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Agricultural Development Strategy (ADS)

DRAFT FINAL REPORT

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Government of Nepal

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**ADB, IFAD, EU, FAO, SDC, JICA,
USAID, DANIDA, WFP, World Bank,
DfID, AusAID, and UN Women**

PREFACE

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

The *Draft Final Report* draws upon the consultations and analytical work conducted by the TA Team of consultants under the guidance of the Ministry of Agricultural Development. The report takes into account the consultations held with numerous stakeholders at the central, regional, and community level.

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, IFAD, and other supporting agencies.

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ABBREVIATIONS

ACI	Agrifood Consulting International
ADB	Asian Development Bank
ADBL	Agriculture Development Bank Limited
ADBN	Agriculture Development Bank Nepal
ADS	Agriculture Development Strategy
AEPC	Alternative Energy Promotion Centre
AGDP	Agricultural Gross Domestic Product
AIC	Agricultural Inputs Corporation Ltd
AICL	Agricultural Inputs Company Limited
ALSC	Agriculture and Livestock Service Centers and Sub-centers
AMIS	Agency managed irrigation system
AoA	Agreement on Agriculture
APP	Agriculture Perspective Plan
APP-IAP	APP Implementation Action Plan
APP-ISR	APP Implementation Status Review
APMAU	APP Monitoring and Analytical Unit
APPSP	Agriculture Perspective Plan Support Programme
AR	Agricultural Roads
ARSs	Agricultural Research Stations
ASCs	Agriculture Service Centers
ASEAN	Association of South-East Asian Nations
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
CBOM	Community Based Operation and Maintenance Program
CBOs	Community Based Organizations
CBRE	Community Based Rural Electrification Program
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
CIB	Credit Information Bureau
CIP	Community Irrigation Project
CLDP	Community Livestock Development Project
CMIASP	Community-Managed Irrigated Agriculture Sector Project (ADB)
CPI	Consumer Price Index
CNI	Confederation of Nepalese Industries
DADC	District Agricultural Development Committee
DADOs	District Agriculture Development Office/Officer
DANIDA	Danish International Development Agency
DDC	District Development Committee
DDCN	Dairy Development Corporation Nepal
DESTEP	Decentralized Extension, Technology and Education Program
DFCC	District Forest co-ordination Committee
DFID UK	Department for International Development

DFO	District Forest Officer
DHM	Department of Hydrology and Meteorology
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
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
DRT	Debt Recovery Tribunal
DSCW	Department of Soil and Water Conservation
DSL	Deprived sector lending
DTO	District Technical Office
DTWs	Deep Tube Wells
DWIDP	Department of Water Induced Disaster Prevention (of MOI)
DWRDC	District Water Resources Development Committee
EA	Executing Agency
EDR	Eastern Development Regions
EIA	Environmental Impact Assessment
EIRR	economic internal rate of return
ESAP	Energy Sector Assistance Programme
EU	European Union
FANUSEP	Food and Nutrition Security Program
FAO	Food and Agriculture Organization
FCO	Fertiliser Control Order, 1999
FECOFUN	Federation of Community Forestry User Groups Nepal's
FFE	Food for Education
FFS	Farmer field School
FFW	Food for Work
FG	Farmer's Group
FIs	Fertilizer Inspectors
FITTA	Foreign Investment and Technology Transfer Act 1992
FMIS	farmer managed irrigation system
FMS	Farmer marketing school
FNCCI	Federation of Nepalese Chambers of Commerce and Industries
FSN	Food Security and Nutrition
FSQ	Food Safety and Quality
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
GBB	Grameen Bikas Bank
GDP	Gross domestic product
GEED	Gender Equity and Environment Division
GESI	Gender equity and social inclusion
GI	Geographical Identification
GIZ	Gesellschaft für Internationale Zusammenarbeit, GmbH
GO	Government Organizations
GON	Government of Nepal

GVP	Good veterinary practices
ha	hectare
HARP	Hill Agriculture Research Project
HIMALI	High Mountain Agribusiness and Livelihood Improvement Project
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HLTF	High Level Task Force
HLNFSSC	High Level Nutrition and Food Security Steering Committee
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
IBT	inter-basin transfer
ICIMOD	International Centre for Integrated Mountain Development
ICT	Information and communication technology
IDA	Iron Deficiency Anemia
IDD	Iodine Deficiency Disorder
IDD/IDSD	Irrigation Development Division/Irrigation Development Subdivision
IEE	Initial Environmental Examination
IFAD	International Fund for Agriculture Development
ILAC	International Laboratory Accreditation Cooperation
IMD	Irrigation Management Division of DOI
IMT	irrigation management transfer
INAGEP	Innovation and Agro-Enterprise Program
INGO	International Non Government Organizations
IP	Irrigation Policy
IPC	Integrated Food Security Phase Classification
IPM	Integrated Pest Management
IPNMS	Integrated Plant Nutrient Management Systems
IPP	Independent Power Producers
ISF	Irrigation service fee
ISPM	International Standards for Phytosanitary Measures
IWRM	integrated water resources management
IWRMP	Irrigation and Water Resources Management Project (World Bank)
JICA	Japan International Cooperation Agency
JT/A	junior (agricultural) technician/assistant (of DOA)
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)
MFDB	Microfinance development bank
MFI	Microfinance institution
MFN	Most Favored Nation
MFSC	Ministry of Forest and Soil Conservation
MGSP	Mini-Grid Support Programme
MGSP	Mini-Grid Support Programme
MOAC	Ministry of Agriculture and Cooperatives (renamed May 2012)

MOAD	Ministry of Agriculture Development (from May 2012)
MOE	Ministry of Environment
MOEN	Ministry of Energy
MOF	Ministry of Finance
MOFSC	Ministry of Forestry and Soil Conservation
MOHP	Ministry of Health and Population
MOI	Ministry of Irrigation
MOI	Ministry of Irrigation
MOLD	Ministry of Local Development
MOLRM	Ministry of Land Reform and Management
MoST	Ministry of Science and Technology
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
MRL	maximum residue limit
mt	Metric ton
MTEF	Medium Term Expenditure Framework
MWDR	Mid Western Development Region
NADC	National Agriculture Development Committee
NAFSP	Nepal Food Security Project
NAP	National Agricultural Policy
NAPA	National Adaptation Programme of Action to Climate Change
NARC	Nepal Agriculture Research Council
NARDEF	Nepal Agriculture Research and Development Fund
NARDF	National Agriculture Research and Development Fund
NASDP	National Agriculture Sector Development Priority
NBL	Nepal Bank Limited
NBS	National Bio-Diversity Strategies
NBTI	National Banking Training Institute
NCI	Non-conventional irrigation
NDAC	National Development Action Committee
NEA	Nepal Electricity Authority
NEKSAP	Nepal Khadhya Surakshya Anugaman Pranali (Nepal Food Security Monitoring System)
NEPAP	Nepal Environmental Protection Action Plan
NFIWUAN	National Federation of Irrigation Water Users Association of Nepal
NFP	National Fertilizer Policy 2002
NFSCC	the Nutrition and Food Security Coordination Committee
NGO	Non-Governmental Organization
NGO	Non-Governmental Organization
NITP	New Irrigation Technology Projects
NLSS	National Living Standard Survey
NPC	National Planning Commission
NPL	Non-performing loan
NPV	net present value
NRB	Nepal Rastra Bank (central bank)
NRM	Nepal Resident Mission of ADB
NRREP	National Rural and Renewable Energy Program
NSC	National Support Committee
NSC	National Seed Company Private Limited
NTB	Non-tariff barriers to trade
NTFPs	Non Timber Forest Products
NWP	National Water Plan
NWRS	National Water Resources Strategy
O&M	Operation and Maintenance

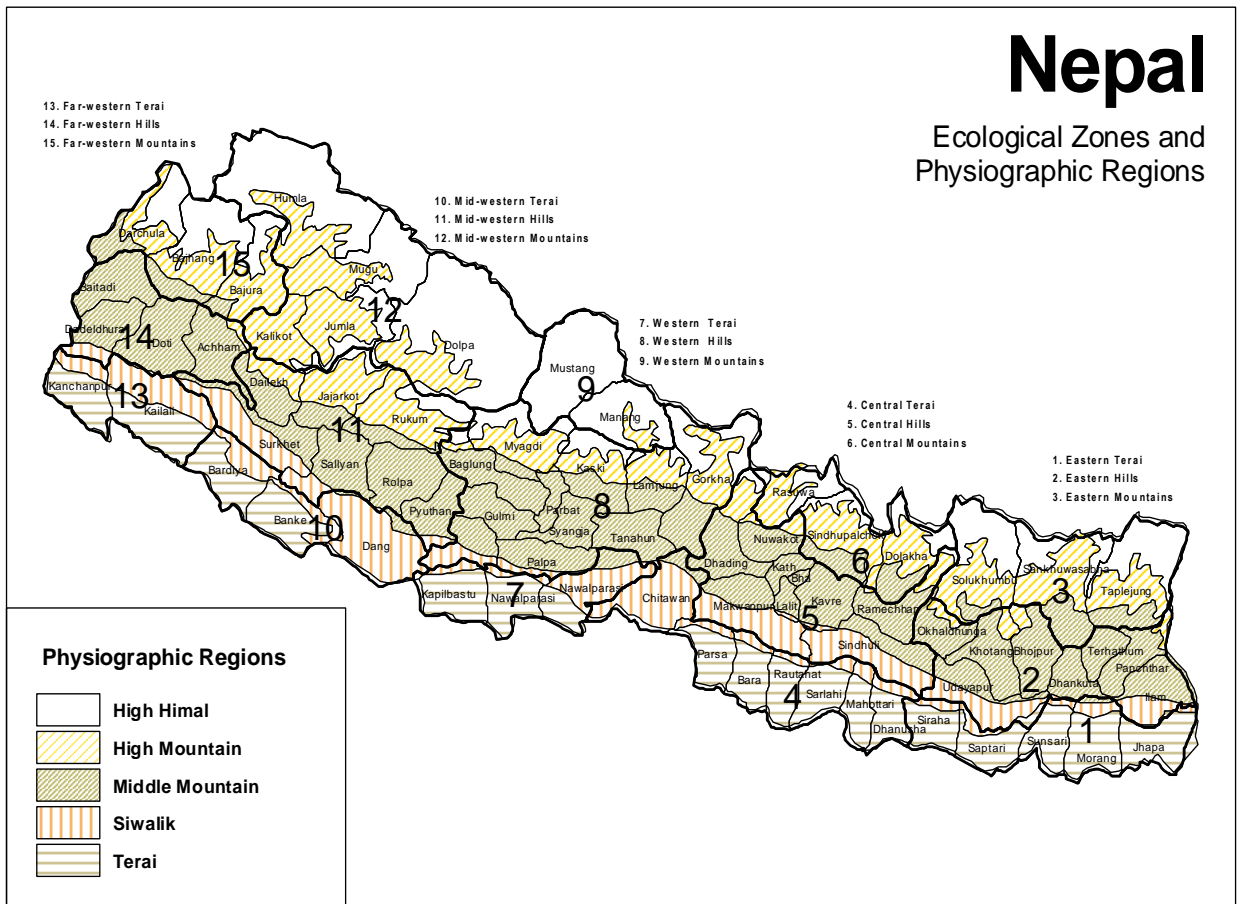
OFMP	Operational Forest Management Plan
OFWM	on-farm water management
OVOP	One Village One Product
PACT	Project for Agriculture Commercialization and Trade
PF	Private Forests
PIM	participatory irrigation management
PPP	Public Private Partnership
PPP	Prioritized Productivity Package
PPS	Pocket Package 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
RBB	Rastriya Baniya Bank
RCA	Root-cause analysis
RE	Renewable Energy
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDP	Rural Energy Development Programme
RFSDCP	Rural Finance Sector Development Cluster Program (Subprogram 2)
RFTG	Rural Finance Thematic Group
RID	Regional Irrigation Directorate
RIO	Regional Irrigation Office
RIP	Rural Infrastructure Development Policy
RISMP	Raising Incomes of Small and Medium Farmers Project
RMDC	Rural Microfinance Development Centre
RO	Rural Organization
Rs	Nepal Rupee
RSRF	Rural Self Reliance Fund
RTAs	Regional Trading Agreements
SAFTA	South Asian Free Trade Area
SAPL	Second Agriculture Programme Loan
SAPTA	South Asian Preferential Trading Arrangement
SC	Service Centers
SCC	Savings and credit cooperative
SDC	Swiss Agency for Development and Cooperation
SFCL	Small Farmers Cooperative Limited
SFDB	Small Farmers Development Bank (Sana Kisan Bikas Bank in Nepali)
SME	Small and medium enterprise
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
t	Metric ton
TA	Technical assistance
TLDP	Third Livestock Development Project
TRIPs	Trade Related Intellectual Property rights
TU	Tribhuvan University
TWT	Technical Working Team

UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Program
USAID	United States Agency for International Development
VAD	Vitamin A Deficiency
VADEP	Value Chain Development Program
VAM	Vulnerability Assessment Map
VARG	Vulnerability and Adaptation Resource Group
VAT	Value Added Tax
VCA	Value Chain Analysis
VDC	Village development committee
WB	World Bank
WDO	Women Development Office
WDR	Western Development Regions
WFP	World Food Programme
WTO	World Trade Organization
WUAs	Water User Associations
WUG	Water users' group

CURRENCY EQUIVALENTS

(as of 20 March 2013, Nepal Rastra Bank)

Nepal Rupees	–	United States dollars
Rs. 86	=	\$ 1.00



SUMMARY

1. The *Draft Final Report* for the Technical Assistance (TA) 7762-NEP on *Preparation of the Agricultural Development Strategy* (henceforth “ADS”) is the sixth deliverable of the TA funded by Government of Nepal (GON) with support 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), World Food Program (WFP), United States Agency for International Development (USAID), Department for International Development (DfID), the World Bank, the Australia Agency for International Development (AusAID), and the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women). Previous deliverables include the *Inception Report*, the *Assessment Report*, the *Vision Report*, the *Policy Options Report*, and the *Action Plan and Roadmap Report*.

2. The *Draft Final Report* objective is to present the overall strategy for ADS including a 10-year Action Plan and Roadmap and a rationale based on the assessment of the current and past performance of the agricultural sector.

ASSESSMENT OF THE AGRICULTURAL SECTOR

3. **Current Situation of the Agricultural Sector in Nepal.** Nepal Agriculture is in a low development stage. The majority of the population is engaged in agriculture, productivity and competitiveness of the sector are low, adoption of improved technology is limited and even though most cultivated area is devoted to cereals, there is a growing food trade deficit and malnutrition is high. Some subsectors such as dairy processing, poultry, tea, vegetable seed and fisheries show dynamism, but overall, these positive signs are not yet sufficient to lift a large number of people engaged in agriculture out of poverty and make a dramatic dent in reducing malnutrition and assure food security of the nation.

4. **Past Situation.** When the long-term agricultural strategic plan known as the Agriculture Perspective Plan (APP) was launched in 1995-96, Nepal agricultural sector was in a worse situation than today. The current low development status of Nepal agriculture tends to make us forget that over the past two decades, improvement in living standards has occurred and that the agricultural sector overall is performing better today than in the past. Productivity, infrastructure, food security, and poverty have improved. However, some indicators such as food and agricultural trade deficit and land per capita have shown regress.

5. **Weak Growth Performance.** In spite of progress relatively to the past, agricultural sector in Nepal is still in a low development stage. Nepal has improved but the improvement has been too little and the change has been too slow, both in terms of what the country had planned to achieve and relatively to the progress made by its neighbors over the same period of time. Nepal’s growth, both in agriculture and in the rest of economy, has been slow. In the case of agriculture, Nepal agricultural growth has been not only slow (about 3%), but also highly variable. Nepal’s youth and some of its most productive labor force have looked for job elsewhere. About 300,000 migrants have left Nepal in 2010 and this has been a growing trend for the past 10 years. The migrants have sent home huge amount of remittances, estimated at over \$3 billion per year (representing more than 20% of GDP), but most of these resources have gone into consumption and loan repayment rather than capital formation and investment.

6. **Factors of Weak Growth Performance.** First a conflict that has lasted over 10 years, concluded in 2006, and had several adverse effects on the agricultural sector. Hundreds of thousands of rural households have left the land behind and moved to the cities - mostly to the Kathmandu Valley; others have moved abroad, leaving a situation of labor scarcity and investment scarcity in rural areas. Moreover large tracts of peri-urban fertile agricultural land have been converted to residential uses. Second, politics has been characterized by continuous rivalries and has resulted in the lack of stable government and leaders who could make a continued effort to implement policies, plans, and programs. Over the past 16 years, for example, there have been 15 secretaries of the Ministry of Agriculture and Cooperatives and the average tenure of each Secretary has been less than 400 days. Third, policies have proliferated, often in favor of agriculture, but in many cases policies have been left at the draft stage, and lack the supporting legislation and resources for implementation. Fourth, plans have been formulated, but sometimes the formulation was poor, the targets ambitious, and the institutional capacity for implementation inadequate. Fifth, both public and private investment has been limited. During the first 10 years of the APP investment in agriculture by government and development partners has declined and not much private investment has taken place. Sixth, human resources capacity is limited. Incentives for civil servants are few and skilled professionals or labor often look for jobs abroad.

7. Within the context of these factors, the APP became a plan with a mixed performance. In some cases, its targets were achieved, such as in roads, horticulture and community forest; however in the case of cereals, fertilizer, and seed the performance was poor; in the case of livestock and irrigation the performance was mixed; and overall agricultural GDP growth was weak. The APP formulation was based on a rigid and narrow view of technology and excessively focused on green revolution perspective. APP implementation was poor because of limited support in terms of resources, policies, and institutions needed to carry out its program. APP ownership was weak and the leading stakeholders of the agricultural sector – farmers, private sector, cooperatives – were not actively involved in its formulation and implementation. The lessons learned from the APP experience have been incorporated in the formulation of the ADS. Among these lessons are the need of ensuring governance, promoting effective participation of stakeholders, and decentralizing decisions.

ADS AND THE PROCESS OF AGRICULTURAL TRANSFORMATION

8. The ADS is expected to guide the agricultural sector of Nepal over the next 20 years. Over the course of this period, the structure of the agricultural sector in Nepal is expected to change considerably and agribusiness to grow relatively to agriculture. Strengthened linkages between agriculture and other sectors in the economy will be critical to the reduction of poverty particularly in rural areas where the development of non-farm activities based on agriculture will be fundamental for the growth of an overall robust economy, a more balanced rural economy, and employment generation.

9. In this context, it is worth emphasizing that the ADS considers the agricultural sector in its complexity, and encompasses not only the production sectors (crops, livestock, fisheries, forestry) but also the processing sector, trade and other services (storage, transportation and logistics, finance, marketing, research, extension).

10. The ADS is formulated taking into account the conceptual framework of agricultural transformation of Nepal from a society primarily based on agriculture to one that derives most of its income from services and industry. This process will have profound implications for the ways the Nepali population will shape their food production and distribution systems, the development of rural areas including the rural non-farm sector, labor and land productivity, trade balance, employment and outmigration of the youth, the role of women in agriculture, and management of natural resources in

the context of increasingly more severe climate change events. The ADS will ensure that the process of agricultural transformation is accelerated and molded according to the aspirations and constraints of Nepali society.

VISION OF THE ADS

11. The ADS action plan and roadmap are formulated in order to move towards the ADS vision formulated by stakeholders as follows: “A self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth and contributes to improved livelihoods and food and nutrition security.” Various indicators and targets to monitor progress towards the vision during implementation of the ADS are reported in Table 1.

Table 1 Indicators and Targets for ADS Vision

Vision Component	Indicators	Current Situation (2010)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)
Self-reliant	Self-sufficiency in foodgrains	5% trade deficit in foodgrains	0% trade deficit	0-5% trade surplus	0-5% trade surplus
Sustainable	Year-round irrigation	18% coverage	30%	60%	80%
	Soil organic matter	1%	2%	4%	4%
	Ha degraded land	3.2 million ha	2.88 m ha	2.56 million ha	1.6 million ha
	Forest cover	40%	40%	40%	40%
	Agricultural land productivity (AGDP/ha)	\$1,804	\$2,302	\$2,938	\$4,787
	Agribusiness as % GDP	10%	12%	14%	20%
Competitive	Agricultural trade balance	Trade deficit \$350 million	Trade deficit \$310 millio)	Trade deficit \$181 million	Trade surplus \$690 million
	Agricultural Exports	\$248 million	\$400 million	\$700 million	\$2000 mil
	% of land owned by women or joint ownership	10%	15%	30%	50%
	% of farmers reached by ag programs	12%	17%	25%	50%
Growth	Average annual growth of AGDP	3%	4%	5%	6%
Livelihood	AGDP/ Agricultural labor	\$794	\$979	\$1206	\$1833
	Poverty in Rural Areas	27%	21%	16%	10%
Food and Nutrition Security	Food Poverty	24%	16%	11%	5%
	Nutrition	41.5% stunting; 31.1% underweight; 13.7% wasting; 18% women with low BMI	29% stunting; 20% underweight; 5% wasting; 15% women with low BMI	20% stunting; 13% underweight; 2% wasting; 13% women with low BMI	8% stunting; 5% underweight; 1% wasting; 5% women with low BMI

STRATEGIC FRAMEWORK

12. In order to achieve its vision the ADS will accelerate agricultural sector growth through four strategic components related to governance, productivity, profitable commercialization, and competitiveness while promoting inclusiveness (both social and geographic), sustainability (both natural resources and economic), development of private sector and cooperative sector, and connectivity to market infrastructure (eg agricultural roads, collection centers, packing houses, market centers), information infrastructure and ICT, and power infrastructure (eg rural electrification, renewable and alternative energy sources). The acceleration of inclusive, sustainable, multi-sector, and connectivity-based growth is expected to result in increased food and nutrition security, poverty reduction, agricultural trade surplus, higher and more equitable income of rural households, and strengthened farmers’ rights. Figure 1 provides an illustration of the strategic framework of the ADS and Table 2 indicates the targets for the outcomes of the ADS.

