalization and Food Security in Nepal*. MTID Discussion Paper no.88. IFPRI, Washington DC. 2010.
9. D. Adhikari (2010). *Promoting Nepal's Trade in the perspective of Bilateral and Multilateral Trade*. Economic Policy Network II (ADB TA 7042-NEP), Ministry of Finance, Kathmandu 2010.

- Living Standard Survey⁵⁷ from Central Bureau of Statistics
- Economic Survey Data from Ministry of Finance
- Trade Export and Promotion Center

219. **Key Informant Interviews** have already been conducted with a broad range of stakeholders (see APPENDIX 6). This will be continued throughout the preparation of the ADS.

220. **Consultative meetings at the central and regional level.** This will be mainly through national and regional workshops. Other consultative meetings on thematic areas (eg irrigation) have also been conducted and will continue to be conducted in the remaining phases of the TA.

221. **Thematic groups.** The meetings of 12 thematic groups (see para 240) provide further tools to validate many of the statements proposed by the ADS Team and to enrich the content with insights and relevant experiences of various stakeholders.

6.5 Convergence of ADS and GON Policy Formulation

222. In order to ensure convergence between the formulation of the ADS and GON policy formulation and planning processes, a continuous dialogue between the ADS team and policy makers has to be kept alive. This will occur through various mechanisms such as:

- Steering Committee Meetings
- Policy Roundtable Discussions
- National and Regional Workshops
- Thematic Groups
- Presentations to National Planning Commission
- Presentations to the Donor Working Group on Agriculture and Rural Development
- Briefings to the Secretaries of relevant ministries

6.6 Macro Models

223. The TA team will consider possible insights to be gained by existing macro models of the Nepal economy. Cruikshank and Nord (1990) analyzed policy coordination between Nepal's exchange rate policy and fiscal policy; Sapkota and Sharma (1998) made more rigorous effort to develop SAM and CGE model for ex-anti poverty analysis and Guru-Gharana (2000) calibrated macro- econometric model of five South Asian countries including Nepal to analyze macroeconomic structure of the region and its impact on trade linkages. Cockburn (2001) designed CGE to analyze impact of trade liberalization on poverty of Nepal. Khatiwada and Sharma (2002) reviewed overall performance of Nepal's economy to examine sources of Nepal's economic growth and to explore empirical relationship between economic growth, capital accumulation, labor force and factor productivity. Khanal and Kadel (2005) designed macroeconomic model to analyze implication of macro policy on overall economy and poverty and Alamgir and Ra (2005) conducted empirical analysis of Nepal's Public Debt Sustainability. Beside, academicians and experts have gradually

⁵⁷ The data were collected in 2010 and are currently analyzed. The Food and Nutrition Security Working Group will be responsible for the analysis of food and nutrition security dimensions of the LSS and will provide an important basis for the ADS.

started to use diverse econometric technique (ECM, VAR and so forth) to understand complex nature of Nepal's economy.

224. ADB/ TA 4017 designed NMEM in 2004 (Ra and Rhee 2005 and Ministry of Finance, Nepal and ADB 2005). NMEM is a Keynesian Income- Expenditure based medium-sized macroeconomic model in which demand side determine GDP and supply side is not specified. There are 59 variables, 20 behavioral equations and 17 identities. NMEM have five blocks, namely: Final Demand, Government, Price, Monetary and Balance of Payment. A model by the World Bank⁵⁸ will also be reviewed.

6.7 Subsidies

225. The Agriculture Perspective Plan (APP) 1995 -2015 had estimated that chemical fertilizers contribute to a growth of 64-75 percent in the agriculture sector and recommended that the supply of fertilizers be increased by 8.5 percent per annum. The APP had targeted fertilizer consumption to reach 131 kg per hectare until 2015, however MOAC estimates the 2010 average consumption is only 30 kg/ha.

226. The approach to strategy for improving the fertilizer situation will build upon lessons learned and progress that has been made in implementing policy and strategy including the APP, NADP, the Fertilizer Control Order 1999, the fertilizer studies conducted under the *Agriculture Sector Performance Review* (ADB TA 3536-NEP) and the *Economic Policy Network II* (ADB TA 7042-NEP), and the performance of AIC Ltd and private sector importers with and without subsidy regime.

227. India, Bangladesh, Pakistan and China all subsidize fertilizer, and this has a bearing on Nepal's policy which is to re-introduce subsidy. However, it is highly unlikely MOF will support expanding the subsidy coverage from about 40% of fertilizer requirement (190,000mt in 2011, based on the total arable area) up to 100% (500,000mt), due to the fiscal impact.

228. Studies from ADB TA 3536-NEP and TA 7042-NEP also suggest that the subsidy is not necessary since fertilizer at recommended rates represents less than 30% of financial costs in crop production, and the gross margin on fertilizer is in the range of 200%.

229. Therefore the ADS is looking for a solution that involves participation of the private sector, and will develop options including: (i) reducing the subsidy rate and allowing private sector importers and distributors to access it; (ii) facilitating a bilateral trade agenda on fertilizer trade and transport; (iii) streamlining customs and border procedures for ad-hoc fertilizer import, including price equalization tariff; (iv) strengthening imported fertilizer quality inspection and promotion of distributors which are fully compliant with fertilizer quality standards; and (v) strengthening demonstration and extension activities to improve efficient use of fertilizer.

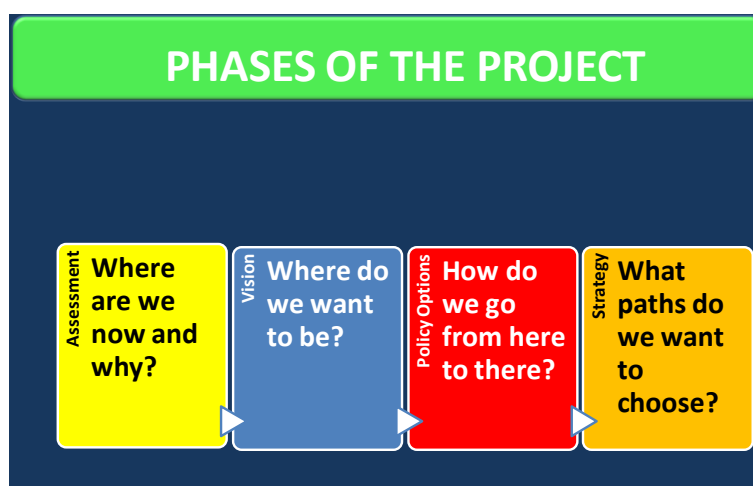
6.8 Commercialization

⁵⁸ A SIMPLE MACROECONOMIC MODEL FOR NEPAL by Stephane Guimbert and Sailesh Tiwari June 2007, Report No. SASPR-11

230. Assessment of the progress, constraints and development potential for commercialization and agribusiness will utilize the following resources and methods: (i) analysis of trends in the number and size of commercial agricultural cooperatives registered by the Registrar of Cooperatives, MOAC (i.e. commercialization from savings and credit cooperatives); (ii) analysis of the agribusiness trends and size from the Company Registrar, Ministry of Industry; (iii) analysis of the Agro-Enterprise Center FNCCI agro-commodity associations membership trends and the AEC Agribusiness Directory (publication pending); (iv) detailed consultations and data collection from individual agribusinesses and agro-commodity associations, including during regional field visits, and in Thematic Group meetings; (v) review of the methodologies and performance (using project M&E reports) of relevant projects, including the ADB Commercial Agriculture Development Project (CADP), WB Project for Agricultural Commercialization and Trade (PACT), DFID Markets Development Project and Markets for the Poor, IFAD High Value Agriculture Project; (vi) investment and throughput in processing and marketing facilities under public private partnership with MOAC Agriculture and Livestock Marketing Departments.

6.9 Phases of the ADS Preparation

231. The preparation of the ADS is a process that will occur over four distinct phases:



232. **Phase 1: Assessment.** The key question that will be addressed during this phase is: Where are we now and why? This will involve a review and assessment of the agricultural sector, its trends since the beginning of the APP (1995/96), the key constraints, and the policy and institutional issues and gaps.

233. **Phase 2: Vision.** The key question during this phase is: Where do we want to be over the next 20 years? This will entail to articulate a vision that is suitable and feasible for the agricultural sector in Nepal. The review of the sector conducted during Phase 1 and an understanding of broad trends and the study of the relevant development experience of other countries will help to formulate a vision statement that could guide the strategy for the sector. Figure 17 below provides

a hypothetical formulation of starting point and vision. The figure is for illustrative purpose only and does not reflect any preconceived TA Team idea⁵⁹.

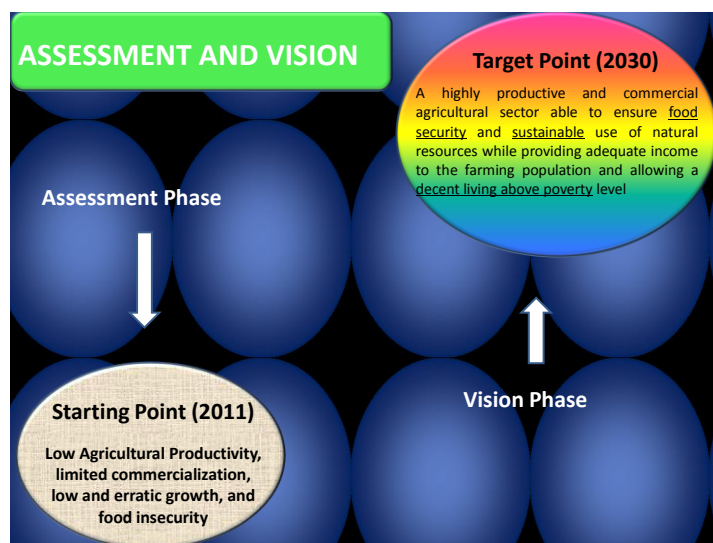


Figure 17 Illustrative Outcomes of Assessment and Vision Phase

234. **Phase 3. Policy Options.** The key question during this phase is: how do we go from where we are (the current situation of agricultural sector in 2011) to where we want to be (the vision for 2030)? The effort will be to explore different options for policy and investments. Each option will entail different costs and benefits and tradeoffs. A strategic path will involve taking a combination of policy and investment options that lead from starting point to target point.

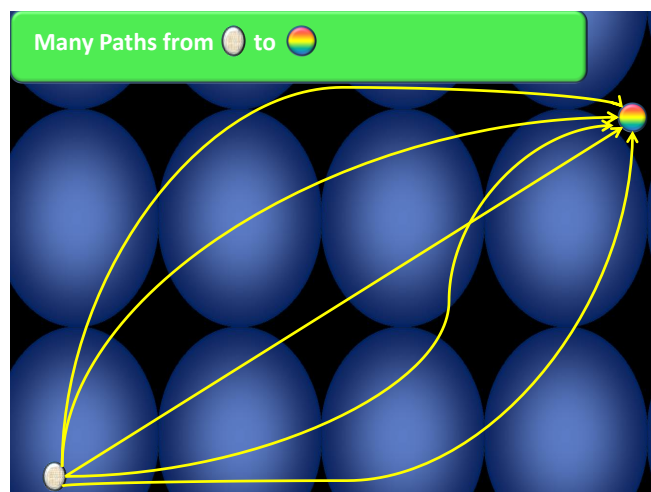


Figure 18 Illustrative Paths from Starting point to Target Point

235. **Phase 4. Road Map and Action Plan.** The key question during this phase is: what road maps will we choose and what milestones will be along the road map? The idea here is to select the

⁵⁹ The actual starting point and vision statements will be the outcomes of analytical and consultative work to be undertaken during Phase 1 and Phase 2.

strategy and formulate action plans that guide the implementation of the strategy. This is the most critical phase of the preparation of the ADS. It will involve intense analytical work at the strategic level and a coherent planning framework to monitor progress over time. The selection of one strategic path will be guided by different scenario analysis and selection criteria that should inform the TA Team based on consultation with broad range of stakeholders. A hypothetical road map is illustrative in Figure 19.

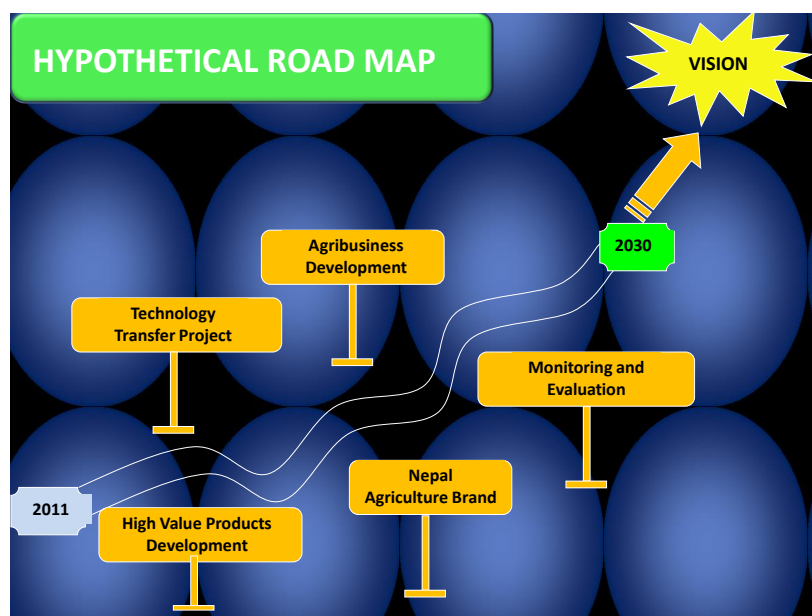


Figure 19 Illustrative Road Map and Milestones

6.10 Consultations

236. The TA has a number of mechanisms to ensure that the preparation of the ADS is based not only on sound analytical work by the TA Team but also on extensive consultations with a broad range of stakeholders.

237. **Key Informants Interviews.** The TA Team will meet with key informants and use a semi-structure questionnaire interview approach to elicit feedback on key issues related to the ADS. The key informants include officers of central and regional level agencies, experts, policy makers, private sector representatives, NGOs representatives, development partners, and community leaders.

238. **Policy Roundtable.** An initial meeting with senior officers and private sector representatives to provide a view of the key issues and expectations about the ADS. The summary of the roundtable is available upon request from the TA Team⁶⁰.

239. **Workshops and National Conference.** There will be several national and regional workshop during each of the four phases of the TA. In addition a National ADS Conference will be held during the second phase of the TA. Participants to the workshop will include representatives of different

⁶⁰ Contact TA Team Leader at f.goletti@agrifoodconsulting.com

240. **Thematic Groups.** There will be 13 thematic groups (see Table 17) on different topics to help the TA Team improve formulation of the ADS. Each Thematic Group will provide feedback to TA Team regarding the relevant thematic issues pertaining to different phases of the ADS preparation. During each phase the Thematic Groups will meet once or twice to discuss about the issues relevant to the theme. Each meeting will have a document as output including the agenda, the discussion summary, and the main conclusions of the group. Consultants from the TA team will facilitate the TGs. Each Thematic Group will have 10 to 15 participants with representatives from Government, Private Sector, NGO sector, development partners, and professional associations.

Table 17 List of Thematic Groups

No.	Thematic Group
1.	Food and Nutrition Security
2.	Commercialization and Agribusiness
3.	Trade, Competitiveness
4.	Climate Change, Foresrty, and Sustainable Agriculture
5.	Research & Extension
6.	Rural Finance, Insurance and Agriculture
7.	Social and Regional Development (Migration, urbanization, Inclusion, Cooperative)
8.	Land Use and Infrastructure
9.	Water Resources and Irrigation
10.	Agriculture
11.	Subsector: Field crops
12.	Subsector: Horticulture and HVC
13.	Subsector: Livestock and Fisheries

241. **External Reviews.** Each deliverable of the TA Team, starting from the Inception Report will be circulated for comments to two set of reviewers selected by the Steering Committee:

- **External Panel Review:** Key experts from GON and development partners providing overall feedback on each deliverable of the TA Team. There will be about 10 members in the EPR.
- **Peer Reviewers:** Professionals engaged to provide in depth review and comments on the deliverables of the TA Team. There will be 3 peer reviewers.

242. **Field Work.** The TA Team will conduct field work to meet with rural communities, farmers, and various social groups in the effort to reach out and be as inclusive as possible in the formulation of the ADS. Key interviews and focus group discussions based on checklists will be documented by the TA Team throughout the assignment.

243. **Steering Committee.** The Steering Committee for the ADS (see Table 18) will guide the TA Team throughout each phase of the ADS preparation. Frequent interaction between the EA and the TA Team will also ensure that issue are dealt timely and relevant policy issues are taken into account by the formulation Team.

Table 18 Members of the Steering Committee for the ADS

No.	Member
1.	Secretary MOAC (Co-chair)
2.	Secretary MOF (Co-chair)
3.	Joint Secretary NPC
4.	Joint Secretary MOLD

5.	Joint Secretary MOFSC
6.	Joint Secretary MOLRM
7.	Joint Secretary MOLJ
8.	Joint Secretary MOE
9.	Joint Secretary MOI
10.	Joint Secretary MOHP
11.	Vice Chairperson FNCCI
12.	Representative Apex Farmer Association

244. Documentation of consultations will occur through the following mechanisms:

1. Meetings Notes
2. Policy Roundtable Summary
3. Strategy Retreat Summary
4. Workshop Summary
5. Field Consultation Summary
6. Steering Committee Minutes
7. Thematic Group Meeting Summaries
8. Focus Group Discussion Summaries
9. External Panel Reviews
10. Peer Reviewers Comments

7 WORK PLAN

245. The TA for the preparation of the ADS will occur over the period April 2011 to December 2012. The length of the period is justified by:

1. The complexity of the task
2. The need of numerous and frequent consultations at the central and local level
3. The inclusion of both strategy and action plan in the final document
4. The number of intermediate deliverables

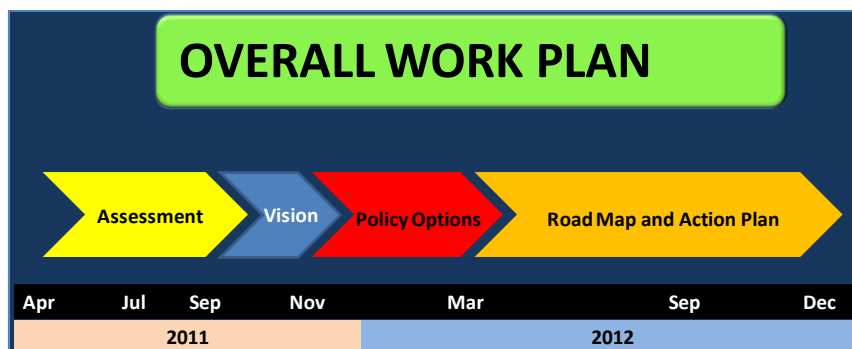


Figure 20 Overall Work Plan

7.1 Phases of the TA

246. The work plan of the TA is organized into four phases. The duration of each phase is as follows:

Phase 1 – Assessment:	April 2011 to September 2011 (6 months)
Phase 2 – Vision:	October 2011 to November 2011 (2 months)
Phase 3 – Policy Options:	December 2011 to March 2012 (4 months)
Phase 4 – Road Map and Action Plan:	April 2012 to December 2012 (9 months)

7.2 Activities

247. The activities during each phase are listed in Table 19.

248. **During Phase 1**, the main outcome is the assessment of the current situation for the agricultural sector. The TA will establish an office on the premise provided by the EA. The TA Team will be mobilized by the different agencies supporting the implementation including the counterpart officers provided by the EA, the consultants contracted by ADB, and the consultants provided by FAO, SDC, and JICA. Initial administrative, financial, and management systems will be established and compilation of data and literature will be organized into a server system on the TA office. In addition to consultations conducted by all TA Team member with key stakeholders through key informant interviews, the TA Team will undertake more systematic consultations including: (i) thematic group meetings; (ii) national and regional workshops; (iii) field work consultations with communities; (iv) project steering committee meetings; and (v) external reviews of deliverables. The main deliverables in this phase include the Inception Report and the Assessment Report.

Intermediate outputs will include summary of events and background reports of the TA Team experts.

249. **During Phase 2**, the main outcome is the preparation of the vision for ADS. In addition to the consultations at the local, regional, and central level undertaken through a combination of field work, regional and national workshops, key informant interviews, focus group discussions, thematic group meetings, and steering committee meetings, the TA Team will organize a National ADS Conference. The Conference will include invited papers by national and international experts, both from the TA Team and external experts. The objective of the Conference is to have a broad set of contributions to stimulate new ideas about the assessment, the vision, and the strategic directions of the ADS.

250. **During Phase 3**, the main outcome is the identification of policy options to move from the current situation to the vision. For each policy option, an in-depth discussion of the advantages and disadvantages, and the institutional, policy, and legal requirements will be conducted by Team Members. The discussion should aim to identify a set of policy options that will form the core of the strategy and action plan. In addition to the analytical work, the TA Team will conduct consultations at the local, regional, and central level through a combination of field work, regional and national workshops, key informant interviews, focus group discussions, thematic group meetings, and steering committee meetings.

251. **During Phase 4**, the main outcome is the submission of the ADS document including both strategy and action plans. A detailed road map and action plans for the policy options identified in the previous phase will be undertaken, including costs and benefits, detailed institutional policy and legal requirements, milestones, and monitoring and evaluation framework. A preliminary draft will be prepared by September 2012, after extensive discussion with the EA, the Steering Committee, the NPC, and the External Panel Review. Regional consultations will also be undertaken to have additional feedback on the proposed strategy before submitted the September 2012 draft. A Final Workshop will be organized in September 2012. During the period October to November, the submitted Draft will be reviewed by GON and ADB and the preparation of the final document will be completed during December 2012.

7.3 Deliverables

252. The deliverables during each phase are listed in Table 19. The deliverables of each phase will built upon the findings of the previous phase. The Final Report submitted to the TA Team will incorporate all the findings of previous phases. Annexes to the each deliverables will provide background information and technical discussions.

253. The schedule of activities is presented in Figure 21 -Figure 23.

Table 19 Activities and Deliverables

Phase	Period	Activities	Deliverables
Phase 1: Inception and Assessment	April 2011 to September 2011	1.1 Mobilization and Start up 1.2 Office Refurbishing 1.3 Data and Literature Review 1.4 Initial Consultations 1.5 Policy Roundtable 1.6 Initial Strategic Meeting 1.7 Inception National Workshop 1.8 Inception Report 1.9 Field Work 1.10 Analysis and Consultations 1.11 Thematic Group Meetings 1.12 Project Steering Committee Meetings 1.13 Initial Assessment Report 1.14 Regional Workshops 1.15 National Assessment Workshop	Inception Report Assessment Report
Phase 2: Vision	October 2011 to November 2011	2.1 Regional Workshops 2.2 Field Consultations 2.3 ADS Conference and Vision Workshop 2.4 Vision and Preliminary Strategies Report 2.5 Thematic Group Meetings 2.6 Project Steering Committee Meetings	Vision Report ADS Conference Proceedings
Phase 3: Policy Options	December 2011 to March 2012	3.1 Develop Strategy and Policy Options 3.2 ADS Options Workshop 3.3 ADS Options Report 3.4 Thematic Group Meetings 3.5 Project Steering Committee Meetings 3.6 Field Consultations	ADS Options Report
Phase 4: Implementation Plan and Road Map	April to December 2012	4.1 Prepare ADS 4.2 Prepare Road maps 4.3 Thematic Group Meetings 4.4 Project Steering Committee Meetings 4.5 Prepared Cost Estimates 4.6 ADS Regional Workshops 4.7 ADS National Consultations 4.8 ADS Draft Report 4.9 ADS Final Workshop 4.10 ADS Final Report 4.11 Field Consultations	ADS Draft Report ADS Final Report