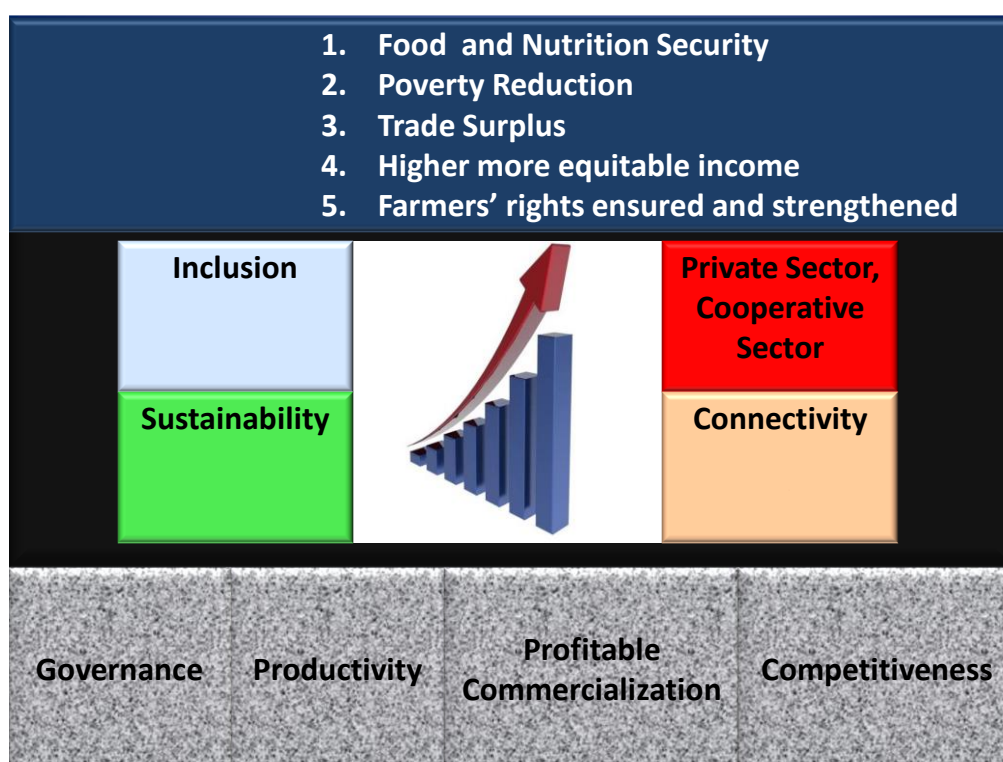


Figure 1 Strategic Framework of the Agricultural Development Strategy

Table 2 Targets for the Strategic Components of the ADS

Component	Indicator	Current Situation	Target
Governance	Agricultural Growth	3% average annual growth	5% average annual growth
Productivity	Land productivity	\$1,804/ha	\$4,787/ha
	Labor productivity	\$794/agricultural labor	\$1,833/agricultural labor
Commercialization	Marketed surplus	Less than 50% of agricultural production	More than 80% of agricultural production
	Agribusiness GDP	10% of GDP	20% of GDP
Competitiveness	Agri-food exports	\$248 million	\$2,000 million

COMPONENT OF THE ADS FRAMEWORK

13. **Improved Governance.** Governance in the ADS refers to the capacity of government to design, formulate and implement policies and discharge functions. In the absence of such capacity the ADS will not be implemented successfully. Key elements of governance include: accountability, participation, predictability, and transparency.

14. In spite of frequent pronouncements in support of the agricultural sector, policies to support the sector have either not been formulated or have not been implemented. Compounding the problem are the frequent changes in tenure of the key leaders for policy, program, and project implementation and also issues of consistency of policy itself. The result has been a loss of credibility in policy that is responsible in part for the failure of previous programs. In order to avoid this situation the ADS sets clear targets for improved credibility of policy commitment, engages leading stakeholders (both from government and civil society) in the formulation and implementation, and will monitor appropriately and continuously. The ADS also recognizes the complexity of the agricultural sector requiring coordination and effective planning among different agencies, different levels (central and local), and different stakeholders (government, civil society, development partners). Effective coordination and planning will be key outputs to achieve the governance outcome. An implementation support unit with strong capacity will facilitate various institutions to implement the ADS. At the same time, the inclusion aspects of the ADS (gender, disadvantaged groups, geographically disadvantaged) will be taken into account through appropriate mechanisms that also ensure participation of stakeholders and accountability to civil society in the planning, implementation, and monitoring of the ADS. Capacity of human resources both within the government and selected organizations in civil society (eg farmers', private sector and cooperatives' organizations) will contribute to the overall strengthening of the governance of the ADS.

15. Without credible programs to alleviate the food and nutrition security conditions of the most disadvantaged groups, there could be hardly any credibility in the ADS and its contribution to food and nutrition security. One of the overall goals of the ADS is to improve food and nutrition security of its population. This is a long term goal towards which all the components of the ADS contribute. However, in the short term the test of governance of the ADS is the capacity of the government to meet the most urgent needs of the most disadvantaged groups. In order to respond to this governance test, a national flagship program on food and nutrition security has been included in the ADS under the governance component which will closely coordinate with the Multisector Nutrition Plan (MSNP).

16. The Governance component is perhaps the most crucial one in order to achieve the vision of the ADS. Its effective implementation requires an improvement management based on performance and results. Measures to promote a system of results-based management will be piloted within this component.

17. **Higher Productivity.** Improved productivity of land and labor is at the cornerstone of the ADS. Agricultural productivity requires the adoption of appropriate technologies and know-how to increase efficiency and sustainability of agricultural production consistently with market demand and food security needs of subsistent farmers. The measures to raise agricultural productivity include those related to (i) effective agricultural research and extension; (ii) efficient use of agricultural inputs; (iii) efficient and sustainable practices and use of natural resources (land, water, soils, and forests); and (iv) increased resilience to climate change and disasters.

18. In the ADS, the government sector will be one among other actors including private sector, cooperative sector, NGOs, leading farmers, and farmer field schools involved in the generation and

dissemination of technology. The government sector however has a key role in coordinating the efforts of other actors, facilitating implementation of policies and plans, monitoring performance, and enforcing regulations.

19. The ADS recognizes that already a number of actors are involved in agricultural extension and over time their presence will become even more important. Rather than advocating a massive increase of human resources in the public extension service, the ADS promotes capacity building of existing government human resources and the transformation of their role from delivery of extension services to overall facilitator of agricultural extension services. This role change will be accompanied by a greater emphasis on the delivery at the VDC level, where almost 4,000 Community Agricultural Extension Service Centers (CAESC) will be established.

20. The ADS also recognizes the critical importance that farmers' access and control of the means of production – primarily land – has for the success of the strategy. Critical land issues such as tenancy, fragmentation, degradation, land use planning need to be resolved over the course of the ADS and their resolution will require the participation of the farmers' organizations, cooperatives, and private sector in order to find equitable and efficient mechanisms for enhancing land productivity. Land productivity increases should be reflected in increased benefits for the farmers and the livelihoods of the rural households. Moreover, given the dominance of smallholder farmers, subsistence farmers, and women farmers in the agrarian structure of Nepal, promotion of farmer and women organizations and cooperatives will be fundamental to achieve economies of scale in technology dissemination, marketing, finance, and logistics.

21. Productivity enhancement depends on timely availability of quality inputs. The ADS recognizes that in the long term productivity and competitiveness of the agricultural sector depend on the access and adoption to improved technology and effective management of natural resources and other inputs to achieve total factor productivity increase. While subsidies may be an expedient approach in the short term to address targeting issues or market failures, in the long term they are not a viable, efficient, or effective solution to sustainable improvement of productivity. The ADS will focus on generation and adoption of sustainable technologies and practices and will pilot a voucher system to empower farmers in their choice of inputs and extension services.

22. **Profitable Commercialization.** The outcome of profitable commercialization in the ADS is part of the overall process of transforming the agricultural sector from a substantial proportion of farming carried out solely for subsistence, and by default (i.e. no other livelihood or household food security options are available to the household), into a sector in which the vast majority of farming is carried out for commercial purposes and is connected to the local, national, and international markets.

23. This transformation towards a more commercialized agriculture requires a set of measures that focus not only on farmers, but, fundamentally on agroenterprises involved in the commercialization of agricultural products and services. These enterprises include input providers, producer companies, marketing cooperatives, storage operators, logistic companies, agroprocessors, importers and exporters of agricultural and food products, distributors, traders, and agricultural service providers (including financial service providers, insurance providers, business service providers). These enterprises may be micro, small, medium, and large.

24. Profitable commercialization requires the combination of a number of measures such as an enabling investment climate and a number of reforms to strengthen contractual arrangements, taxes, and financial services to promote an efficient commercial agriculture. The ADS also emphasizes the need of prioritizing a number of value chains to ensure they achieve scale economies and therefore have national income and employment impact. Finally, the ADS supports the improvement of physical

and institutional infrastructure to promote commercial agriculture (agricultural roads, market information and market intelligence systems).

25. **Increased Competitiveness.** Accelerated agricultural growth represents the best way out of poverty for the millions in Nepal still living below the poverty line. Experience from Asian economies has demonstrated that one of the most successful ways to stimulate growth in agriculture is by creating an enabling investment climate for agricultural entrepreneurs and by creating increased access to the critical knowledge and inputs needed to achieve higher levels of productivity. For growth to be sustainable it needs to be rooted in structural changes and improvements that do not evaporate with fluctuations in global prices, disappear after a bad monsoon or depend on concessional external funding. The ADS has consequently placed its core focus on *competitiveness*. Competitiveness is founded on: a competent, hard-working and efficient work force; a clear understanding of what makes Nepal unique in the global market place; and, the determination and entrepreneurship to maximize productivity and innovate with new products and processes based on the country's natural endowments.

26. To achieve this vision, the energy and inventiveness of the private sector is essential. The age of communications and better education has enabled Nepali producers to learn better practices and access market information, while stability, rising market prices for land and remittances have created the disposable cash to make these investments.

27. These changes demand an approach to agricultural promotion and competitiveness that acknowledges the vital role of the private and cooperative sector, without conceding the critical function of the government to oversee, regulate and facilitate growth that is both competitive and pro-poor. This blending of private and cooperative sector energy and innovation with the steady hand of government to ensure positive public outcomes is often called public-private partnerships. The essence of these partnerships is to create some form of "*additionality*" that would not have been possible without the other's involvement. From the public point of view it affords the opportunity to leverage its funds and channelize outcomes while for the private and cooperative sector the addition of public funds reduced the perceived exposure to investing in high-risk high-potential projects.

28. **Farmers' Rights.** The ADS provides institutional mechanisms to ensure farmers' participation in the planning, decision making, implementation, and monitoring of the strategy. In particular, the ADS ensures that farmers' representatives are part of the leading coordination mechanisms of the ADS at the center and local level; they are part of the Steering Committee of the ADS Implementation Committee; they are in the board of NARC; they are in the board of the almost 4,000 VDC-based Community Agricultural Extension Service Centers (CAESC); they are in the board of Commercial Agricultural Alliances and Value Chain Development Alliances; they are consulted when formulating policies for the agricultural sector; they are consulted when undertaking monitoring of the sector; and they are members of the Food Security Networks at the District level. By having their representatives in all these institutions, farmers will be able to ensure and strengthen their rights in the ADS.

29. Furthermore, the ADS promotes the formulation of legislation related to food rights and food sovereignty consistently with the principles of the Interim Constitution. Specific initiatives to deepen the understanding of farmers' rights, promoting these rights, monitoring them, and protect them through institutions such as a Farmers' Commission are included for consideration in the activities of the ADS.

30. **Commercial farmers, Subsistence farmers, and the Landless.** The ADS recognizes the need of adapting approaches to different agroecological areas and different farm categories. The ADS promotes a decentralized approach to science and technology and empowers communities to reorient

the extension, research, and education system to meet their needs. The services covering the small commercial farmer will be generally inappropriate to the subsistence farmer, and in the context of institutions targeted to the small commercial farmer (eg value chains) the subsistence farmer will be left out except for those few who can respond to the approaches suitable for the small commercial farmer. Therefore the ADS through its community based extension service centers (the CAESC) and its Market for the Poor approach to value chain development will promote different approaches suitable to subsistence and commercial farmers. The landless rural households will be benefiting from the ADS indirectly, through the combination of direct food and nutrition security interventions, the employment opportunities expanded in the rural non-farm sector, and the growth of agriculture-based enterprises.

31. Eventually, over the course of the ADS twenty-year implementation, the process of agricultural transformation will proceed and an increasing number of rural households will find employment either in the rural non-farm sector or in the urban sector; a considerable number of rural household will also continue to migrate outside the country pulled either by higher income opportunity or pushed by the lack of profitable employment and attractive livelihood in the rural areas. Through either processes, the commercialization of the agricultural sector in Nepal will increase but commercial agricultural in Nepal will remain primarily a smallholder activity (namely farmers with less than 2 ha of land). Subsistence farming will continue to coexist with commercial farming for a long time, but its share of the total farming population will decline. The ADS will accelerate the process of commercialization, while improving both the income of the small commercial farmers and the livelihoods of the subsistence farmers, and generating growth and employment in the non-farm sector to absorb the increasing number of landless/marginally landless.

32. The ADS activities will have impact on three groups of farmers (commercial, subsistence and landless). Commercial farmers are directly affected by most of the ADS measures and in some cases, the impact is direct and very strong, for example in the case of irrigation, mechanization, value chain development, and exports. Subsistence farmers are also directly affected by most ADS measures. The direct effect is very strong in the case of the ADS measures related to gender, social, and geographical inclusion; land (eg addressing the issues of tenancy, land leasing, cooperative farming, reversing the trend towards degraded land); access to quality and timely inputs (eg vouchers targeted to subsistence farmers, improved resilience); and access to microfinance and agricultural insurance. Landless or near landless will benefit from the ADS measures related to targeted food and nutrition programs; gender and social/geographic inclusion; access to forestry products; and growth of small and medium enterprises.

IMPLEMENTATION OF THE ADS

33. Implementation of the ADS implies knowing what to do, how to do it, and doing it. The “what” of implementation is the content of the ADS, specifically the vision, outcomes, outputs, and activities needed to achieve the targets embedded in the ADS vision. The “how” of implementation is the set of mechanisms needed to ensure that things are done according to plan.

THE WHAT OF THE ADS

34. The ADS includes 4 outcomes, 35 outputs, and 225 activities. Table 3 lists the outcomes and the outputs. The report contains the details of each activity. The outputs and activities of the ADS will be organized into programs (Core programs Flagship programs, and Other Programs). Core Programs and Flagship Programs are listed in Table 3. Other Programs are those currently implemented by MOAD that are not listed among the Core and Flagship Programs. After their completion, they will be evaluated and either become part of future Core and Flagship Programs or discontinued.

Table 3 Outcomes, Outputs, and Programs of the ADS

Outcome	No	Output	Program
1. Improved Governance	1.1	Credibility of policy commitment	CORE
	1.2	Improved coordination among institutions involved in the ADS implementation	CORE
	1.3	Integrated planning	CORE
	1.4	Effective implementation support	CORE
	1.5	Mechanisms established for gender equality and social and geographic inclusion in the ADS	CORE
	1.6	Timely and effective monitoring and evaluation of the ADS	CORE
	1.7	Mechanisms established for participation of civil society in the planning, implementation, and monitoring of the ADS	CORE
	1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation	CORE
	1.9	Improved food and nutrition security of the most disadvantaged groups and rights to food	FLAGSHIP (FANUSEP)
	1.10	Performance-based management systems linked with rewards established	CORE
2. Higher Productivity	2.1	A decentralized extension system responsive to farmers and agroenterprises' needs	FLAGSHIP (DESTEP)
	2.2	A decentralized research system responsive to farmers and agroenterprises' needs	FLAGSHIP (DESTEP)
	2.3	A strengthened agricultural education system	FLAGSHIP (DESTEP)
	2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably	CORE
	2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	CORE
	2.6	Timely access to quality agricultural inputs at affordable price.	CORE
	2.7	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building, resulting in an improved and decentralized seed system providing timely access to quality seed at affordable price.	CORE
	2.8	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.	CORE
	2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	CORE
	2.10	A range of mechanization options accessible to farmers through the private sector.	CORE
	2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	CORE
	2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry practice (GVAHP) are established and adopted.	CORE
	2.13	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	CORE
3. Profitable Commercialization	3.1	Improved investment climate for agricultural commercialization	CORE
	3.2	Contractual arrangements for commercial agriculture	CORE
	3.3	Tax policy that supports an efficient commercial agricultural sector	CORE
	3.4	A variety of competitive and demand-driven financial and agricultural insurance products.	CORE
	3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	FLAGSHIP (VADEP)
	3.6	Rural roads network expanded.	CORE
	3.7	Agricultural market information and ITC products for market intelligence.	CORE
	3.8	Expanded rural electrification and renewable energies.	CORE
4. Increased Competitiveness	4.1	Market infrastructure developed	CORE
	4.2	Growth of innovative small and medium agribusiness enterprises	FLAGSHIP (INAGEP)

Outcome	No	Output	Program
	4.3	Growth of food and agricultural products exports	CORE
	4.4	Enhanced food safety and quality	CORE

THE HOW OF THE ADS

35. The implementation of the ADS will entail the combination of existing mechanisms and new mechanisms. The traditional way of implementing strategies and plans for the agricultural sector envisages an institutional framework whereby the National Planning Commission (NPC) provides overall policy coordination, the Ministry of Agricultural Development (MOAD) provides leadership in implementing agricultural programs, and related agencies support the implementation. For example, Department of Irrigation (DOI) would be in charge of irrigation development, Department of Local Infrastructure Development and Agricultural Roads (DOLIDAR) is in charge of agricultural road, Department of Forestry (DOF) and Department of Soil Conservation and Watershed Management (DSCWM) in charge of protection and conservation of forestland, Department of Agriculture (DOA) and Department of Livestock Services (DLS) is in charge of agricultural and livestock extension and Nepal Agricultural Research Council (NARC) is in charge of agricultural research.

36. The traditional way of implementing programs and plans has its own logic and rationale. However, in the traditional way coordination has been weak, partly because of the weak capacity of implementation agencies in policy formulation, integrated planning, policy monitoring, procurement, and financial management; and partly due to new dynamics arising during the process of agricultural transformation and the changing global context such as accelerated migration, dominance of global value chains, and new technologies requiring continuous innovation and adaptation.

37. In the traditional way of implementing agricultural programs in Nepal, the key stakeholders of the agricultural sector, namely farmers, cooperatives, and private agroenterprises have often been left in the backstage of development, with the front stage taken by government agencies.

38. The traditional mechanisms offer useful lessons and guidance for the future; clearly NPC, MOAD, and other line agencies have an important role to play in the ADS and this role has to be acknowledged and strengthened. However, the traditional mechanisms are also limited in their implementation capacity and their relegation of key stakeholders (farmers, cooperatives, and private sector) in the back stage. More fundamentally, the traditional way of implementing agricultural policies and programs in Nepal has not produced the desired results of accelerated growth and poverty reduction.

NEW MECHANISMS

39. The ADS proposes new mechanisms to improve implementation. The new mechanisms build upon the existing mechanisms and complement them, support them, and strengthen them. Specifically, in addition to the NPC, MOAD and other related agencies, the ADS implementation will rely on the combination of four new institutions, prioritized national programs, and key stakeholders. Linkages among the existing and new mechanisms are illustrated in Figure 2.

Institutions

1. National ADS Coordination Committee (NADSCC)
2. National ADS Implementation Committee (NADSIC)
3. ADS Implementation Support Unit (ADSISU)
4. ADS Implementation Support Trust Fund (ATF)

Flagship and Core Programs

1. Food and Nutrition Security Program (FANUSEP)
2. Decentralized Science, Technology, Education Program (DESTEP)
3. Value Chain Development Program (VADEP)
4. Innovation and Agro-entrepreneurship Program (INAGEP)
5. Core Programs

Leading Stakeholders

1. Farmer Organizations
2. Cooperative Organizations
3. Private Sector Organizations

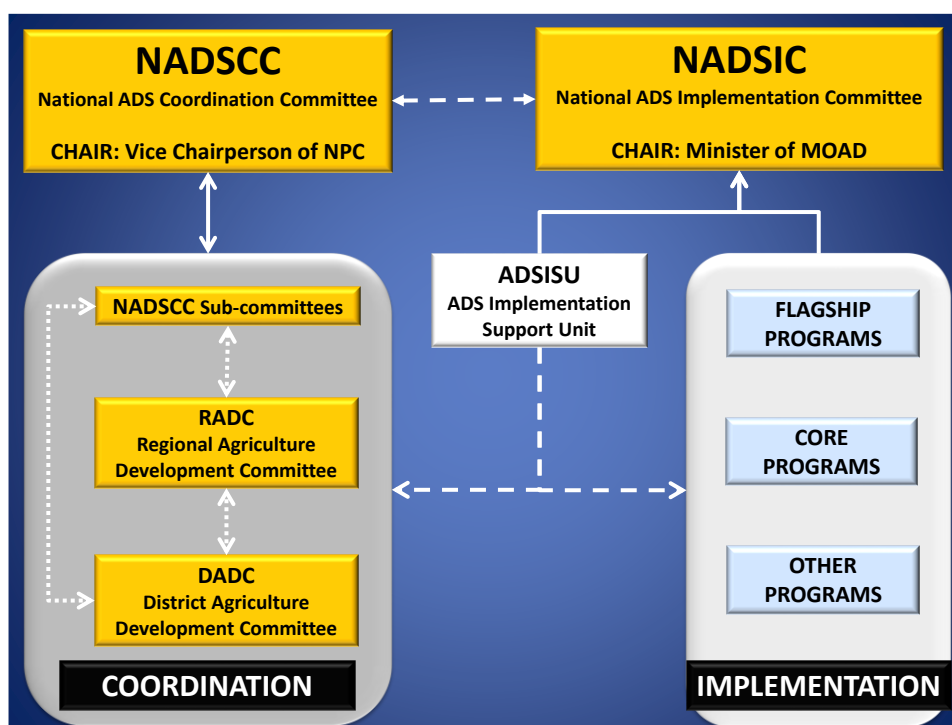


Figure 2 The ADS Implementation and Coordination Mechanisms

COORDINATION COMMITTEES (NADSCC AND SUBCOMMITTEES, CADIC, RADC, DADC)