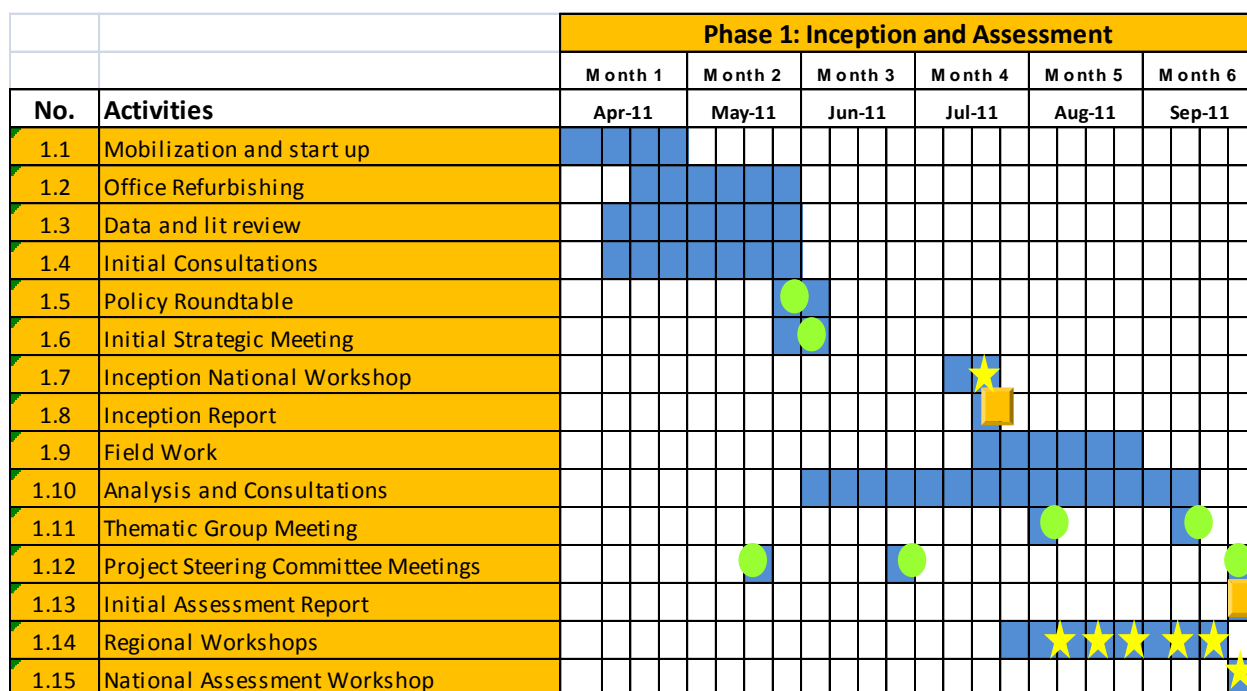


Figure 21 Work Plan – Phase 1

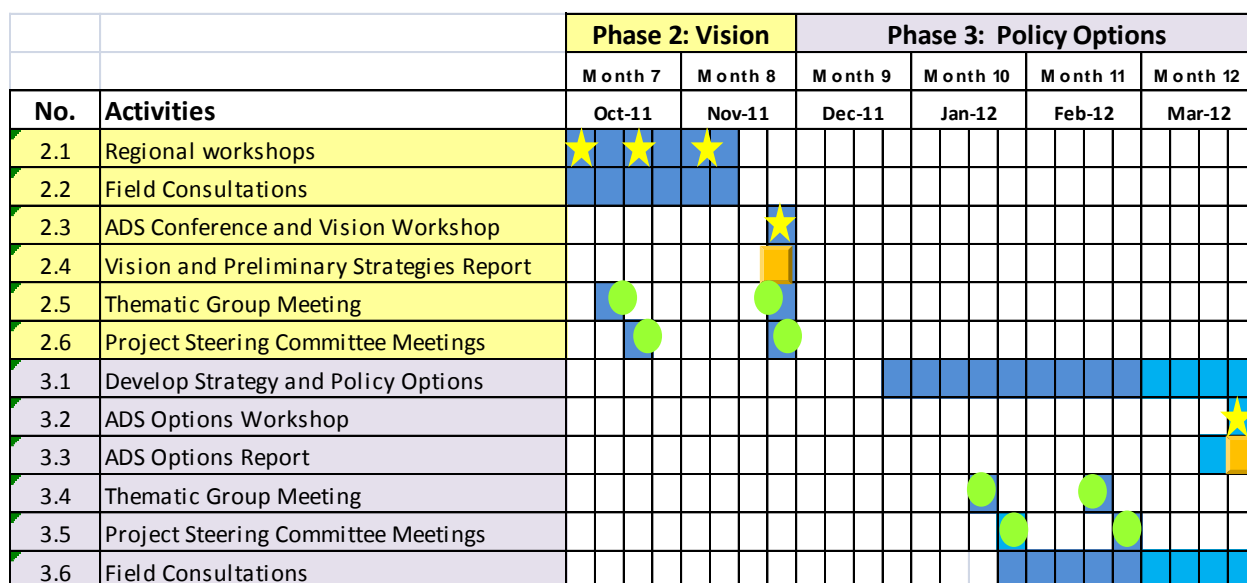


Figure 22 Work Plan – Phase 2 and Phase 3

		Phase 4: Road Map and Action Plan									
		Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	Month 19	Month 20	Month 21	
No.	Activities	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	
4.1	Prepare ADS	■	■	■	■	■	■	■	■	■	
4.2	Prepare Road maps	■	■	■	■	■	■	■	■	■	
4.3	Thematic Group Meeting		●		●						
4.4	Project Steering Committee Meetings		●	●			●				
4.5	Prepared cost estimates	■	■	■	■	■	■	■	■	■	
4.6	ADS Regional Workshops					★	★	★	★	★	
4.7	ADS National Consultations					■	■	■	■	■	
4.8	ADS Draft Report					■	■	■	■	■	
4.9	ADS Final Workshop							★			
4.10	ADS Final Report									■	
4.11	Field Consultations	■	■	■	■	■	■	■	■	■	

Figure 23 Work Plan – Phase 4

■	Report
●	Key meeting
★	Workshop/Conference

8 PROGRESS SO FAR AND NEXT STEPS

8.1 Mobilization of Consultants

254. The Team Leader and Deputy Team Leader mobilized on 28 March 2011. Other consultants joined in the subsequent months. Currently, all the consultants have been mobilized with the exception of the Tax Specialist (International), Rural Finance (International), and the second eminent person. The two international consultants will be mobilized during Phase 2 and the second eminent person during Phase 3.

255. The TA Team is the combination of national and international consultants with expertise in a number of areas. The consultants have been mobilized through the support of various development partners including ADB, IFAD, EU, SDC, and JICA.

256. New consultants to be supported by DANIDA are expected to be mobilized in September 2011 and will be provided technical input related to value chain development and employment.

8.2 TA Office Establishment

257. The TA Team office is located on the premises of the Department Food Technology and Quality Control, just outside of Singh Durbar. Over the first three months of the TA, the office was refurbished and equipped. It provides convenient space for the Team and is furnished to host meetings of up to 30 people. It is equipped with a server

8.3 Consultations and Workshops

258. Several consultations were undertaken by the TA Team. The list of meetings is in APPENDIX 6.

259. Additionally, a **Policy Roundtable** was held at the Radisson Hotel on 19 May 2011. The report for this policy roundtable was submitted in May 2011 and is available upon request.

260. A **Strategy Retreat** was held at Nagarkot Himalaya Club on May 27-28, 2011. The report for this policy roundtable was submitted in May 2011 and is available upon request.

261. The **Inception Workshop** was held at Hotel de l'Annapurna in Kathmandu on 14 July 2011. The workshop was opened by the Honorable Minister of MOAC and attended by 120 delegates. The summary of the workshop is available upon request.

262. **Field Consultations related to the Irrigation Sector** were undertaken in Nuwakot in the Central Hills on 1 June 2011, Dhangadhi in the Far Western Terai on 5 July 2011, Pokhara (Western Hills 20 July) and Butwal (Western Terai 24 July) in the Western Region. A NGO roundtable on irrigated agriculture and water resource management was held in Kathmandu on 1 July 2011. Summary reports are available upon request.

8.4 Next Steps – Completion of Assessment Phase 1

263. The remaining part of Phase 1, namely the months of August and September 2011 will be spent on the following activities:

1. Field work consultations
2. Regional workshops
3. National workshop on Assessment
4. Preparation of Assessment Report
5. Organization of Thematic Group Meetings
6. External Panel Reviews

264. Workshops tentative dates and locations are listed below

Workshop	Location	Date
Regional Workshop 1 – Central Region	Chitwan	22 August 2011
Regional Workshop 2 – Western Region	Pokhara	25 August 2011
Regional Workshop 3 – Eastern Region	Biratnagar	01 September 2011
Regional Workshop 4 – Midwestern Region	Surkhet	12 September 2011
Regional Workshop 5 – Farwestern REgion	Dangadhi	15 September 2011
National Assessment Workshop	Kathmandu	29 September 2011

265. The Assessment Report will be submitted 30 September 2011.

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APPENDIX 1. TOR FOR CONSULTANTS

266. The consultants will be responsible for (i) reviewing the agricultural perspectives plan (APP) and other policy and strategy frameworks, analyzing and reporting on its performance and the relevance of its priorities and strategies to the current situation; (ii) assessing and reporting on the current sector situation, constraints, and opportunities, as well as establishing baseline data and future indicators for the vision for 2030 and its supporting monitoring and evaluation; (iii) ensuring stakeholder communication and participation, with each expert facilitating a thematic group and acting as the group reporter; and (iv) contributing to technical assistance (TA) reports and preparing specialist reports including policy and strategy options for the agriculture development strategy (ADS), with details of costs, benefits, and the implementation road map. The schedule includes 2 months of unallocated time for international consultants and 10 months for national consultants.

A. Team Leader and Policy and Institutions Specialist (international, 14 person-months)

267. The team leader will coordinate with the project director operationally and report to the project steering committee (PSC) on outputs and to the Asian Development Bank (ADB) project officer regarding terms TA input needs and country policy guidance. The team leader will (i) lead stakeholder consultation and workshops; (ii) supervise the consulting team, maintaining team focus and ensuring that cross-discipline issues and opportunities are addressed; (iii) supervise project office management and project administration in liaison with ADB; and (iv) prepare TA inception, interim (situation and policy assessment), midterm (vision statement), and draft final and final ADS. As the policy and institutions specialist, the consultant will (i) review the country policy and strategy, 3-year plan, APP, and other agriculture policy frameworks, analyzing the performance and relevance of sector objectives in the current and future contexts and preparing a 20-year vision statement with stakeholder consultation; (ii) analyze constraints on achieving policy objectives and reforms, as well as public response to stimuli such as subsidies on inputs and irrigation; (iii) organize, in coordination with the project director and the PSC, the Nepal ADS conference (NADSC) to finalize the sector 20-year vision and preliminary policy and strategy options; and (iv) take responsibility for preparing the draft ADS with implementation road maps and a performance monitoring system based on the policy analysis and feedback.

B. Eminent Persons (2 international, 3 person-months each)

268. The eminent persons will report to ADB and the team leader. They will draw on their experience as leaders responsible for policy formulation and strategy implementation in a country where agriculture is successful and internationally competitive and provides major contributions to both the national economy and the well-being of rural society. One eminent person will (i) review the agriculture situation and policy framework and suggest priority areas and issues to be addressed, (ii) provide expert comments on the emerging ADS, (iii) be an external member of the expert review panel, and (iv) provide expert input at the NADSC. The other eminent person will (i) review the agriculture situation and policy framework and suggest priority areas and issues to be addressed, (ii) provide expert comment on the emerging ADS, (iii) articulate the emerging policy and strategy issues and concepts to senior peers in Nepal, (iv) engage major political leaders to ensure their participation in ADS formulation and their understanding and acceptance of the need for reform, and (v) prepare and deliver a keynote speech to the NADSC and make presentations at other stakeholder meetings.

C. Agricultural Economist (international, 10 person-months)

269. The economist will report to the team leader and be responsible for (i) coordinating with team specialists to synthesize the agriculture sector economic situation review, analyzing issues, constraints, and opportunities covering agriculture, livestock, forestry, agribusiness, taxation, food security, and trade; (ii) reviewing the sector economic performance of the APP and related strategy; (iii) analyzing the situation, regulations, agreements, constraints, and opportunities regarding local, regional, and global agricultural trade and recommend a strategy to further develop trade agreements and capture benefits; (iv) analyzing the balance of payments in light of exchange rate policy linked to the Indian rupee; (v) preparing a agriculture sector economic analysis paper for the NADSC describing the market failures to be addressed, identifying strategy options to achieve the 2030 vision, and establishing the economic rationale for the strategy; (vi) analyzing the benefits and costs of strategy options and helping the team leader to prepare the ADS; and (vii) conducting an economic and financial analysis of the strategy road map, both with and without subsidy if any, and an analysis of benefit distribution.

D. Rural Finance specialist (international, 2 person-months)

270. The rural finance specialist will report to the team leader and be responsible for (i) analyzing the rural finance, microfinance, and banking situation in agriculture, identifying issues, constraints, and opportunities; (ii) preparing a paper on rural finance for presentation at the NADSC and facilitating a thematic group on strategy for rural finance and banking; and (iii) preparing policy and strategy sections for incorporation into the draft ADS.

E. Irrigated Agriculture and Water Resources Specialist (international, 4 person-months)

271. The specialist will report to the team leader and be responsible for (i) leading national experts in an analysis of irrigated agriculture and horticulture, identifying constraints and opportunities regarding productivity, farming systems, marginal return per unit of water used, and technology performance; lessons learned; and prospects for development including the modernization of existing systems and extension of new systems; (ii) assessing the impact and effectiveness of irrigation subsidies and making recommendations; (iii) reviewing policy and existing development strategy and institutions and recommending reforms; (iv) reviewing initiatives on water resource management and climate change and identifying strategic agendas for management and adaptation actions including policy and institutional reforms; (v) identifying key development agendas and strategic elements in each agenda and integrating them into an options paper on irrigated agriculture strategy for presentation at the NADSC; and (vi) facilitating a thematic group on irrigated agriculture strategy and preparing sections of the ADS.

F. Agriculture and Agribusiness Specialist (international, 3 person-months)

272. Reporting to the team leader, the specialist will guide the national consultants in livestock, agriculture, forestry, and trade and be responsible for (i) analyzing sector constraints and opportunities in production and postharvest, compiling a list best practices and appropriate technologies; (ii) assessing and categorizing products into types based on existing and potential opportunities and comparative advantage, designing a strategy for developing opportunities both upstream and downstream; (iii) analyzing the situation, constraints, and opportunities regarding agribusiness and commerce, designing a strategy to stimulate private investment; (iv) reviewing the food security situation and policy, including the impact of subsidized rice on local producers and markets, and recommending options for improvement with private sector participation; (v) assessing

land tenure and productivity and recommending policy to improve productivity, farm security, and land use; (vi) suggesting agro-enterprise opportunities, business structures, and mechanisms such as contract farming to enhance income opportunities for farmers; and (vii) preparing a paper on agribusiness issues and policy options for the NADSC and sections of the ADS.

G. Tax Specialist (international, 3 person-months)

273. The specialist will report to the team leader, supervise the national tax specialist, and be responsible for (i) analyzing the tax situation for the agriculture sector and how it influences sector performance and identifying prospects for tax policy and strategy adjustment to achieve more favorable outcomes, (ii) benchmarking tax rates and administration with comparator countries and international practice, (iii) reviewing fiscal stimuli to the sector and their performance, and (iv) preparing a paper on tax issues in agricultural policy and strategy for presentation at the NADSC and sections of the ADS.

H. Legislation and Regulation Specialist (international, 4 person-months)

274. The specialist will report to the team leader, supervise national specialists, and be responsible for (i) reviewing and analyzing legislation pertaining to agriculture, including legislation that affects agriculture on trade and commerce, state-owned enterprises, health, the environment, land, and forests; (ii) preparing a paper on agricultural legislation and regulation for presentation at the NADSC, as well as policy and strategy sections and legislation and regulatory amendments for incorporation into the ADS; and (iii) reviewing the draft ADS from a legal perspective and revising it accordingly.

I. Deputy Team Leader and Policy and Institutions Specialist (national, 22 person-months)

275. Under the guidance of the team leader, the deputy team leader will coordinate operations with the project director and be responsible for (i) representing the project and team in stakeholder consultations and workshop presentations, (ii) assisting the eminent persons in all aspects related to their terms of reference (TORs) and dealings with the Ministry of Foreign Affairs, (iii) assisting in supervising the consultant team, and (iv) assisting in supervising project office management.