40. The National ADS Coordination Committee (NADSCC) is the national coordination committee of line agencies under the chairmanship of Vice Chairman (VC) of NPC. NADSCC will be strengthened through secretariat service provided by the ADS Implementation Support Unit (ADSIU) and will be enhanced with the establishment of the following NADSCC sub committees charged with improving the coordination of ADS relevant issues such as:

- a. Coordination between agriculture and irrigation extension (specifically between DOA and DOI)
- b. Coordination among public sector, private sector (e.g. Federation of Nepal Chambers of Commerce and Industry (FNCCI), Agro-enterprise Center (AEC), Confederation of Nepalesed Industries (CNI), agribusiness associations, associations of small and medium enterprises), cooperative sector (e.g. National Federation of Cooperatives), and farmer organizations (e.g. Peasants' Coalition)
- c. Coordination between government sector and non-governmental organizations/international non-governmental organizations (NGOs/INGOs)

- d. Coordination between government and development partners
- e. Coordination among Research-Extension-Education organization (NARC - DOA, DLS, DFTQC - University of Agriculture and Forestry, Institute of Forestry, Colleges of Agriculture, Center of Vocation Education and Training)
- f. Coordination between Agricultural Development and Food Nutrition Security and Food Safety (MOAD and Ministry of Health and Population-MOHP, National Nutrition and Food Security Steering Committee-NNFSSC)

41. Central Agriculture Development Implementation Committee (CADIC) chaired by Secretary MOAD will periodically convene agencies involved in the implementation of agricultural programs and coordinate activities. CADIC will be strengthened through capacity building of the ADS Implementation Support Unit (AISU). Similar coordination mechanisms exist at the regional level - Regional Agricultural Development Committee (RADC) coordinated by Regional Director Agriculture – and at the district level - District Agricultural Development Committee (DADC) chaired by District Development Council (DDC) Chairman. All these mechanisms need to be strengthened and revitalized with support of the ADS Agricultural Support Unit and coordination with the ADS Commission.

42. Effective communication among DADCs, RADCs, and CADIC should be assured through periodic briefings from DADCs to the RADCs and CADIC. CADIC will coordinate with NADSCC. Annual ADS Report will be prepared by CADIC and submitted to NPC with the assistance of the ADS Implementation Support Unit.

ADS IMPLEMENTATION SUPPORT UNIT (ADSISU)

43. The implementation of the ADS requires coordination among different agencies and stakeholders; implementation also requires capacity in policy analysis and formulation, monitoring, and legislation and regulatory skills that are currently dispersed. A unit responsible to the MOAD, endowed with policy, legal and analytical capacity, and assured of continuity at least over the first 7 years of the ADS will greatly contribute to bridging the gap between policy and implementation and enhancing the capacity of the ADS implementation agencies.

44. Functions of the ADSISU include:
- i. Provide capacity building in policy analysis and policy monitoring and integrated planning to relevant implementation agencies;
 - ii. Support formulation and amendment of policies and regulations for implementation of the ADS
 - iii. Support to development of a system and database for ADS monitoring;
 - iv. Support formulation and amendment of policies and regulations for implementation of the ADS;
 - v. Support formulation of integrated periodic plans (annual and 5-year plans, and revisions /updates of ADS plans);
 - vi. Support NADSCC, NADSIC, ATF Secretariat and professional service;
 - vii. Support coordination mechanisms (NADSCC, NADSIC, CADIC, RADC, DADC) in terms of capacity, logistics, and analytical units;
 - viii. Support monitoring of the ADS implementation and institutionalization, including monitoring of related policies;
 - ix. Facilitate implementation of national programs such as the ADS Flagship programs through advisory services to the Program Managers;
 - x. Support harmonization of Sector Policies with international commitments and guidelines;
 - xi. Help to develop and institutionalize a performance-based management system for ADS and institutionalize performance based incentives for ADS implementation institutions;

- xii. Collect and analyze data of strategic importance to ADS implementation as needed and in synergy with existing data collection systems;
- xiii. Coordinate development partner investments and programs to be in line with implementation of the ADS;
- xiv. Evaluate and possibly formulate a sector wide approach for agriculture and, in case such approach is pursued by GON, support its implementation;
- xv. Commission studies to look at costs and benefits of alternative policies (eg minimum price schemes for rice and wheat).

ADS IMPLEMENTATION TRUST FUND (ATF)

45. All current modalities of financing to the sector will remain the same. The only additional modality will be a multi donor ADS Trust Fund (ATF) established and initially held with a development partner, and which may later be transferred to GON. The fund will be managed by a board under the NADSCC. Resources may be used for (a) any TA which supports the ADSISU (b) non-government and government entities for implementation of the ADS, (c) milestone performance payments to parties (individuals and teams) responsible for implementing the ADS in line with approved performance management plans, and (d) payment of the periodic (eg biannual) ADS implementation and strategic direction review. The Board will be chaired by Vice Chairperson of NPC, and the members will include Sec Finance, Sec MoAD, Sec Irrigation, Sec MFALD, DPs, and President FNCCI and CNI, DPs and independent experts. The ADS Trust fund could follow the Nepal Peace Trust Fund model, with two tracks, having a separate track for Government agencies, which could also allow for requiring matching funds from GON.

ADS PROGRAMS

46. The ADS will be implemented through three different types of programs: the Core Programs, the Flagship Programs, and Other Programs. The Core Programs are implemented mostly through existing agencies already in place at the ministry levels or department levels of agencies. The Flagship Programs on the other hand require different management structure in view of the innovative and multisector nature of their activities. Other Programs are those that are currently implemented but are not part of the currently formulated Flagship or Core Programs. Over time, the ADS will include only two types of programs, namely the Flagship and the Core Programs. Based on evaluation, the existing Other Programs will be either discontinued after their completion or will be absorbed in a new formulation of Flagship and Core Programs.

FLAGSHIP PROGRAMS

47. The ADS envisages some prioritized programs around which could be mobilized sufficient consensus, resources, and effective management. These prioritized programs will be referred to as “ADS Flagship Programs”. The flagship programs of the ADS are:

- i. Food and Nutrition Security Program (FANUSEP)
- ii. Decentralized Science, Technology, and Education Program (DSTEP)
- iii. Value Chain Development Program (VADEP)
- iv. Innovation and Agro-entrepreneurship Program (INAGEP)

FOOD AND NUTRITION SECURITY PROGRAM (FANUSEP)

48. FANUSEP aims at improving food and nutrition security of the most disadvantaged. It will consist of three subprograms: the Nepal Food Security Project (NAFSP), currently been finalized as part of the Global Agriculture and Food Security Program (GAFSP); the Food and Nutrition Security

Plan of Action (FNPS), currently been finalized with assistance of FAO; and a new national food and nutrition security project to be designed and implemented to complement NAFSP and FNPS. The new national food and nutrition security projects will be designed referring to the evidence-based information systems like NeKSAP, and information sources from DHS, NLSS, and others.

49. The commonality of the subprograms of FANUSEP is to target the poor, the disadvantaged groups and the geographically disadvantaged areas (eg. Karnali). The program will promote interventions that improve productivity, livelihoods, and nutritional practices of targeted beneficiaries including pregnant and lactating women farmers. The ADS in general and FANUSEP in particular will align with the Multisector Nutrition Plan (MSNP) a five year program already approved by the GON.

DECENTRALIZED SCIENCE, TECHNOLOGY, AND EDUCATION PROGRAM (DESTEP)

50. DESTEP aims at decentralizing the extension and research system while fostering coordination of research, extension, and education in order to enhance responsiveness of extension, research, and education institutions to farmers' and agroenterprises' needs.

51. The program will be implemented through a Program Manager selected through national competitive process. The DESTEP Manager will ensure coordination among related ministries and the departments, NARC, DOA, DLS, Department of Food Technology and Quality Control (DFTQC), agricultural education institutions such as Agriculture and Forestry Universities and Colleges and facilitate implementation of the activities related to the outputs of the decentralized extension and research system, and strengthened agricultural education system.

52. The decentralized extension system will include three main measures: (i) establishment of Community Agricultural Extension Service Centers (CAESC) in each Village Development Committee (VDC); (ii) strengthening capacity of existing and planned Agriculture and Livestock Service Centers that will provide backstopping services to the CAESCs; and (iii) promoting a voucher system to empower farmers to access the best available agricultural input and extension service providers.

53. The decentralized research system will require decentralization of NARC, establishment of new national research institutes (eg a National Horticultural Research Institute, National Animal Health Research Institute, and National Aquaculture and Fisheries Research Institute), establishment of a National Agricultural Research Fund (NARF) under NARC, and the establishment of research stations in all regions, including the far western region.

54. The integration with the agricultural education system will include support to the Agricultural University, creation of a Department of Agribusiness, capacity building of vocational schools and support to the establishment of regional agricultural colleges.

55. The funds required for implementation of the DSTEP will be pooled into a fund, the DSTEP (Decentralized Science, Technology, and Education Fund) that will be replenished through contribution of GON and Development partners. The DSTEP Manager will be responsible for disbursements of funds from the DSTEP to the related implementation agencies such as NARC, DOA, DLS, Agricultural University, and Agricultural Colleges.

VALUE CHAIN DEVELOPMENT PROGRAM (VADEP)

56. VADEP aims at developing prioritized value chains (initially only 5 such value chains will be selected - maize, dairy, vegetables, lentils, and tea) through comprehensive and integrated measures along the value chain that result in strengthened value chain linkages, increased public private

partnership (PPP) investment and value added with sector impact. Differently from other ongoing or past value chain interventions in Nepal, the VADEP will have the following innovative features: (i) will be looking at and developing all the stages of the value chain, from seeds to final products, from production to processing, from market infrastructure to access roads and connectivity, from postharvest technology to quality assurance and exports; (ii) will be based on associations of farmers, traders, processors, input providers and other value chain stakeholders in order to strengthen the linkages and ensure effective investment; (iii) will aim at replication and linkages beyond the district and achieve national impact; and (iv) will work not only with one district or department but across districts, departments, and value chain actors.

57. The Manager of VADEP will be recruited through national competitive process. S/he will coordinate with the chief executive officers (CEOs) of specific Value Chain Development Alliances (VCDAs) to implement specific value chain sub-programs. The VADEP Manager will facilitate the flow of funds from GON, development partners, and other investors (eg through the support of the Investment Board) to the VCDAs and will assure overall monitoring and evaluation of the program.

58. The Value Chain Development Alliances (VCDA) are societies registered according to the law, owned by farmers and their associations, entrepreneurs, input providers, logistics operators, warehouse managers, cooperatives, and other value chain actors. The commonality of all these VCDA actors is that they are all engaged commercially on a specific value chain and are interested in promoting its commercial development.

59. Each VCDA will have access to a Value Chain Development Fund (VCDF). The members of the VCDA will nominate a Board according to the law and the Board will select the CEO to manage the operations of the program. The Board of each VCDA will include 6 elected members and 5 non-elected members. The non-elected members will be nominated by GON and include representatives from MOAD, Ministry of Industry (MOI), Ministry of local Development (MLD), FNCCI, and financial institutions (eg Nepal Rastra Bank). The Board will be chaired by one of the elected members. The Management of each alliance will prepare a business plan and an investment plan, to be approved by the Board of the alliance. The operations of the VCDA will be audited according to the law of Nepal and according to regulations of the Development Partners supporting the VCDF.

INNOVATION AND AGROENTREPRENEURSHIP PROGRAM (INAGEP)

60. INAGEP aims to foster agricultural innovation and agroentrepreneurship through the combination of tax incentives, agribusiness incubators, and matching grants. The main beneficiaries of this program will be private enterprises including micro, small and medium enterprises, cooperatives, and targeted groups including the youth, women, and disadvantaged groups.

61. The program will be implemented through a Program Manager selected through a national competitive process. The INAGEP Manager will facilitate the growth of innovative small and medium agroenterprises through improved tax incentives, establishment of agribusiness incubators, and matching grants.

62. The funds required for implementation of the INAGEP will be pooled into a fund, the INAGEF (Innovation and Agroentrepreneurship Fund) that will be replenished through contribution of GON and Development partners. The INAGEP Manager will be responsible for disbursements of funds from the INAGEF to the agribusiness incubators and the matching grant fund managers.

THE LEADING STAKEHOLDERS: FARMERS, COOPERATIVES, AND PRIVATE SECTOR

63. The leading stakeholders in the ADS will be farmers, cooperatives, private agroenterprises, and their organizations (eg the Peasants' Coalition, the National Cooperatives Federation, the Seed Entrepreneurs Association, the Dairy Industry Association). There are similar organizations at the district level and in the case of farmers and cooperatives at the VDC level. Moreover, there are national and local commodity organizations or trade organizations. Farmers in the ADS include both commercial farmers and subsistence farmers; smallholders and marginal farmers; agroenterprises include micro, small, and medium enterprises.

64. The ADS recognizes that its success depends on the participation and the ownership of farmer organizations, cooperative organizations, and private sector organizations. Differently from previous strategies for the agricultural sector, the ADS has involved farmer organizations in the formulation stage and will continue to involve them during implementation, monitoring, evaluation, and periodic reviews.

65. The leading ADS stakeholders have the rights to:

- Participate and influence the ADS policy and investment decisions
- Participate in the monitoring of the ADS
- Access to information related to ADS planning, implementation, and monitoring

66. At the same time, the leading ADS stakeholders have the duty to:

- Contribute to the solution of the problems encountered during formulation and implementation of the ADS
- Contribute to accelerating the process of decision making regarding the ADS

67. The rights of leading stakeholders in the ADS are institutionalized as follows. Representatives of Farmer Organizations (FO), Cooperative organizations (COO), and Private Sector Agroenterprise Organizations (PSO) will be members of the ADS key decision and coordination bodies that oversee the formulation, planning, implementation, and monitoring of the ADS including:

- i. NADSCC and CADIC
- ii. NADSCC Subcommittees related to the ADS
- iii. Steering Committee of the ADS Implementation Support Unit
- iv. DADC and RADC
- v. NARC Board
- vi. Governing Body of the CAESC
- vii. Policy Review Panels organized to review the formulation of new policies under the proposed new Policy Analysis Division at MOAD
- viii. Steering Committee for the periodic 5-year Review, Evaluation, and Updating Committee of the ADS.
- ix. NeKSAP District Food Security Network

COST OF THE ADS

68. The initial evaluation of the ADS program cost over a period of 10 years is presented in Table 4.

Table 4 Total (10-year) Cost of the ADS and Yearly Average

Cost	US million	Rs billion	Rs billion/year	Percent
Total	\$3,607	310.2	31.1	100%
Govt/Donors	\$3,010	258.8	25.9	83%
Private/Community	\$598	51.4	5.1	17%

69. The Flagship Programs will represent about 48% of the total program cost. Among the Core programs, the main costs are irrigation (20%), fertilizer subsidy (12%), and infrastructure (9%). It should be noted that investment in value chain infrastructure related to the 5 prioritized value chains is included in the Flagship program on value chains (VADEP). It should also be noted that the ADS is promoting a voucher system for inputs (including fertilizer and seeds) and extension services. The voucher system will empower farmers to make decisions regarding extension services and inputs. Initially this system will be promoted on a pilot basis. Based on the review of performance of the pilot, the system might be expanded and progressively replace the direct subsidies such as fertilizer and seed subsidies.

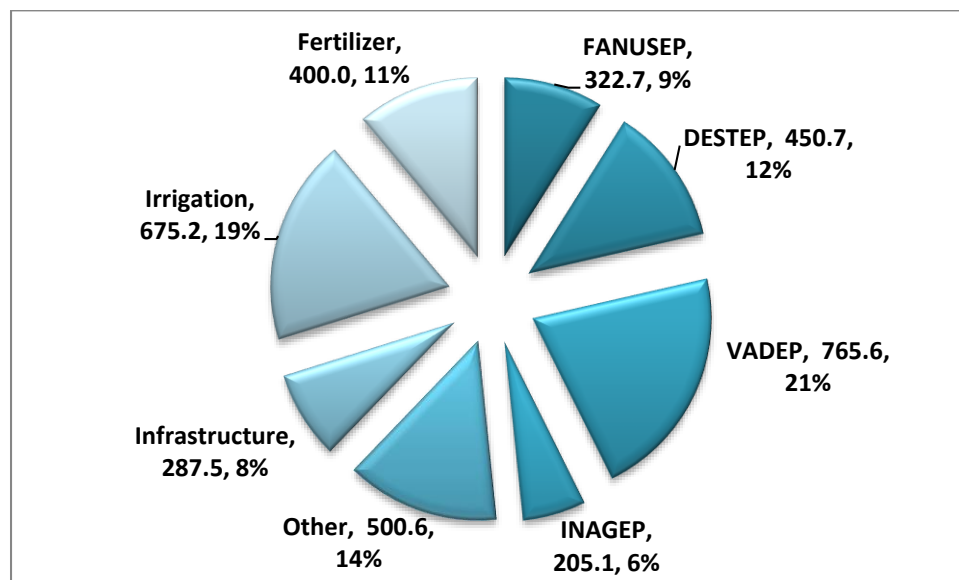


Figure 3 Composition of ADS Costs

ROADMAP OF THE ADS

70. For the ADS to be implemented successfully, some conditions have to be satisfied. These include:

- i. Government commitment
- ii. Policy and Regulations for ADS Implementation in place
- iii. Consensus of key stakeholders
- iv. Development partners support

71. These conditions need to be validated as follows:
- i. Government commitment
 - o Medium term budget commitment of central and local government
 - o Tenure of key positions
 - o Establishment of NADSCC, NADSIC, ATF, and ADSISU
 - ii. Policies and Regulations for ADS Implementation
 - o Formulation and Approval
 - iii. Consensus of key stakeholders
 - o Pledge consensus over the key agreement points
 - o ADS Signing Ceremony by major political parties
 - iv. Development partners support
 - o Medium term resource commitment

Table 5 Examples of Policies and Regulations needed for Implementing the ADS

Governance	Productivity	Commercialization	Competitiveness
1. ADS Implementation Support Unit (ADSISU)	1. CAESC	1. Contract farming	1. Innovation Funds
2. Composition of NADSCC and Subcommittees	2. NARC restructuring	2. Value Chain Development Alliances	2. Quality and Safety regulations
3. Composition of CADIC, RADC, DADC	3. Dept Agribusiness Agricultural University and Ag Colleges	3. Crop and livestock Insurance regulations	3. Food safety law
4. ADS Information desks	4. Vouchers for extension and input	4. New Financial Products	...
5. Establishment of NADSIC	5. Land Leasing	...	
6. ADS Implementation Trust Fund (ATF)	
7. Tenure of key positions	
...			

EARLY MILESTONES OF THE ADS

- Before GON Approval
 - Finalize ADS document
 - Extension awareness campaign about the ADS at the central and local level
 - Pledged consensus of key stakeholders
 - Indicative support by development partners
- During First Year of Implementation
 - Commitment by GON to mid-term support of the ADS
 - Acts for NADSCC, NADSISU, ATF and Flagships
 - Establish ADSISU, ATF, NADSISU and Coordination Sub-Committees
 - Formulated Guidelines for ADS Implementation
 - Recruit Program Managers for ADS Flagships
 - Budget allocations to ATF by Donors
 - Commission studies: i) for establishing Farmers Commission, (ii) for evaluating proposal of Minimum Support Price and its Management system.

MONITORING AND EVALUATION OF THE ADS

72. The ADS needs to be monitored regularly, professionally, and in a participative manner. Monitoring divisions and units will be established at the Ministry level and department levels and will be provided support and capacity building by the ADS Implementation Support Unit. In addition to project and program monitoring, the ADS will require regular policy monitoring. Moreover, NeKSAP will be one of the relevant systems to monitor the output, outcome and impact of ADS to receive subsequent feedback. Monitoring will need to go beyond inputs and output monitoring but include outcomes and impact monitoring according to the targets and design monitoring framework of the ADS programs. Monitoring reports should be publicly available both in Nepali and English and discussed regularly at national and local events. Monitoring should also identify good performance and link performance to reward.

73. **ADS is a living strategy.** Through regular monitoring and periodic review and evaluation, the details of the ADS will continuously evolve and improve. An external 5-year review of the ADS will be commissioned and widely discussed by government and civil society.

1 INTRODUCTION

74. This document is the *Draft Final 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 support 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), World Food Program (WFP), United States Agency for International Development (USAID), Department for International Development (DfID), the World Bank, the Australia Agency for International Development (AusAID), and the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women).

75. The report is the *sixth* main deliverable of the ADS Preparation Team, after the *Inception Report*², the *Assessment Report*³, the *Vision Report*⁴, the *Policy Options Report*⁵, and the *Action Plan and Roadmap Report*⁶. The *Assessment Report* presented the current situation of the Agricultural Sector, identified issues and constraints, and discussed the policy context. The *Vision Report* presented the stakeholders’ view of the Agricultural Sector over the next 20 years, taking into consideration likely trends of factors exogenous to the agricultural sector and lessons from experience of agricultural transformation in other countries. The *Policy Options Report* presented the recommendations of the TA Team to accelerate the process of agricultural transformation of Nepal from the current situation of low agricultural development to the desired situation envisaged in the ADS vision⁷. The *Action Plan and Roadmap Report* provided details about the activities and institutional framework required to achieve the outputs leading to the desired outcomes of the ADS.