276. As the policy and institutions specialist, the consultant will (i) identify local informants and information sources in the government, academia, the private sector, and civil society relevant to TA specialists; (ii) obtain policy and institutional documents and help specialists do the same; (iii) assist in analyzing the situation and performance of policy and strategy, including the current 3-year plan, APP, national agriculture policy, national agribusiness promotion policy, and NASDP; (iv) liaise closely with the PSC to foster ownership and support for the policy and strategy as it nears completion; and (v) ensure the ADS follows government strategy, governance, laws, and safeguards guidelines.

J. Agricultural Economist (national, 6 person-months)

277. Reporting to the team leader, the economist will work under guidance of the international agricultural economist with the same TORs.

K. Agricultural Business and Trade Specialist (national, 3 person months)

278. Reporting to the team leader and coordinating with the international agricultural economist and agribusiness specialist, the specialist will be responsible for (i) analyzing the agricultural commerce-and-trade situation and its trends, performance, issues, and constraints,

including processing and manufacturing based on Nepal’s agricultural materials, and reviewing and assess the existing evidence on informal trade of agricultural and food products and inputs; (ii) analyzing commercial structures and modalities in agriculture such as individual transactions, sales contracts, contract farming, advances, auction, and brand-based or licensed trading; and (iii) preparing a paper on agricultural commerce and trade and inputs to the ADS with specific and concrete suggestions on how to improve agricultural business and trade.

L. Agricultural Specialists (3 national consultants, 3 person-months each)

279. Reporting to the team leader and coordinating with the international specialists, the three subsector specialists—one for agriculture, another for livestock, and the third for forestry and medicinal plant products—will each be responsible for (i) a situation review, analyzing issues, constraints, opportunities, and policy impact and performance against the objectives and strategy targets contained in the APP and related strategies; (ii) field visits to elaborate and verify issues, opportunities, and strategy options; (iii) preparing specialist subsector situation analysis and strategy options papers and facilitating a thematic working group; and (iv) preparing sections of the ADS.

M. Legislation and Regulation Specialists (5 national consultants, 3 person-months each)

280. The five specialists in (i) food safety and quality, (ii) commerce and trade, (iii) natural resources, (iv) public enterprise reform, and (v) government institutions and planning will report to the team leader through the international legislation and regulation specialist, with whom they will share TORs.

N. Irrigation Specialist (national, 6 person-months)

281. The specialist will report to the team leader through the international water resources and irrigation specialist and have similar TORs. The consultant will (i) assess the current situation of irrigation using surface and groundwater, covering performance (productivity, efficiency, sustainability, and effectiveness of institutions), best practices and lessons, and prospects; (ii) assess the impact of subsidies with agriculture economists; (iii) analyze institutional arrangements for irrigated agriculture; (iv) analyze research and extension agendas and outputs from local research agencies, the Ministry of Irrigation, and development organizations; (v) review and report on policy and institutional performance including the APP, developing policy and strategy options for irrigated agriculture including targets, resource requirements, implementation arrangements, costs and benefits; and (vi) prepare the policy, strategy, and perspective plan sections of the draft ADS.

O. Tax Specialist (national, 2 person-months)

282. The specialist will report to the team leader and work under guidance of the international tax specialist, with whom he or she will share TORs.

P. Agricultural Insurance Specialist (national, 2 person-months)

283. The specialist will report to the team leader, coordinate with the international agribusiness specialist, and will be responsible for (i) reviewing studies and proposals on insurance for crops and livestock, including those related to contract farming, agribusiness, and schemes to compensate losses related to wildlife in and around national parks and reserves; (ii) consulting with commodity associations of the agro-enterprise center of the Federation of Nepalese Chambers of Commerce and Industry, farmers, and landowners to assess the potential for insurance and develop policy and

strategy options for insurance schemes; (iii) and writing a report including a situation assessment, issues, and policy and strategy options, as well as writing sections of the ADS.

Q. Conference Coordinator and Editor of Proceedings (national, 3 person-months)

284. Under instructions from the team leader, the editor will be responsible for the NADSC, (i) managing the processes of calling for abstracts, selecting candidates, inviting full papers and presentations from experts and stakeholders; (ii) preparing a simple style guide for abstracts, papers, and presentations; (iii) managing the preparation and conduct of the NADSC; and (iv) completing the compilation, editing, and publication of conference proceedings.

R. Environment and Climate Change Specialist (national, 6 person-months)

285. Reporting to the team leader, the specialist will be responsible for (i) reviewing information on climate change in Nepal, liaising with other projects and research, and setting out all areas and agendas for mitigation and adaptation; (ii) coordinating with TA subsector specialists toward fulfilling climate change agendas; (iii) coordinating with agencies and ongoing projects regarding the environment, forestry and watershed management, analyzing the present status and issues, policy and institutional frameworks, constraints, issues, lessons, and prospects, future strategy and plans; (iv) assessing the effectiveness of management systems and recommending strategy options; (v) contributing to developing the vision 2030 statement; and (vi) preparing detailed policy and strategy options with details on costs, benefits, decentralized planning, and appropriate implementation arrangements.

S. Rural Infrastructure Specialist (national, 3 person-months)

286. The specialist will report to the team leader and be responsible for (i) reviewing the present status and synthesizing the issues of rural infrastructure, asset status (assets created, patterns of management, etc.), policy and institutional frameworks and capacity (including community-based approaches and private sector participation), planning frameworks and implementation status, constraints, issues, lessons, and prospects, along with future strategy and plans; and (ii) preparing detailed strategy options to strategically integrate rural infrastructure and agriculture development to achieve the 2030 vision, including costs, benefits, and appropriate decentralized planning and implementation arrangements.

T. Agricultural Research and Extension Specialist (national, 3 person-months)

287. Reporting to the team leader, the specialist will be responsible for (i) reviewing the APP and related agricultural policy framework, its priorities and performance with regard to agricultural research and extension services' institutional structure, modalities for planning and prioritization, and funding modalities; (ii) analyzing the performance of research and extension services in terms of research outputs, their dissemination and farmer adoption of technology and best practices, and cost effectiveness; (iii) assessing constraints and opportunities in research and extension institutional structures, modalities, staffing, and resources; (iv) preparing policy and strategy options for an improved research-and-extension system required to achieve the ADS 2030 vision, incorporating a role for private sector and NGO research and extension; (v) elaborating the strategy options with costs, benefits, and implementation arrangements to ensure stakeholder support; and (vi) preparing sections of the ADS.

U. Social Development Specialist (national, 5 person-months)

288. The specialist will report to the team leader and coordinate with the gender focal point of Ministry of Agriculture and Cooperatives and ADB for technical advice. The specialist will (i) prepare a social, gender, and poverty analysis of agriculture, identifying issues, constraints, and opportunities; (ii) carry out an in-depth gender and social-inclusion review and performance assessment of existing sector policies, strategy, acts, guidelines, and regulations; (iii) prepare detailed policy and strategy options, with costs, benefits, and implementation arrangements to improve performance regarding poverty, gender, and social inclusion; (iv) prepare an assessment of poverty, gender, and social inclusion in agriculture for presentation at the NADSC and facilitate a rural social development thematic group; and (v) prepare gender and social inclusion policy and strategy sections of the ADS.

APPENDIX 2. TA TEAM

S No.	Title	Name	Position
1.	Dr.	Francesco Goletti	Team Leader
2.	Dr.	Purushottam Mainali	Deputy Team Leader
3.	Mr.	Chris Landon - Lane	Agriculture Economist
4.	Dr.	John Mellor	Eminent Person
5.	Mr.	Jon Cook	Irrigated Agriculture and Water Resources
6.	Dr.	Keith Chapman	Agriculture and Agribusiness Specialist
7.	Mr.	Jitzchak Alster	Legal Specialist
8.	Mr.	Surya Poudel	Senior Livestock Development Officer
9.	Ms.	Shabnam Shivakoti	Senior Agriculture Officer
10.	Ms.	Yamuna Ghale	Senior Program Officer
11.	Dr.	Posh Raj Pandey	Trade Specialist
12.	Mr.	Dala Ram Pradhan	Livestock expert
13.	Dr.	Deep Swar	Fishery expert
14.	Mr.	Nav Raj Baral	Forestry expert
15.	Mr.	Ratna Dhwoj Shahi	Horticulture expert
16.	Dr.	Narendra Raj Khanal	Environment, Climate Change and Natural
17.	Dr.	Indra Lal Kalu	Irrigation expert
18.	Mr.	Jagadish Chandra Gautam	Agri Economist
19.	Mr.	Deepak Lochan Adhikari	Micro Irrigation expert
20.	Mr.	Dina Mani Pokharel	Legislation and Regulation Specialist in Food Safety
21.	Mr.	Matrika Prasad Maraseni	Legislation and Regulation Specialist in Commerce
22.	Mr.	Prakash Mani sharma	Legislation and Regulation Specialist in Natural
23.	Mr.	Purna Man Shakya	Legislation and Regulation Specialist in Public
24.	Mr.	Govind Das Shrestha	Legislation and Regulation Specialist in
25.	Dr.	Madan Kumar Dahal	Tax Specialist
26.	Dr.	Anil Raj Bhattarai	Agriculture Insurance Specialist
27.	Mr.	Sameer Man Singh	Conference Coordinator and Editor of Proceeding
28.	Mr.	Shuva Kantha Sharma	Rural Infrastructure Specialist
29.	Mr.	Uddhav Prasad Rai	Social Development Specialist

APPENDIX 3. DEVELOPMENT PARTNERS ENGAGEMENT IN THE ADS

Donor	Level of Engagement
Already Engaged	
ADB	\$1.5 million
IFAD	\$0.5 million
EU	Support International Consultant (6 person months)
FAO	Support 5 National Consultants (13 person months)
SDC	Support 1 National Consultant (3 person months)
JICA	Support 1 National Consultant (3 person months)
Thinking of Engaging	
DANIDA	Support 2 International Consultant (5 person month) Support 1 National Consultant (5 person months)
USAID	To be determined
World Bank	To be determined
AusAID	To be determined
FINAID	To be determined

APPENDIX 4. AGRICULTURAL SECTOR INSTITUTIONS

S.No.	Institutions	Associated Activities
A. Ministries Contributing to Agriculture and Associated Sectors / Sub-Sectors		
1	Ministry of Agriculture and Cooperatives (MOAC)	Crop, livestock, horticulture ,fishery market and cooperatives development
2	Ministry of Land Reform and Management (MLRM)	Land reform and land management
3	Ministry of Irrigation (MOI)	Irrigation facility
4	Ministry of Energy (MOEN)	Rural energy
5	Ministry of Forest and Soil Conservation (MOFSC)	Soil conservation and watershed management; leasehold forestry; and medicinal and aromatic plants
6	Ministry of Local Development (MLD)	Rural development
	Ministry of Environment (MOE)	Environmental regulation and programs
7	Ministry of Health and Population (MoHP)	Nutrition, health and sannitatio
8	Ministry of Finance (MOF)	Budget allocation to all line ministries.
9	Ministry of Industry	Promotion of agro-based industry
10	Ministry of Commerce and Supplies (MoCS)	Promotion of export potential agro-based and industrial products
11	Ministry of Science and Technology (MoST)	Promotion of appropriate technology
B. Departments, Boards, Corporations and Companies		
1	Line departments, such as: Department of Agriculture (DoA) Department of Livestock Services (DLS) Department of Food Technology and Quality Control Department of Cooperatives Department of Irrigation (DoI) Department of Forestry (DoF) Department of Local Infrastrucutre and Agricultural Roads (DoLIDAR)	Line functions of the departments: Agriculture Extension and Related Services management; Livestock Service Management; Food quality regulation; Cooperatives registration and Regulation; Management of Irrigation Programme; Forest Management; Development of rural roads.
2	Autonomous institutions such as: Agriculture Information and Communication Centre, National Agricultural Research and Development Fund, Seed Quality Control Centre	Functions indicated: Dissemination of Agricultural Information. Agricultural Research Programme Support. Seed quality Regulation.

Procurement of milk from Rural Areas and Supplying in urban centers.

3	Affiliated corporations, such as: Dairy Development Corporation	Specified development functions. Procurement of milk from Rural Areas and Supplying in urban centers.
4	Companies (Established under the Company Act 1964) such as: Agricultural Input Company. National Seed Company.	Procure and supply of Fertilizer. Management of Seeds.
C. Autonomous Entities		
1	Nepal Agricultural Research Council (NARC)	Agriculture research
2	Nepal Veterinary Council (NVC)	Veterinary services
3	National Cooperative Development Board (NCDB) National Tea and Coffee Development Board.	Policy support for Cooperative Development. Policy support for Tea and coffee.
4	National Dairy Development Board (NDDB)	Dairy development
D. Public Sector Institutions Outside the Government Structure		
1	Institute of Agriculture and Animal Science	Train technical graduates
2	Center of Technical and Vocational Training	Vocational education, training
3	Institute of Forestry	Technical Education in forestry
4	Agriculture Enterprises Centre, FNCCI	Agro Industry/Private Sector development
5	Agriculture Development Bank Ltd	Agricultural credit supply
6	Rural Microfinance development Center	Provision of Rural Credit.
7	National Cooperative Federation of Nepal Ltd	Support Cooperative Movement
8	Trade and Export Promotion Center	Promotion of Commodities trade
9	NGO National and Local	Service delivery
10	Development partners	Support Development Projects

APPENDIX 5. PLANS, POLICIES, AND ACTS

A5.1. Development Plans

289. Periodic plans include 5-year plans, 3-year plans, and multi-year plans like the APP.

A5.1.1. Periodic Plans

290. Planned development process initiated in Nepal since 1956/57, and has completed Ten periodic 5-year plans and one Three-Year interim plan, till 2009/10.

A5.1.2. Three-Year Plan 2010/11-2012/13

291. This Three Years Plan aims for: Broad Based Economic Development, Poverty Reduction, and has prioritized: Agriculture Tourism, Industry and Trade, Institutional and Infrastructure Development, Inclusive approach. The plan has categorized Essential Services as: Drinking Water, Energy/ Electricity, Road, Communications, Food Security, Health and Education. Furthermore, Environment conservation and Climate change Effect Mitigation are mentioned as important aspects of the Plan.

A5.1.3. Agriculture Perspective Plan (APP). 1995/96- 2014/15

292. The Agriculture Perspective Plan (APP) emphasized agriculture-led growth strategy for poverty reduction and overall economic development without adverse effect to environment. It focused on acceleration of sustainable high growth path of agriculture sector with poverty reduction as its mission based on rapid transformation of agriculture that would propel growth even in the non-agricultural sectors through the multiplier effects.

293. The APP strategy is technology-driven. Its priority inputs cover fertilizer, irrigation, roads, electrification and technology. It emphasizes livestock, high-value crops, agribusiness and forestry as its priority outputs. Policy arrangements made for effective implementation of the APP were:

- Identification of growth centre (production pocket) based on comparative and competitive advantage suitable to the agro-ecological zone;
- Different level working committees to expedite the work in the pocket area package strategies;
- Coordination and feedback through Agriculture Development Committee

294. Institutional arrangements made for effective implementation were:

- National Cooperation Committee under the chairmanship of NPC Vice-chair
- National Agriculture Development Committee
- Central Agriculture Development Implementation Committee
- APP Monitoring and Analytical Unit
- Regional Agriculture Development Committee
- District Agriculture Development Committee

A5.1.4. National Agriculture Sector Development Priority (NASDP) 2010/11 - 2014/15

295. **NASDP** has identified the key priority areas in Agriculture for the medium-term, with the possibility of attracting support of different development partners working in Nepal. The priorities are derived from the analysis of current situation and the thrusts reflected by the overriding policies and plans. It realizes the fact that the low productivity and production of agriculture in Nepal have not only increased the risk of food insecurity in the country but also accelerated unsustainable use of natural resources. The NASDP has emphasized broad based agricultural development and food security. Delivery of demand-led services, promoting participation of the private sector in the areas of their comparative advantages, has been underlined. Altogether, eight priority outcomes are proposed. Under these priorities, 29 subsequent outputs are identified.

A5.2. Policies in Agriculture Sector

296. Major policies derived to guide the agriculture sector in Nepal are:

A5.2.1. National Agriculture Policy, 2061 (2004)

297. The National Agriculture Policy, 2061 follows an objective of creating an enabling environment for agriculture-led rural development. It emphasizes competitiveness of agriculture sector encouraging farmers to go for commercial production. The policy divides farmers into two groups – small and big ones and aims to provide more resources to the small farmers. Those owning less than 4 hectares of land are labeled as resource poor farmers. They enjoy government assistance provision to boost their productivity. The policy aims at increasing productivity and promoting natural resources to utilize them in the interest of farmers.

298. The policy aims at achieving high and sustainable economic growth through commercial agriculture system contributing to food security and poverty reduction. It emphasizes:

- increased agricultural production and productivity,
- making agriculture competitive in regional and world markets through commercialized agriculture system,
- conserving, promoting and utilizing natural resources, environment and bio-diversity

A5.2.2. Agro-business Promotion Policy, 2064 (2006)

299. The Agri-business Promotion Policy highlights diversification, commercialization and promotion of agriculture sector with private sector involvement in commercial farming, for transforming agriculture from subsistence level to commercial farming.

300. The policy aims to reduce poverty by encouraging production of market-oriented and competitive agro-products. It realizes the need of promoting internal and external markets. This policy emphasizes business service centers establishment for quality agriculture inputs and services. Partnership between the private sector and Government is emphasized for the export of quality goods. The policy considers infrastructure development as a cornerstone for commercialization. The

policy has envisaged promotion of partnership approach between Government and the private sector.

A5.2.3. National Fertilizer Policy, 2058 (2002)

301. The National Fertilizer Policy was formulated to support agricultural production by ensuring supply (production, import and distribution) of good quality fertilizer. This Fertilizer Policy is sub-component of the Government's broad National Agriculture Policy as set out in the Agriculture Perspective Plan.

302. The aim of this policy is to enhance agricultural productivity through improvement in soil fertility and thereby contribute to the national goal of poverty alleviation. Specifically, this policy emphasizes the following:

- (a) Provision of conditions (policy and infrastructure management) for enhancing fertilizer consumption; and
- (b) Promotion of integrated plant nutrients management system for efficient and balanced use of fertilizer.

303. The policy adopts following strategies to achieve its objectives:

- (a) Ensure fertilizer availability;
- (b) Making fertilizer distribution system transparent, competitive and effective;
- (c) Maintain the use of quality fertilizer; and
- (d) Manage Integrated Plant Nutrients System

A5.2.4. Irrigation Policy, 2060 (2003)

304. The policy is formulated with the objective of promotion of conjunctive use of ground and surface water based irrigation systems along with new / non-conventional irrigation systems such as rain water harvesting, pond irrigation, sprinkler irrigation, drip irrigation and treadle pump irrigation. In the country, the irrigation systems developed so far are limited to run of the river systems. To make the system good for round-the-year irrigation, it is necessary to develop storage so that the problem of low flow of rivers during the winter season can be mitigated to some extent. The policy aims to develop irrigation facility for the achievement of following objectives:

- (a) To avail round the year irrigation facility through effective management of existing water resources;
- (b) To develop the institutional capacity of water users for sustainable management of existing systems; and
- (c) To enhance knowledge, skills and institutional working capability of technical human resources, water users and NGOs relating to development of irrigation sector.

305. Other policies and plans relevant to the irrigation sector since 1990 include

- (a) Master Plan for Irrigation Development in Nepal, (1990)
- (b) "New Irrigation Policy" (1992)
- (c) Groundwater Development Strategies (1987/1994)
- (d) National Water Strategy (2002)
- (e) Irrigation Development Vision (2005) and Associated Financial Plan
- (f) National Water Plan (2005)

A5.2.5. National Seed Policy, 2056 (2000)

306. The National Seed Policy has been developed to effectively manage production, processing and testing of high quality seeds and their timely availability to the farmers. The Seed Act of 2045 and Seed Regulations framed under this Act in 2054 signifies contribution of the quality seeds in agricultural production. Its objectives are to ensure:

- (a) Availability of quality seeds of different crops in a required quantity
- (b) Production of quality seeds and promotion of export
- (c) Making seed business effective in view of the international market
- (d) Conservation of genetic characteristics of the indigenous seeds and maintain patent right

A5.2.6. National Tea Policy, 2057 (2000)

307. The National Tea Policy has been developed within the framework of National Tea and Coffee Development Board Act, 2049. It intends to promote private sector's participation in production, processing and trade of tea. It emphasizes development of tea industry as a means of income generation, employment promotion and foreign exchange earnings. Its objectives are to ensure:

- (a) Qualitative and quantitative improvement in the production through encouraging participation of private sector, tea entrepreneurs and farmers;
- (b) Promotion of market for tea by making tea enterprise sustainable and lucrative;
- (c) Expand tea farming with environmental protection;
- (d) Institutions development for the promotion of tea enterprises;
- (e) Increase opportunity for foreign exchange earnings and also meet domestic demands;
- (f) Conduct research for tea development, Develop technology associated with tea production and Develop human resources.

A5.2.7. National Coffee Policy, 2060

308. The Government developed National Tea Policy, 2057 (2000) within the framework of National Tea and Coffee Development Board Act, 2049 with the objective of promoting private sector's participation in the production, processing and trade of tea and develop tea industry as a means of income generation, employment promotion and foreign exchange earnings. It also aimed at:

- (g) Import substitution and export promotion;
- (h) Poverty reduction by increasing income generating and employment opportunities;
- (i) Environment protection by expanding coffee farming; and
- (j) Making coffee enterprise sustainable and lucrative.

A5.2.8. Dairy Development Policy, 2064 (2007)

309. The Dairy Development Policy, 2064 (2007) has been developed with a the long-term vision to encourage participation of public, private and cooperative sectors in milk production. It

emphasizes the role of commercial and competitive enterprises, while maintaining reasonable price for milk and milk products both for the producers and consumers. Major objectives of the Policy are:

- (a) To increase production and productivity of milk in rural areas;
- (b) To expand milk collection, transportation and processing by making the production of milk and milk products more commercial and competitive;
- (c) To diversify milk products for import substitution and promotion of export; and
- (d) To control and regulate the quality of milk and milk products.

A5.2.9. Agriculture Bio-diversity Policy, 2063 (2007)

310. The Agriculture Bio-diversity Policy has been framed in accordance with the objectives of National Agriculture Policy to protect, promote and utilize bio-diversity. It intends to benefit from protection and utilization of genetic resources for food security and poverty reduction. Other objectives are:

- (e) To protect, promote and utilize genetic resources for sustainable agriculture development coupled with food and nutrition security;
- (f) To protect and promote farmers' indigenous knowledge, skills and practices;
- (g) To maintain equitable and fair distribution of benefits accruing from access and utilization of agricultural genetic sources and materials; and
- (h) To promote ecological balance by protecting and promoting agricultural bio-diversities.

A5.2.10. Trade Policy, 2009

311. Trade Policy is formulated to address the issues of international trade dynamisms such as: affiliation with the regional and multilateral trading system, expansion of bilateral free trade areas, simplification of trade procedures, development of new transit system, and also to enforce Sanitary and Phyto-Sanitary (SPS) measures and the technical barrier to trade (TBT), which could contribute towards sustaining the export trade. This policy aims to support economic development and poverty alleviation initiatives through enhanced development of the trade sector in the national economy. Major objectives are:

- (a) To create conducive environment for trade promotion by making the business internationally competitive;
- (b) To minimize trade deficit by increasing exports of value added products through the links between import and export trade;
- (c) To increase competitiveness of goods and services trade in raising more income and employment opportunities for poverty reduction; and
- (d) To establish interrelationship between internal and foreign trades by making them complementary and supplementary to each other.

A5.2.11. Policies at Draft Stage

- (a) Pesticide Policy
- (b) Rangeland Development Policy

Draft Irrigation Policy (2010)

Draft Integrated Water Resources Strategy (2011)

Draft Policy on Micro-irrigation (2007-2011)

Draft Food Safety Policy

A5.3. Acts related to the Agricultural Sector

A5.3.1. Agriculture and Forestry University Act, 2067 (2010)

312. This Act makes provisions to establish and operate an Agriculture and Forestry University in Nepal to support the development of agriculture. Teaching and research within the country to upgrade the academic standard and to produce skilled human resource in the concerned subject in an integrated manner to uplift social and economic status of the rural people by modernization of agriculture. Act has authorized University for the framing necessary Rules.

A5.3.2. Animal Health and Livestock Services Act, 2055 (1999)

313. An Act Made to Provide Necessary Arrangement Relating to Animal Health and Livestock Services: to systematize and develop the animal husbandry business which occupies an important place of the national economy and to provide necessary arrangement relating to healthy production; sale, distribution, export and import of animal products or animal production, with provisions Relating to Animal Quarantine, Relating Animal Breed Improvement, Relating to the Establishment of an Industry and Export Import, and Relating to Prevention of cruelty to Animals.

314. In line with the Act, Animal health and Livestock Services Rules 2056(2000) have been developed, which outlines the provisions, enactment modalities, the authority and responsibility of various stakeholders, especially in the areas of animal quarantine.

A5.3.3. Animal Slaughterhouse and Meat Inspection Act, 2055(1999)

315. Act Made to Provide Necessary Arrangement Relating to Animal Slaughterhouse and Meat Inspection and is expedient to establish slaughterhouse and arrange for meat inspection to safeguard the health and welfare of the people in general and to control adulteration in meat and meat products and to maintain reasonable standard of meat by protecting the wholesomeness, quality and adequacy of meat.

316. Rules framed under this Act include: Establishment of a Slaughterhouse, and various measures of quality and sanitary control and also the Power to Frame Regulation, and Repeal Provisions are ensured.

317. Animal Slaughterhouse and Meat Inspection Regulation 2056(2000) has been framed to guide the Enactment procedures, Authority and responsibility of various stakeholders.

A5.3.4. Aquatic Animal Protection Act, 2017(1960)

318. Act Made to Provide for Protection of Aquatic Animals, and to make provisions on the protection of aquatic animals and other matters pertaining thereto in order to maintain peace and order as well as convenience and economic interests of the general public. Provisions in the Act includes: Restriction on methods of catching and killing aquatic animal, Prohibition on closing or

demolishing doors of fish ladder and Structure, Prohibition on using poison other than safe poison, and Powers to frame Rules, and Repeal provisions.

A5.3.5. Contract Act, 2056 (2000)

319. Act made to provide for legal provisions on contract, and to update legal provisions concerning contract. Provisions in the Act are related to: Contracting Parties and Proposal and Consent, Indirect contract, Contingent contracts, Void and Voidable Contracts, Contracts relating to Guarantee, Indemnity and Subrogation, Contracts relating to guarantee, Surety's liability, Guarantee related viable contract, Equal liability of co-sureties, Contracts relating to Collateral and Deposit, quality, Special provisions concerning compensation, Contracts Relating to Agency, Power to appoint Sub-agents, contracts Relating to Transportation of Goods, Contracts relating Transportation Obligation Arising out of the Contract, Power of the judiciary to issue orders, Prevailing law to be obeyed, Limitations Repeal, and saving are the key provisions in the Acts.