1.1 Objective of the Draft Final Report

76. The *Draft Final Report* objective is to present the overall strategy for ADS including a 10-year Action Plan and Roadmap and a rationale based on the assessment of the current and past performance of the agricultural sector.

² ADB 7762-NEP (2011) Inception Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, September 2011

³ ADB 7762-NEP (2011) Assessment Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, April 2012

⁴ ADB 7762-NEP (2011) Vision Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, December 2012

⁵ ADB 7762-NEP (2011) Policy Options Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, February 2013

⁶ ADB 7762-NEP (2011) Action Plan and Roadmap Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, April 2013

⁷ The Vision Statement presented in the Vision Report is: *A self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth, and contributes to improved livelihoods and food and nutrition security.*

1.2 Methodology

77. The *Draft Final Report* builds upon all the previous outputs and reports of the TA. In addition to the five reports already submitted the Draft Final Report benefits from numerous consultations undertaken with stakeholders at the central and local level.

78. The formulation of the Draft Final Report followed a Participatory Process of Consultation. From the beginning of the preparation of the ADS, the TA Team has undertaken the following activities:

- a. Policy Roundtables (with NPC, Farmer Organizations, Private Sector, NGOs, Former Finance Ministers)
- b. Policy Retreat
- c. National Workshops (4)
- d. Regional Workshops (13)
- e. Thematic Group Meetings (30)
- f. National Conference (1)
- g. Public Dialogues with media, farmer organizations, and civil society (9)
- h. Key stakeholder interviews (about 4,000)
- i. Project Steering Committee Meetings (7)
- j. Focus Group Discussions at the village level (total 20 of which 5 irrigation, 3 social, 3 trade, 3 women, 3 research and extension, 3 academia)

1.3 Organization of the Report

79. The report is organized into 9 chapters as follows:

Chapter 1	Introduction
Chapter 2	Assessment of the Agricultural Sector
Chapter 3	Vision of the ADS
Chapter 4	Strategic Framework
Chapter 5	Activities of the ADS Action Plan
Chapter 6	Costs of the ADS
Chapter 7	Implementation Arrangements
Chapter 8	Monitoring and Evaluation
Chapter 9	Roadmap

2 ASSESSMENT OF THE AGRICULTURAL SECTOR⁸

80. 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 Development (MOAD). The ADS refers to the broader agriculture sector that:

- a) Includes crops, livestock, forestry, and fisheries
- b) Includes irrigation, and agricultural and rural infrastructure
- c) Includes production, trade, processing, and marketing
- d) Spans across different ministries and agencies
- e) Includes not only government agencies but farmers and their organizations, private sector enterprises and their organizations, and NGOs.

2.1 Current Status and Progress in the Agricultural Sector over the APP Period

81. Since the Agricultural Perspective Plan (APP) started in year 1995/96 the agricultural sector in Nepal has made progress in several indicators of well-being and development. For example, income per capita and productivity of agricultural labor have increased, poverty has reduced, and malnutrition has declined. The road network has considerably expanded and irrigation cover has increased as well. In almost all agriculture subsectors (crops, livestock, fishery, and forestry) there has been progress in terms of production or/and productivity. However, the sector is in a low development stage as highlighted by a number of indicators including labor productivity, productivity gaps, trade and competitiveness, poverty and malnutrition, and infrastructure (Table 6 and Figure 4). Some subsectors show dynamism, but overall, these positive signs are not yet sufficient to lift a still large number of people engaged in agriculture out of poverty, reduce malnutrition and assure food security of the nation. There are however positive signals that show not only the potential for growth but also opportunities that the ADS should build upon. These positive signals help us to have a more balanced understanding of the complexity of the agricultural sector in Nepal.

Table 6: Key Indicators Related to Agricultural Sector

Indicator	1995/96	2010/2011
Agricultural GDP	\$3.4 billion	\$5.2 billion
Productivity of Agricultural Labor (\$/person)	\$466/person	\$700/person
Agricultural Land per Household (ha/hh)	1.1	0.7
Percentage of holdings operating less than 0.5 ha	40.1%	51.6%
Productivity of Agricultural Land (\$/ha)	\$1,118/ha	\$1,700/ha
Agricultural Land Use (cereal as percentage of cultivated land)	80%	80%
Seed turnover	8%	8%
Employment in Agriculture	66%	60%
Agricultural Exports	\$32million	\$248 million
Agricultural Imports	\$157 million	\$621 million
Poverty (2010/11)	42%	25%
Percentage of households reporting inadequacy of food consumption	50.9%	15.7%
Stunting of Children (less than 5 years)	60%	42%

⁸ This Chapter is based on the ADS Assessment Report.

Irrigation cover (% of cultivated area)	39.6%	54%
Infrastructure (Rural Road Network km and Strategic Road Network km)	SRN = km 10,000	RRN = 40,000 km SRN = 20,000 km
ICT reach	Less than 10% connected	46% connected

Sources: Calculations by the authors based on data from CBS (2011), Economic Survey (2011), NLSSIII(2010/11), MOAD, and DOLIDAR

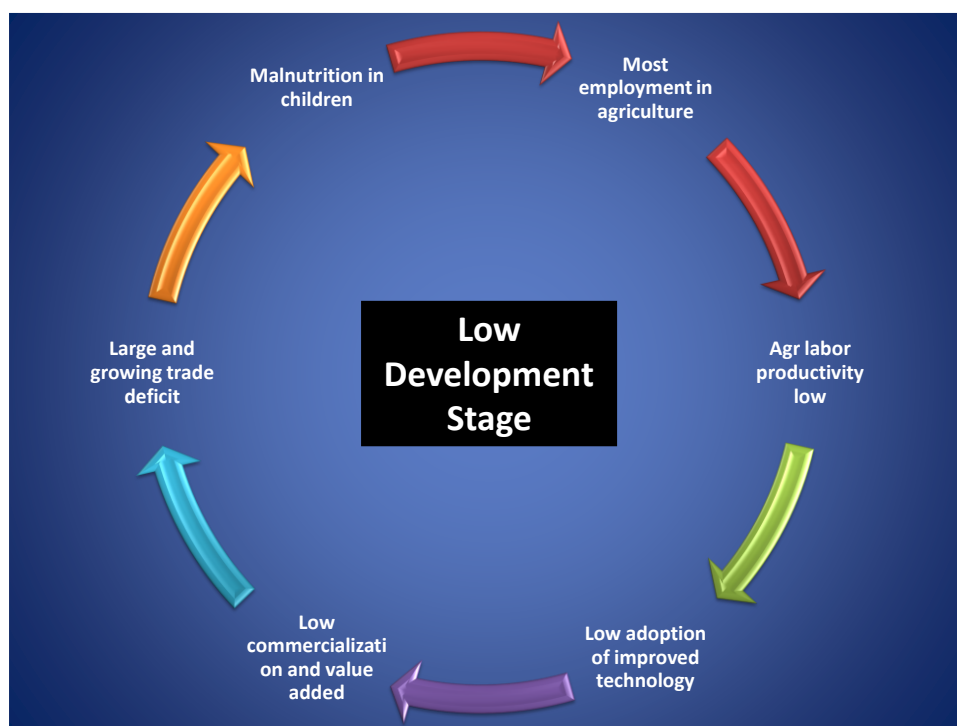


Figure 4 Low Development Stage of Nepal Agriculture

2.2 Agricultural Sector Growth

82. Growth of agricultural GDP since the beginning of the APP (1995/96) has been slow (about 3%), highly variable from year to year, and with a slight upward trend due to stronger growth in 2011 and 2012 (see Figure 5). This situation needs to be improved over the course of the ADS: growth has to accelerate, become more stable and remain positive. With a growth of population of around 2 percent over the same period, the increase in agricultural GDP per capita has been too slow to create strong dynamics leading to sustained poverty reduction and structural transformation from subsistence to commercialization.

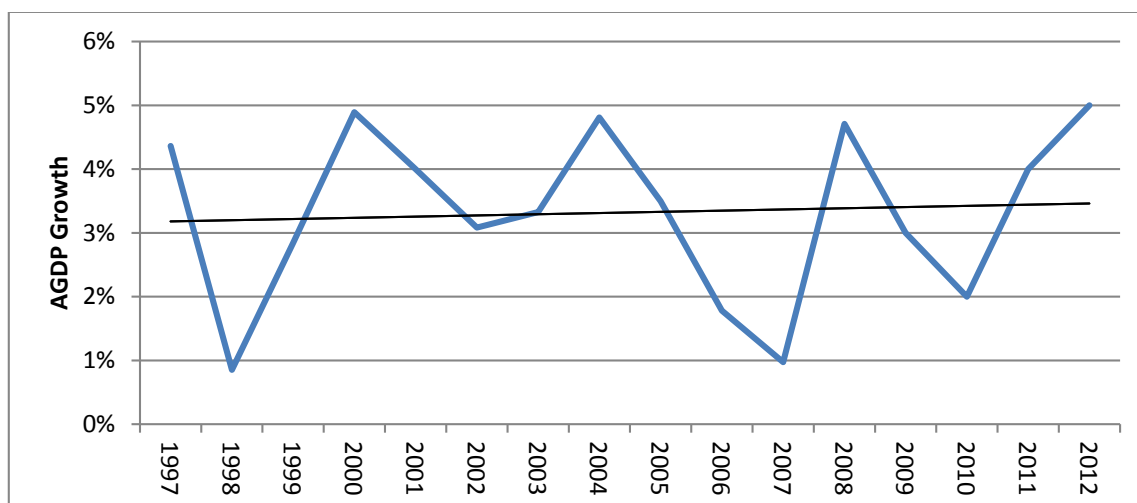


Figure 5: Growth of Agricultural GDP

Source: MOF National Accounts Estimate 2012 (at constant prices)

83. Most of the immediate neighbors of Nepal had considerably faster GDP growth than Nepal over the period 1995 to 2010 (see Table 7). The difference in average growth of agricultural GDP however is less marked: Nepal growth of agriculture was slower than most neighbors (except India). More worrying however seems to be the lack of integration between agriculture and non-agriculture in Nepal that is ultimately responsible for the low performance of overall GDP. While in neighboring countries there is a growing and relatively vibrant agribusiness sector, this is still at its early stages in Nepal. Given the limited arable land per capita, sustainable growth in agricultural based activities will require a major effort in increasing value added through both on-farm and off-farm activities.

Table 7: Performance Indicator of Nepal and Neighboring Countries

Country	Average GDP% over 1995-2010	Average Agricultural GDP% over 1995-2010	GDP/cap (\$) in 2010	Arable Land/capita (ha) In 2008	Cereal yield (kg per ha) In 2010	Ag GDP/arable land (\$/ha) in 2008
Bangladesh	5.6	3.6	673	0.054	3890	1845
China	9.9	4.1	4393	0.082	5460	4467
India	7.2	2.8	1477	0.139	2471	1277
Pakistan	4.2	3.7	1007	0.122	2803	1586
Nepal	4.1	3.0	524	0.082	2374	1665

Source: World Development Indicators at <http://data.worldbank.org/data-catalog/world->

2.3 Labor Productivity

84. Most agriculture in Nepal is at a low development stage. Agriculture absorbs the majority of the labor force (61% self-employed in agriculture, 3% earning wages from agriculture⁹), but this labor force is characterized by low productivity relatively to the rest of the economy. The estimate of labor productivity in agriculture in Nepal (\$794/unit of agricultural labor) is about one fourth of the productivity in the rest of the economy (Table 8). The weak performance of agriculture has created strong incentives for a large part of the most productive labor force (the ones in 20 to 40 age group)

⁹ NLSSIII 2010/11

to seek employment abroad. The departure of migrants has reached the level of almost 300,000 in 2010. This group is the source of a large volume of remittances, officially estimated at over \$3 billion in 2011, but these are not usually invested in rural areas.