A5.3.6. Cooperatives Act, 2048(1992)

320. Act made to Provide for the Cooperative Associations and Societies to make provisions on the formation and operation of various types of cooperative associations and societies based on the mutual support and cooperation for the economic and social development of the general public consumer by the farmers, craftsperson, class of people with low capital and low income, workers, landless and unemployed people or social workers of the country. The Act includes provisions of : Formation of Association or Society, Application for registration of association or society Liability of association or society to be limited, Membership and their *Modus Operandi*, Functions, duties and powers, Financial Source and Mobilization Powers to carry on banking transactions, Dissolution and Cancellation of Registration of Association or Society, Appointment of liquidator, Punishment provisions, and various elements like: Restriction on the use of word cooperative, Powers to frame Rules, Repeal and saving are included.

A5.3.7. National Cooperatives Development Board Act, 2049 (1992)

321. An Act Made to Provide for the Establishment and Management of National Cooperatives Development Board; to establish and manage the operation of National Cooperatives Development Board in order to bring about improvement in the economic and social standards of the lower level people through mutual cooperation an cooperative and support the promotion and development of various types of cooperative associations and unions. Act has made provisions to establish an autonomous body the Board and its Office, Functions, duties and powers, Funds, Accounts and audit Submission of report to Government of Nepal, Liaison with Government of Nepal, Dissolution of Board, Powers to frame by-laws.

A5.3.8. National Dairy Development Board Act, 2048(1992)

322. This Act is Made to Provide for the Establishment and Management of National Dairy Development Board in order to maintain the health and convenience of the general public by producing milk within the country through public participation and bringing about coordination among the program on dairy production launched by the Governmental and private sectors. Act has made provision and has outlined the procedure for: Establishment an autonomous Board, its

Objectives Functions, duties and powers, Fund, Accounts and audit, Powers of Government of Nepal to give direction, Dissolution and, Powers to frame By-laws.

A5.3.9. Drugs Act, 2035, (1978)

323. An Act Made to Make Provisions relating to Drugs: to prevent the misuse or abuse of drugs and allied pharmaceutical substances and false or misleading information relating to the efficacy and use of drugs and to control the production, sale, distribution, export, import, storage and consumption of those drugs which are not safe for public consumption, efficacious and of standard quality (also includes Veterinary drugs). Provisions of Manufacture, Sale, Distribution, Export and Import of Drugs Prohibition on false or misleading advertisement of drugs, Inquiry and Inspection Prohibition on adulteration in drugs and sale of adulterated drugs, Prohibition on sale or distribution of date expired drugs, Penalties, Right to register patent of drug and Power to frame Rules are included.

A5.3.10. Feed Act, 2033 (1976)

324. An Act Made to maintain appropriate standards of the feed so as to prevent undesirable adulteration in the feed and subtraction or extraction of any natural quality or utility contained in the feed. Act has made Prohibition on production, sale, distribution, export, import and storage of contaminated feed, Prohibition on sale and distribution of feed by lying or misleading, Appointment and powers of feed inspector, Powers to withhold feed, License to be obtained, Penalties, Liability of offence committed, by firm or body corporate, Power to specify quality standard of feed. Test of feed, Feed standard fixation committee, Government to be the Plaintiff, Investigation and filing of case, Adjudicating authority, Appeal, Power to frame Rules.

A5.3.11. Food Act, 2052 (1996)

325. An Act made to maintain purity in foodstuffs and to make legal provisions to maintain proper standard of foodstuffs and to prevent any undesirable adulteration in foodstuffs or prevent from reducing in, or extracting, any natural quality or utility from foodstuffs in order to maintain health and convenience of the general public. Act includes the provision of: Prohibition on production, sale or distribution of adulterated foodstuff or, sub-standard foodstuff, Prohibition on sale of foodstuff by lying or misleading, Powers to withhold Foodstuffs, License to be obtained, Punishments, Liability of crime committed by firm or body corporate, Powers to set quality and standard of foodstuffs, Examination of Foodstuff, Food standard fixation committee, Government to be the Plaintiff, Adjudicating authority, Appeal, Powers to frame Rules.

A5.3.12. Forest Act, 2049 (1993)

326. An Act Made For Proper Management and Conservation of Forests, to meet the basic needs of the public in general, to attain social and economic development and to promote a healthy environment and to ensure the development and conservation of forest and the proper utilization of forest products and extend cooperation in the conservation and development of private forest by managing the national forest in the form of government managed forest, protected forest, community forest, leasehold forest and religious forest. This Act includes: Demarcation of Boundaries of National Forests and Other Provisions, Forest Boundaries, Notice of Land Acquisition, Compensation, Provisions Relating to the Government Managed Forest, Work Plan, , Ownership and Sale or Distribution of the Forest Products, Provisions Relating to the Community Forest,: Grant of

Leasehold Forest, Provisions Relating to Religious Forest, , Constitution of Users' Group, Registration of the Users' Group, Punishment, Power to Frame Rules, Procedure in Case of Inconsistency of this Act with Other Laws, Repeal and Saving are included.

A5.3.13. Water Resources Act 2049 (1992)

327. The Water Resources Act (1992) superseded the Canal, Electricity and Related Water Resources Act (1967) and remains the primary legislation for the sector. It includes the following aspects.

- a. **Ownership and Other Judicial Status:** the state owns the nation's water resources, but governments and individuals have rights to use the water. A license is required for hydropower development above one megawatt.
- b. **Surface Water Resources:** the owner of land where water resources are located can utilize them, whereas the government may utilize the resources, for larger interest at the same time keeping in view prior appropriation rights.
- c. **Order of Priority:** The various uses of water are fixed in the following order of priority:
 - i. Drinking water and domestic purposes
 - ii. Irrigation
 - iii. Agricultural uses such as animal husbandry and fisheries
 - iv. Hydro-electricity
 - v. Industry (cottage industry, industrial enterprises, mining)
 - vi. Navigation
 - vii. Recreation
 - viii. Other uses
- d. **Environment:** While utilizing water resources there should be no substantial adverse effect on the environment through soil erosion, floods or landslides. Water resource quality and pollution control are covered by clauses in the Act. However, further guidance would probably be useful if the Act is revised or replaced.
- e. **Ground Water:** Individuals utilizing groundwater have to comply with the act though no specific legislation was enacted at that time.
- f. The value of **Water Users' Associations (WUA)** in managing water resources was recognized and the Act provided a legal basis for WUAs to manage local water resources. A registered WUA can become a legal entity and the government can hand over the ownership of water related infrastructure it has developed to a WUA.

A5.3.14. Irrigation Rules, 2056 (2000)

328. The Rules includes: *Provision related to users Association and Transfer of the project:* Registration of Users' Association, Election and Dissolution of Executive Committee of Users' Association, Functions, Duties and Powers of Users' Association, Records to be maintained, Users' Coordination Association, Registration of Users' Coordination Association, Renewal, Maintenance Fund, Handover of the Project, Terms and Conditions of Handing over of the Project, Plantation and protection of plants and trees, Joint Management System *Provisions regarding User's duty and Responsibility and Service Fee, Provisions regarding irrigation project and other Miscellaneous Arrangements* and authority to frame directives, Changes or Alterations May be Made in the schedule Repeal and Savings are provisioned.

A5.3.15. LOCAL SELF-GOVERNANCE ACT, 2055 (1999)

329. THIS ACT MADE TO PROVIDE FOR LOCAL SELF-GOVERNANCE to make provisions conducive to the enjoyment of the fruits of democracy through the utmost participation of the sovereign people in the process of governance. way of decentralization, Institutionalize the process of development by enhancing the participation of all the people including the ethnic communities, indigenous people and down-trodden as well as socially and economically backward groups in bringing out social equality in mobilizing and allocating means for the development of their own region are aimed at The balanced and equal distribution of the fruits of development, institutional development of local bodies to make them capable of bearing responsibility, formulate and carry out plans, and constitute local bodies of the local self-governance system in a manner that they are able to make decisions on the matters affecting the day-to-date needs and lives of the people, by developing local leadership. Where various Principles and Policies Provisions, Role, Responsibility, Working modalities of Local Self-governance ,at ward, Village, Municipality and Districts level are described. Accordingly as implementation procedures Local Self governance Rules 2056 (2000) has been formulated.

A5.3.16. 3.14 Nepal Agricultural Research Council Act, 2048(1992)

330. This is an Act Made to Provide for the Establishment and Management of Nepal Agricultural Research Council to establish and manage the Nepal Agricultural Research Council in order to enhance the economic standards of the general public by doing study and research works on the problems of the agricultural sector and finding out solutions to the problems. Provisions in the act includes: Establishment of autonomous Council, Objectives, Formation, Functions, duties and powers of Council, Formation of executive committee and its Meetings, Fund of Council, Accounts and audit, Employees of Council, Powers of Government of Nepal to give direction, Liaison with Government of Nepal Dissolution of Council. Powers to frame By-laws.

A5.3.17. The Pesticides Act, 2048 (1991)

331. This act is made to make provisions on the import, export, production, purchase, sale and use of the pesticides used to destroy fatal pests in various seeds, plants, trees, animals, birds etc. This act includes the provisions of: Formation of Pesticides Committee ,Meeting and decision, Functions, duties and powers of Committee and sub Committees, Establishment of Pesticides registration body, Functions, duties and powers of Pesticides registration body: Licensing, Notification, Prohibition of Pesticides Appointment of Pesticides Inspector and, Functions, duties and powers of Pesticides Inspector, Punishment are provisioned similarly the Government to be the Plaintiff, . Investigation and filing of case and Power to frame Rules are mentioned. To implement the act the Pesticide Rules, 2050 (1994) have been formulated.

A5.3.18. Plant Protection Act, 2064 (2007)

332. An Act Made to make legal provisions for preventing the introduction, establishment, prevalence and spread of pests while importing and exporting plants and plant products, promoting trade in plants and plant products by adopting appropriate measures for their effective control. Act has made Provisions relating to Committee and Organization , Functions, duties and powers of Committee, Provisions relating to entry permit, sanitary and Phyto-sanitary certificate for export or re-export , Permit for carriage of consignments, Provisions relating to inspection, test and

treatment, Pest risk analysis, Notice of quarantine pests, Power to declare quarantine pests affected area, Control of pests in quarantine pests affected area ,Offense and Penalties, Investigation, inquiry and filing of cases , Adjudicating authority, Government to be the Plaintiff, and Appeal.

A5.3.19. Seeds Act, 2045 (1988)

333. An Act Made to Make Provisions Relating to Seeds, to maintain the convenience and economic interest of the general public by providing the Seeds of quality-standards in a well planned manner upon producing, processing and testing the Seeds of high quality-standards to have the production of different crops increased. Act has made provision for : Constitution of National Seeds Board, Functions, Duties and Powers of the Board Establishment of Seeds Quality Control Centre Establishment of Seeds Testing Laboratory Notify the Type or Variety of the Seeds License to be obtained, Provisions on Sale and Distribution of Notified Seeds: To Obtain Permit to Export or Import the Notified Seeds Punishment, Government to be plaintiff, Investigation and Institution of Cases, Power to Hear Cases, Saving of Actions Carried Out in Good Faith, and Power to Frame Rules, are ensured.

A5.3.20. National Tea and Coffee Development Board Act,2049 (1993)

334. An Act Made to Provide for the Establishment and Management of National Tea and Coffee Development Board: to make provisions on the establishment and operation of the National Tea and Coffee Development Board in order to bring about harmony in the farming and processing of tea and coffee, produce tea and coffee of high quality by using the modern technology, and to develop the tea and coffee industry in the country in a planned manner by making a concrete policy for the market management and export and import. This Act has made provisions: to Establishment an autonomous Board, Board Office , Objectives, Functions, duties and powers of Board, Fund of Board, Accounts and audit. Employees of Board, Liaison with Government of Nepal , Dissolution of Board, and Powers to frame By-law.

A5.3.21. Nepal Veterinary Council Act, 2055 (1999)

335. An Act made to provide for the Nepal Veterinary Council to establish the Nepal Veterinary Council in order to manage and making effective the veterinary business in Nepal and also to provide for the registration of name according to the qualifications of the veterinary doctors. Act has provisioned: for Establishment, Formation and Functions, Duties and Powers of Council, Term of office of member, Disqualifications for membership, Cessation of membership of Council. Functions, duties and powers of Council, Dissolution of Council, Authority to investigate and file case, Offense and penalty, Liaison, and Powers to frame Rules or By-laws.

APPENDIX 6. PERSONS METS

No.	Person met	Position	Organization
1	Subodh Narayan Jha	Member	National Planning Commission
2	Dinesh Chandra Devkota	Hon. Vice Chairman	National Planning Commission
3	Bhaba K. Bhattarai	Jt. Secretary	National Planning Commission
4	Bindra Hada	Secretary	National Planning Commission
5	Champak Pokhrel	Ex Member	National Planning Commission
6	Prithvi Raj Ligal	Former Vice Chairman	National Planning Commission
7	Puspa Shakya	Jt. Secretary	National Planning Commission
8	Ram Kumar Sharma	Hon. Member	National Planning Commission
9	Ram Prakash Yadav	Former member NPC	National Planning Commission
10	Biju Shrestha	Director	National Planning Commission
11	Jagadish Chandra Pokharel	Former Vice Chairman	National Planning Commission
12	Hari Narayan Yadav	Minister	Ministry of Agriculture and Cooperatives
13	Nathu P Chaudary	Secretary	Ministry of Agriculture and Cooperatives
14	Krishan Hari Baskota	Secretary	Ministry of Finance
15	Ganesh R. Joshi	Secretary	Ministry of Environment
16	Krishna Gewali	Secretary	Ministry of Local Development
17	Shushil Ghimire	Secretary	Ministry of Local Development
18	Tana Gautam	Secretary	Ministry of Irrigation
19	Yub Raj Bhusal	Secretary	Ministry of Forest and Soil Conservation
20	Uma Kanta Jha	Secretary	Ministry of Irrigation
21	Batu Krishna Uprety	Jt. Secretary	Ministry of Environment
22	Bhuvan Karki	Under secretary	Ministry of Finance
23	Bishnu P. Aryal	Joint Secretary Planning	Ministry of Agriculture and Cooperatives, Project Director ADS
24	Fulgen Pradhan	Jt. Secretary	Ministry of Agriculture and Cooperatives
25	Kailash Pokherel	Under secretary	Ministry of Finance
26	Keshab Prasad Acharya	Executive Advisor	Minister of Finance
27	Khom Raj Dahal	Jt. Secretary	Ministry of Irrigation
28	Krishna Raj BC	Jt Secretary	Ministry of Land
29	Lal Shankar Ghimire	Jt. Secretary	Ministry of Finance
30	Laxman Pokherel	Jt Secretary	Ministry of Agriculture and Cooperatives
31	Mahendra B, Gurung	Jt. Secretary	Ministry of Irrigation
32	Mahendra Nath Poudel	Senior Economist	Ministry of agriculture and cooperatives
33	Rameshwor Khanal	Former secretary	Ministry of Finance
34	Chevan Guragain	Monitoring &E Officer/Under secretary	Ministry of Forest and Soil Conservation Singhdarbar
35	Durga Dhungel	Under Secretary	Ministry of Law and Justice
36	Ganesh Prasad Dhakal	Joint secretary	Ministry of Commerce and Supplies
37	Hem Raj Regmi	Snr Statistics Officer	Ministry of Agriculture and Cooperatives

38	JeebRaj Koirala	Under Secretary	Ministry of Commerce and Supplies
39	Mathura Danggol	Joint secretary,	Ministry of Irrigation
40	Hari Dahal	Jt. Secretray	Ministry of Agriculture and Cooperatives
41	Uttam Bhattarai	Jt. Secretary	Ministry of agriculture and cooperatives
42	Rishi Raj Bhandari	Legal Officer	Ministry of Agriculture and Cooperative
43	Raghu Ram Bista	Under-Secretary	Ministry of Local Development
44	Yamuna Kahatiwada	Joint secretary	Ministry of Industries
45	Yam Nath Sharma	Under-Secretary	Ministry of Local Development
46	Suresh Barma	Former Joint Secretary	Ministry of Agriculture and Cooperatives
47	Shita Ram Timilsena	Joint secretary	Ministry of Industries
48	Shambhu Regmi	Legal Officer	Ministry of Commerce and Supplies
49	Shanta Subedi	Joint Secretary	Ministry of Finance Revenue Division Singha Durbar
50	Madhuri karkee	Under Secretary (technical)	Planning Division, Monitoring section DOF
51	Suresh Shrestha	Horticulture Specialist	Former Civil Servant, Ministry of Agriculture and Cooperatives
52	Bishnu Datta Awasthi	Dy. Director General	Department of Agriculture
53	Bhagwat Prasad	Program Chief	Department of Agriculture
54	Chut Raj Gurung	Program Director	Department of Agriculture
55	Dambar B. Singh	Monitoring Officer	Department of Livestock Services
56	Govinda Sharma	Jt Secretary	Department of Agriculture
57	Jagdish B. Shrestha	Program Director	Department of Agriculture
58	Jeevan Prabha Lama	Director General	Department of Food Technology and Quality Control
59	Keshav P. Premi	Program Director	Department of Livestock Services
60	Mohan B. Thapa	Dy. Director General	Department of Agriculture
61	Nar Bahadur Rajawar	Deputy Director General	Department of Livestock Services
62	Prabhakar Pathak	Director General	Department of Livestock Services
63	Ram Krishan Khatiwada	Program Director	Department of Livestock Services
64	Ramananda Mishra	Program Director	Department of Agriculture
65	Saroj Pokhrel	Program Director	Department of Agriculture
66	Shyam P. Poudel	Program Director	Department of Livestock Services
67	Siddhi Ganesh Shrestha	Program Director	Department of Agriculture
68	Siddhi Ganesh Shrestha	Director Dept Ag Ext	Department of Agriculture
69	Vijay Mallick	Director General	Department of Agriculture
70	Anil Pokharel	Director General	Department of Irrigation
71	Arun S Ranjit	DDG Coordinator, Rangeland Policy Formulation	Department of Livestock Services
72	Arun Shankar Ranjit	Deputy Director General	Department of Livestock Services

73	B. D. Abasthi	Deputy Director General	Department of Agriculture
74	Bala Ram Adhikari	National Coordinator	Department of Forests/ LFDF
75	Kamal Gautam	Program Director	Department of Agribusiness Promotion & Marketing Development Directorate
76	Khadga Prasad Dhakal	Livestock Specialist. Former officer	Department of Livestock
77	Laxman Gautam	Forest Extension Officer	Department of Forests/ LFDF
78	Laxman Upadhyay	District Attorney	Depart Of Food Technology and Quality Control
79	Madhusudan Pokharel	Dy. Director General	Dept. of Customs, Ministry of Finance
80	Mohan Krishna Maharjan	Senior Food Research Officer	Depart Of Food Technology and Quality Control
81	Nar Rajwar	DDG	Department of Livestock Services
82	Pashupati Koirala	Forest Officer	Department of Forests/ LFDF
83	Prabhakar Pathak	Director General	Department of Livestock Services
84	Pradeep C. Bhattarai	Sr. Livestock Officer	Department of Livestock Services
85	Pradeep Raj Pandey	Regional Irrigation Director	Department of Irrigation
86	Purushottham Shahi	Far Western Regional Director	Department of Irrigation
87	Shashi Ratna Shakya	Planning Officer	Department of Livestock Services
88	Shiv Kumar Sharma	Deputy DG Surface Water	Department of Irrigation
89	Uday Chandra Thakur	Program Director	Department of Livestock Services
90	Vijay Malik	DG	Department of Agriculture
91	Resham Bahadur dangi	Deputy Director general	Department of Forests
92	Sanjay Bhandari	Research Officer	Depart Of Food Technology and Quality Control
93	Hussein Dib	Consultant (FTSQ)	Department of Food Technology and Quality Control
94	Kishor Bhattarai	Senior Officer	NITP, Department of Irrigation
95	Amita Dhakwa	Plant Protection Officer	Department of Agriculture
96	Ram Krishna Sapkota	DDG	DOLIDAR, MLD
97	Prakash Thapa	Project Coordinator Community Irrig Proj	DoLIDAR
98	Shambhu Deo	Project Manager	RISM/ DOA
99	Munni Gautam	Under Secretary (technical)	Community Forestry Division, DoF
100	Gopal Sigdel	Chief	Irrigation Development Division
101	Yuraraj Khatiwada	Governor	Nepal Rastra Bank
102	G. Kafle	Dy. Governor	Nepal Rastra Bank
103	Gopal Khaple	Deputy Governor	Nepal Rastra Bank
104	Tek B. Gururung	Director	Nepal Agriculture Research Council
105	Achyut Dhakal	Member	Nepal Agriculture Federation
106	Shyam Poudel	Program Director	Livestock Training & Extension Dir
107	Bhuaneshwor Sharma	Sr. Vety Officer	Livestock Marketing Directorate

108	Dinesh Parajuli	Regional Director	Livestock Regional Directorate
109	Kishore P. Kayastha	Sr.Livestock Officer	Pig & Poultry Section, DLS
110	Krishna P Rijal	Sr. Livestock Officer	Sheep &Goat Section, DLS
111	Lok Nath Poudel	Sr. Livestock Officer	Cattle & Buffalo section, DLS
112	Ram B. Prasad	Diraector, HRD	Nepal Agriculture Research Council
113	Anand Gautam	Chief	Agriculture Environment Unit, NARC
114	Baidya Nath Mahato	Director, Planning	Nepal Agriculture Research Council
115	Dinesh Pariyar	Executive Director	Nepal Agriculture Research Council
116	Tek Bahadur Gurung	Director Fisheries & Livestock	Nepal Agriculture Research Council
117	Mandal	Director	Nepal Agriculture Research Council
118	Prakash Pokharel	Senior Scientist	Nepal Agriculture Resurch Council
119	Ram Briksh Prasad	Director, HRD	Nepal Agriculture Research Council
120	Suresh Kumar Wagle	Chief	Fishery Research Division, NARC
121	Ram Pukar Thakur	Chief	Animal Health Division, NARC
122	Bindeshwor Prasad Shaha	Chief	Biotechnology Unit, NARC
123	Surya Panday	Soil Scientist/ Fertilizer Expert	Formerly Director NARC
124	Salik Ram Gupta	Senior Scientist	Nepal Agriculture Gene Bank, NARC
125	Amrita Dhakha	Senior Officer	Directorate of Postharvest Mng.
126	Chut Raj Gurung	Program Director	Directorate of Vegetale Devt.
127	Asha Rayamajhee	Senior Scientist	Fishery Resh. Division, Godawary
128	Bimal Kumar Nirmal	Chief Livestock Officer	National livestock Breeding Center
129	Buddhi Man Khaling	Sr. Vety Officer	Livestock Training &Extension Dir
130	Krishna Prasad Nepal	Chief	Irrigation Development Division
131	Bhagawat Prasad	Secretary	Nepal Agriculture Federation
132	Shambhu Shrestha	Agriculturist	Nepal Agriculture federation
133	Shambu Shrestha	President	Nepal Agriculture Federation
134	Ganesh Kumar KC	President	Nepal Agriculture Federation
135	Jagat Devi Ranjit	Member	Nepal Agriculture Federation
136	Umed Pun	Treasurer	Nepal Agriculture Federation
137	Shambhu B. Pandey	Member	Nepal Agriculture Federation
138	Naina Dhakal	General Secretary	Nepal Agriculture Federation
139	Bharat Paudel	Sr.Horticulturist	Vegetable Seed Production Center
140	B.B.Singh	Sr. Economist	Economic Dev. &Policy Analysis Center
141	G.S.Niraula	Chief	Citrus Development Division
142	Devendra P.Yadav	Chief Livestock Officer	Pasture Production Division
143	Suroj Pokhrel	Program Director	Directorate of Agricultural Crop Development
144	Gajadish Shrestha	Program Director	Directorate of Industrial Entimology

145	Devendra Sharaff	Sr.Horticulturist	Directorate of Fruit Development
146	Gopal Shrestha	Director	Directorate of Vegetable Development
147	Siddhi Ganesh Shrestha	Program Director	Directorate of Agri-Extension
148	Jagdish Shrestha	Chief	Directorate of Industrial Entomology
149	Khim Nidhi Lohani	Horticulturist	Directorate of Fruit Development
150	Madhusudan Basnyat	Director	Directorate of Agricultural Engineering
151	Narayan Giri	Senior Fishery Dev. Officer	Directorate of Fisheries Development
152	Neeru Pandey	Snr Agriculture Officer	Directorate of Agricultural Crop Development
153	Mukunda Bahadur Thapa	Technical Assistant	Directorate of Fisheries Development
154	Ram K. Khatiwada	Prgram Director	Animal Health Directorate
155	Mani Kumar Shrestha	Sr. Livestock Officer	Animal Production Directorate
156	Tadashi Murata	Senior JICAVolunteer	Fishery Resh. Division, Godawary
157	Surendra Rijal	Chief	Tea and Coffee Development Section
158	Sumitra Laudari	Fishery Development Officer	National Fish and Aquaculture Development Program
159	Gopi Raj Chalise	Senior Fishery Dev. Officer	National Fish and Aquaculture Development Program
160	Hari Upadyaya	Executive Chairman	Centre for Environmental and Agricultural Policy Research, Extension and Development
161	Nand Kishore Roy	Technical Officer	Fishery Resh. Division, Godawary
162	Nita Pradhan	Mr. Arjun Bahadur Thapa,	Fisheries Research Division Godawary
163	Raj Kapoor Napit,	Technical Assistant	National Fish and Aquaculture Development Program
164	Purna Dhungana	Fishery Development Officer	Directorate of Fisheries Development
165	Rajendra Kumar KC	Program Director	Directorate of Fisheries Development
166	Ram Kumar Shrestha	Technical Officer	Fishery Resh. Division, Godawary
167	Raj Man Mulmi	Technical Officer	Fishery Resh. Division, Godawary
168	Rudra Poudel	Sr. Livestock Officer	Community Livestock Development Project
169	Rewati M. Shrestha	Project Manager	Community Livestock Development Project
170	Jaya Kishore Mandale	Chief	Central Fish Laboratory
171	Sano Kaji Pachhai,	Senior Fishery Dev. Officer	Central Fish Laboratory
172	Surendra Man Shakaya	Divisional Hydrozeologisit	Underground Water resources Dev. Board
173	Pramod Kumar Sharma	Executive Director	Underground Water resources

174	Dipak Ghimire	Officer in charge	Dev. Board Far Western Groundwater Development Board
175	Surya Ratna Gubhaju	Professor	Central Zoology Department, TU
176	Jiwan Shrestha	Professor	Central Zoology Department, TU
177	Shital Babu Regmi	Secretary	Water and Energy Commission Secretariat
178	Shambu Pandey	Ex Director	National Animal Science Inst
179	Narendra Khatri	Project Chief	Groundwater Irrigation Project
180	SK Shrestha	Animal Health Specialist	AI Emergency Preparedness Project
181	Tony William	Team Leader	AI Emergency Preparedness Project
182	Rama Nand Misra	Chief Fisheries Dev. Officer	Inland Fisheries & Aquaculture Prog.
183	Madhukar Rana	Senior Divisional Engineer, DOI CIDD No. 8 Nuwakot	Department of Irrigation
184	Jaya Dev Bista	Chief	Fishery Research Centre Pokhara, NARC
185	Agni Prasad Nepal	Senior Technical Officer	Fishery Research Centre, Pokhara
186	Arjun Bahadur Thapa	Senior Scientist	Fishery Research Centre, Tarahara
187	Arun Prasad Baidya	Senior Scientist	Kaligandaki Fish Hatchery
188	Dilip Kumar Jha	Associate Professor	Aquaculture Department, IAAS, Rampur
189	Gopal Prasad Lamsal	Technical Officer	Fishery Research Centre, Trisuli
190	Hareram Devkota	Mr. areram Devkota,	Kaligandaki Fish Hatchery
191	Kamala Gharti	Technical Officer	Fishery Research Centre, Trishuli
192	Kamalesh Shribsatav	Technical Officer	Fishery Research Centre, Parwanipur
193	Lali Man Buddha	President	Dolpa District FNCCI
194	Lalit Neufame	Engineer, DOLIDAR, Nuwakot	DTO/ DOLIDAR Nuwakot
195	Lank Man Roka	Member	
196	Madhab Kumar Shrestha	Professor	Aquaculture Department, IAAS, Rampur
197	Madhab Prasad Lamichhane	WUA President	Labdhu Dhikure Sera Irrigation Project
198	Mahendra Kumar Yadav	Director	Koshi Rehabilitation project
199	Mohamad Iqbal Husen	Technical Officer	Fishery Research Centre, Pokhara
200	Narayan Prasad Dhamala	WUA Chairman	Khanigam Thopa Irrigation Project
201	Narayan Prasad Pandit	Associate Professor	Aquaculture Department, IAAS, Rampur
202	Ram Bhajan Mandal	Assistant Professor	Institute of Agriculture And Animal Sciences, Lumjung Branch
203	Ravi Lal Sharma,	Chief	Janakpur Fishery Dev & Training Centre
204	Sadhu Ram Basnet	Chief	Fishery Research Centre Trisuli, NARC

205	Surendra Prasad	Senior Scientist	Fisheries Research Centre Pokhara
206	Dandapani Khanal,	Chief	District Agriculture Development Office,
207	Beni Bahadur Basnet	Chief	District Agriculture Development Office
208	Bhim Kumari Gurung	Member	Farmers Group
209	Bimal Dhewaju	Sociologist	Regional Irrigation Directorate, WDR, Kaski
210	Bishnu K Shrestha	Horticulture Officer	District Agriculture Development Office
211	Chitra Nath Poudel	Member	Hyamja Irrigation WUA
212	Dan Bahadur Thapa,	Chairperson	Hyamja Irrigation WUA
213	Dhruba Narayan Chaudhari	Acting DADO	District Agriculture Development Office
214	Dilli Raj Koirala	Secretary	Namuna Krishi Upaj Bazaar Sahakari Sanstha
215	Guru Subedi,	Chief	Local Development Office
216	Gyanendra Raj Chalise	Properitor	Nepal Krishi Sewa Bhandar (Agrovet),
217	Hari Kumari K.C	Secretary	Makura Sanjal Krishi Upaj Bazaar Babyasthan Samiti
218	Ishwari Prasad Bhattarai,	Farmer	Andhi Khola Water User Association
219	Jaya Bahadur Mahatra	Agronomist	District Agriculture Development Office
220	Jit Bahadur Karki	Secretary	Hyamja Irrigation WUA
221	Kalpana Dhital	Project Officer,	SAPPROS Nepal, Shyangja
222	Khagendra Bhattarai	Manager	Andhi Khola Water User Association
223	Krishna Raj Timalsina,	Director	Regional Irrigation Directorate, WDR, Kaski
224	Moti Lal Poudel	Chairperson	Namuna Krishi Upaj Bazaar Sahakari Sanstha
225	Nagendra Pandey	Businessman	
226	Rajkumari Pariyar	Volunteer	Health Department
227	Sobha Subedi:	Chairperson	Makura Sanjal Krishi Upaj Bazaar Babyasthan Samiti
228	Sudip Shrestha	Hydrologist	Ground Water Branch Office
229	Surya Pariyar	Advisor	Srijansil Vegetable Farming Group
230	Tek Bahadur Karki	Chief	Ground Water Branch Office
231	Shiva Raj Bhatta	National Program Manager	Nepal Enhance Capacities for Trade and Development
232	Philip Broughton	Chief of Party	Nepal Economic, Agriculture and Trade Activity
233	Gajendra Maharjan	Deputy Director	National Agricultural & Forestry Pvt. Ltd.
234	Gautam Maharjan	Managing Director	National Agricultural & Forestry Pvt. Ltd.
235	Bal Krishna Paudel	Program Officer/ Lawyer	National Fed. of Irrig. Water Users Asso. Nepal
236	Kedar Koirala	Officer	National Fed. of Irrig. Water

237	Shambu Dulal	Secretary	Users Asso. Nepal National Fed. of Irrig. Water Users Asso. Nepal
238	Kumar Raj Shashi	Member Secretary	National Fed. of Irrig. Water Users Asso. Nepal
239	Ram Lakhan Harijan	General Secretary	National Fed. of Irrig. Water Users Asso. Nepal
240	Bidhyadhar Mallik	Vice chairperson	Poverty Alleviation Fund
241	Bharat Upadyay	Executive Director	Centre for Environmental and Agricultural Policy Research, Extension and Development
242	Hari Krishna Upadhaya	Chairman,	Centre for Environmental and Agricultural Policy Research, Extension and Development
243	Devendra Chapagain	Managing Director	Socio-Economic and Ethno- Political Research and Training Consultancy
244	Pashupati Gautam	Managing Director	Agri Inputs Company Ltd
245	Kumar Kayev	Procurements Chief	Agri Inputs Company Ltd
246	Amar Raj Kher		Agricultural Inputs Company Ltd.
247	Chhatra Karki	Managing Director	MIDAS Education Technologies PVT Ltd
248	Yogendra B. Karki	Project Director	Project and Agriculture Commercialization and Trade
249	Suraj Vaidya	Chairman	Federation of Nepalese Chambers of Commerce Industries
250	Bhavani Rana	Vice chairperson	Federation of Nepalese Chambers of Commerce Industries
251	Hemant Dabadi	Director General	Federation of Nepalese Chambers of Commerce Industries
252	Pradip Maharjan	CEO	Agriculture Enterprises centre/ FNCCI
253	Ganesh Shakya	Sr. Program Manager	Agro Enterprise Centre/FNCCI
254	Adhikary	Bamboo Specialist	Agro Enterprise Centre/FNCCI
255	Prakash Oli	Deputy Director Agro-business and Marketing Development	Agro-Enterprise Center
256	Basant Thapa	Agriculturist	Full-bright Consulting Firm
257	P.L. Agrawal	Managing Director	Manoj International Traders
258	L.M. Gorcha,	Director	Hansraj Hulaschand & Co. Pvt. Ltd.
259	Mahendra N. Bhattarai	Deputy Exec Director	Trade and Export Promotion Center,
260	Ramesh K. Shrestha	Executive Director	Trade and Export Promotion Center
261	M.L. Dugar		Vikas Intercontinental
262	Rajendra Gopal Shrestha	Dairy Specialist	Sujal Dairy
263	Deva Bhakta Shakya	Business Enabling Manager	Nepal Economic, Agriculture and Trade Activity
264	Sneha Bhattarai	Grants Assistant	Nepal Economic, Agriculture

265	Agro-processors and handicraft manufacturers		and Trade Activity Patan Industrial Estate
266	Kishore Kumar Upadhyaya	Fisheries Expert	Free Lance
267	Sunder Bahadur Shrestha	Fisheries Expert	Free Lance
268	Rajbanshi Mandal	Technical Assistant	DFoD
269	Diwash Raj Bista	Agricultural Extension Officer	DADO
270	Ganesh KC	President	FNSPA
271	Mohan Man Saiju	Chairperson	IIDS
272	Jagananth Koirala	National Coordinator	WTLCP/MFSC
273	Chaitya Naraymi Dangol	Senior Agricultural Engineer	IWRMP
274	Saroj Kanta Adhikri	Senior Agricultural Extension Officer	IWRMP
275	Anisha Shrestha	Administrator	IWMI
276	Luna Bharati	Director	IWMI
277	Prachanda Pradhan	Ex-chairman	FMISPT
278	Sanjaya Dhungel	Senior Divisional Engineer	WECS
279	Sita Babu Regmee	Secretary	WECS
280	Upadhaya		FMISPT
281	Sharada P Sharma	PMUManager	CMIASP
282	Suhrid Chapagain	Business Development Manager	READ Nepal
283	Suman Sijapati		INPIM
284	Suyash Khanal	Director	TPEC
285	Suman Sijapati	President	INPIM Nepal
286	Surya Nath Upadhyay	Secretary General	JVS
287	Suraj Pandey	General Manager	FIN Access
288	AK Hussain	Food Safety & Quality Consultant	UNIDO-EU funded TA
289	Akhileshore Lal Karna	Regional Programme Manager	BISEP-ST, RSU, Hetauda
290	Ambika Regmi	National Programme Manager	BISEP-ST, MFSC, Babar Mahal
291	Barry Hitchcock	Country Director	Asian Development Bank, Nepal Resident Mission
292	Arnaud Cauchois	Snr Water Resources Specialist	Asian Development Bank, Nepal Resident Mission
293	Deepak Singh	Senior Project Officer	Asian Development Bank, Nepal Resident Mission
294	Govinda Gewali	Sr. Program Officer	Asian Development Bank, Nepal Resident Mission
295	Tomohiro Arima	Representative	Japan International Corporation Agency
296	Narendra Gurung	Senior Program Officer	Japan International Corporation Agency
297	Luke Colavito	Country Director	International Development Enterprises
298	Binod Sharma	Govt specialist	International Development Enterprises
299	Jet Medline	Dy. Director	United States Agency International Development
300	Reve Aulakh	Economist	United States Agency International Development
301	William Patterson	Director	United States Agency International Development
302	Navin Hada	Aid Project Development Specialist	United States Agency International Development

303	Simon Lucas	Climate Change and Inclusive Growth	Department of International Development
304	Navin Dahal	Private Sector Development Adviser	Development for International Development
305	Rajan Kotru	Senior NRM Specialist	International Centre for Integrated Mountain Development
306	Madhav Karki	DDG	International Centre for Integrated Mountain Development
307	Suresh Kumar Verma	Exec. Dir.	South Asia Partnership-Nepal
308	Pushpa Shrestha	Food Security Monitoring & Analysis	World Food Program
309	Navin Dahal	Private Sector Development	Department of International Development
310	Meenu Hada	National Program Officer	World Food Program
311	Marion Michaud	Program Manager	European Union Nepal
312	David Kahan	Snr Agribusiness and Enterprise Development Officer	Food And Agriculture Organization Bangkok
313	Scanlan Fintan	Food Security Officer	Food and Agriculture Organization Rome
314	Bui Thi Lan	FAO/R	Food and Agriculture Organization
315	Mandip Rai	Program Officer	Food And Agriculture Organization
316	Lakshman Guatham	Assistant Representative	Food And Agriculture Organization
317	Sravan Adhikari	Program officer	Food and Agriculture Organization
318	Khalid El Harizi	Country Program Manager	International Fund for Agricultural Development, Asia Pacific Div.
319	Bashu Babu Aryal	Country Program Coordinator	International Fund For Agricultural Development
320	Ganesh B. Thapa	Senior Program Officer	International Fund For Agricultural Development
321	Claudia Sadoff	Water Resources Officer	World Bank Nepal
322	Gayatri Acharya	Senior Economist Sector Coordinator for Rural, Social & Environment, Donor Coordination Group on Food Security	World Bank Nepal
323	Keshab Joshi	Program Coordinator, Agriculture and Value Chain Development	SNV Nepal
324	Juerg Merz	International Program Advisor	HELVETAS
325	Gehendra Gurung	Team Leader	Practical Action Nepal
326	Morten Jespersen	Ambassador	Embassy of Denmark
327	Peter Olesson	Senior Program Officer	Embassy of Denmark
328	Saroj Nepal	Pro. Officer	Embassy of Denmark
329	Sudha Khadka	Senior Program Officer	OXFAM UK
330	Govind Neupane	Program Funding Officer	Dan Church Aid Nepal
331	Sailendra Shrestha	Market Specialist	International Development Enterprises Nepal, Regional

			Office
332	Anand Dahal,	Sr. Technical Supervisor	International Development Enterprises Nepal
333	Bal Krishna Thapa	Project Officer,	International Development Enterprises Nepal, Regional Office
334	Bharat Nepal	Project Officer,	International Development Enterprises Nepal, Regional Office
335	Gauri Shrestha	Coordinator	International Development Enterprises Nepal
336	Khadka Jung Gurung,	Coordinator	International Development Enterprises Nepal, Regional Office