Table 8 Labor and Land Productivity in Nepal in Agriculture and Other Sectors.

Agricultural Labor Productivity (\$/agricultural labor)	Non-Agriculture Labor Productivity (\$/non-agricultural labor)	Agricultural Land Productivity (\$/ha)
794	3,130	1,804

Source: Author's calculation based on data from CBS 2010

85. Agricultural land per capita has also decreased as the combined effect of several factors including inheritances, loss of agricultural land to urbanization, and degradation of land. Smaller size and more fragmented farms make it more difficult to realize economies of scale and also to provide sufficient livelihood for smallholder farm families. Even though GDP per ha of cultivated land is about \$1,800, the average farm size is only about 0.7 per household on average and more than 50% of households have farm size less than 0.5 ha (Table 9). For those households with a farm size less than 0.5ha, the average farm size is 0.25 ha and therefore often insufficient to generate income above the poverty level.

Table 9: Agricultural Land Indicators

Selected Variables	1995/96	2003/04	2010/11
Average size of agriculture land (in hectares)	1.1	0.8	0.7
Holdings operating less than 0.5 hectare (% of total holdings)	40.1	44.8	51.6

Source: NLSS-III 2011, Government of Nepal, National Planning commission Secretariat, Central Bureau of Statistics

86. Low labor productivity is the major manifestation of low development, more so than low land productivity. In fact, aggregate land productivity does not compare too badly with several neighbors of Nepal (Table 10). For example, Nepal overall land productivity, as measured by agricultural GDP per ha of arable land was about \$500 higher than in India. Arable land per capita in Nepal however is considerably lower than in India. Nepal has about the same arable land per capita as China, but much lower cereal yield most likely due to Nepal's much lower rates of inputs, irrigation and mechanization.

Table 10 Productivity Country Comparisons

Country	Arable Land/capita (ha)	Cereal yield (kg per ha)	Ag GDP per ha of arable land (PPP\$/ha)
Bangladesh	0.054	4191	2734
China	0.082	5706	5299
India	0.139	2883	2139
Pakistan	0.122	2718	2219
Nepal	0.082	2481	2651

Source: World Bank 2011 Indicators Database, accessed May 2013.

2.4 Productivity Gaps and Limited Commercial Production

87. Low productivity is the result of several factors including low adoption of improved technology. In Nepal **adoption of improved agricultural technology** is still low and the productivity gap between current and potential production is significant. Low productivity is related to a high level of farming for subsistence (i.e. not for commercial sales), 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), and limited investment in the sector.

88. Nepal has an estimated 44.7% of agricultural entities are commercialized and 55.3% are **subsistence farming** entities. Staple commodities such as rice, wheat, potato and vegetables have higher commercialization rates (30-50%) than maize and fruits (15-25%). Commercialization rates for milk (60%) buffalo meat (80%) and goat meat (85%) are high, reflecting the high value of these products (MOAC and JICA 2010). The low proportion of commercial agriculture in Nepal is highlighted by low use of mineral/chemical fertilizers, irrigation and mechanization, and limited production of rural surplus to for the rest of the economy. Thus stimulating the process of commercial transformation has been included in past and current policy.

89. **Productivity gaps** for a number of selected products are indicated in Table 11. The table shows that potential for improvement is huge in several subsectors of agriculture.

90. Most **cultivated land** in Nepal (80% of the total) is used to grow cereals crops. Yet considerable potential for other types of agricultural land use are possible including horticultural products, forages, agroforestry, livestock and fishery production.

Table 11 Productivity Gaps for Selected Agricultural Commodities

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

Sources: For fish, ¹⁰DOFD, 2010; for timber, ¹¹MPFS, MFSC, 1988, DFRS, 1999, for paddy, ¹²MOAC 2010, & Dir. Crop Dev. DOA, for vegetables, MOAC 2010 & Dir. Veg.Dev. Dir.DOA, for buffalo-milk, ¹³DLS 2010.

91. 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 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 lower productivity of local cattle and buffalo breeds (DLS 2010, Mahpatra and Rai 2007) calls for new breeding programs. Similarly low seed replacement ratio in cereals, limited availability of quality and affordable seeds, and insufficient

¹⁰ DOFD, 2010. Annual progress report, MOAC, DOA, Directorate of Fisheries Development, Balaju, 90pp.

¹¹ MPFS, 1988. Master Plan for Forestry Sector, Main Report, Ministry of Forest and Soil Conservation, Nepal.

¹² MOAC 2010. Statistical Information on Nepalese Agriculture.

¹³ DLS, 2010. Annual Technical Report, Animal Production Directorate.

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, 2008¹⁴). 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.

92. The use of chemical NPK fertilizer (nitrogen, phosphorous, and potassium) in Nepal 2011/12 was 422,547 MT of which only about 25% is imported and officially declared to customs¹⁵. This amount is sold on a subsidized rate by the state only through agricultural cooperatives. However, price does not substantially affect farmers' demand, and the other 75% is imported informally. Poor quality and poor knowledge of good fertilizer practices are a considerable constraint to productivity. Soil testing and use of locally available lime in much of the arable land could increase yields substantially.

93. Seed replacement rate (SRR) has remained very low¹⁶. Against the desirable seed replacement rate for crops at 25% to 30%, average SRR is 4% to 8% for wheat followed by 4.4% in rice, 3.8% in maize and 1.6% per pulses. Of the total requirements of the cereal crop seeds, contribution of the formal sector is less than 10% and quality is a constraint to productivity.

2.5 Agricultural Trade Deficit

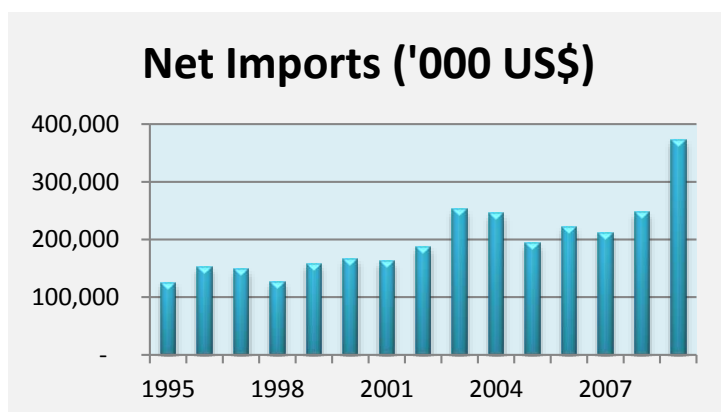
94. In spite of agriculture playing a strong role in livelihoods and the economy, Nepal's agricultural trade is in deficit. The growth of imports has outpaced exports and the agricultural trade deficit has increased over the years from \$124 million to \$373 million (see Figure 6). Nepal imports primary and industrial raw materials (due to declining domestic raw material production), and processed agriculture products (due to limited investment and competitiveness in high-quality, high-value agro-processing)¹⁷. The range of exports is concentrated in a narrow set of manufactured and agricultural products, such as carpets, readymade garments, pashmina, handicrafts, pulses, jute goods and vegetable ghee. Export market concentration has increased and most of the exports are destined to few markets such as India, United States of America and Europe.

¹⁴ 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

¹⁵ R. Hoyum, Chemonics International 2012. Nepal Fertilizer Demand and Plant Nutrient Assessment, USAID NEAT Activity

¹⁶ Birendra Basnyat (2010). "Improving seed security through the expansion of seed multiplication farms in the public, private and cooperative sectors in Nepal". Economic Policy Network II, MOF/ADB, Kathmandu December 2010

¹⁷ TEPC, 2011. Nepal Foreign Trade Statistics 2009/10; and MOF, 2011. Economic Survey 2010/11.



Source: Calculations based on data from TEPC, Nepal Foreign Trade Statistics 2009/10.

Figure 6 Net Import of Food and Agricultural Products

95. The large and growing deficit in food and agricultural trade is symptomatic of **low competitiveness** of agriculture in Nepal. Low competitiveness is the outcome of the difficulty of doing business, poor infrastructure, governance, access to credit, and regulations (see Table 12). Most of the competitiveness indicators are ranked very low in international benchmarking.

Table 12 Competitiveness indicators for Nepal

Indicator	Rank of Nepal
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 2009¹⁸

96. 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 13).

97. Nepal has comparative advantages in export markets in resource- and labor-intensive low technology agriculture products such as dried vegetables, coffee, tea, vegetable and roots, ginger, and cardamom¹⁹. However for vegetable fat, animal feed, sugar and confectionery, molasses the growth rate is negative and there is high risk of eroding comparative advantage in future. Looking at the global market structure, Nepal is competing with low/medium level income countries, such as Bangladesh, India, Pakistan, China, Vietnam, and Thailand.

98. 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,

¹⁸ 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

¹⁹ ITC, 2011. Online trade statistics.

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.

99. The Industrial Policy 2010 has prioritized agriculture and agro-forestry industries for investment, and provides additional incentives and facilities to these industries. Foreign investment in agriculture sector (including processing and retailing) is less than 1% of total foreign investment²⁰.

Table 13 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)
Cereals	112	4,195	(4,082)
MAPs	440	Not significant	440
Dairy products	Not significant	861	(861)

Source: CBS 2010

100. Most imports are from India and India is also the main destination of agricultural exports from Nepal. Nepal has signed trade agreements including the Nepal-India trade treaty, South Asia Free Trade Agreement (SAFTA), Bay of Bengal Initiatives for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) and the World Trade Organization (WTO). The Trade Treaty with India provides reciprocal duty free and without any quantitative restrictions market access for 16 agriculture and primary products, including paddy, wheat, maize, rice, pulses and flour. Nepal's WTO bound tariff on agriculture products is 41.4% on average, but competitiveness is still low. Nepal's overvalued exchange rate reduces the price competitiveness of Nepal's agricultural products in export and domestic markets. The Nepal Trade Integration Strategy (2010) noted agricultural trade competitiveness was reduced by the lack of adoption of Good Agricultural Practices (GAPs), Integrated Pest Management (IPM), quality management systems, and third party certification.

2.6 Poverty

101. **Poverty** is still widespread (25% of the population). Most of the poor are in rural areas and poverty is closely associated to a stagnant agricultural growth and rural economy. 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 14). Agriculture employed about 14 million persons in 2010, 64% of the

²⁰ Department of Industry, Industrial Statistics 2010/11.

workforce²¹. Gains in reducing poverty cannot be attributed solely to development of the agriculture sector, as there have been significant other influences including increased urban employment, remittances from migrant labor abroad, and increasing GDP contributions from sectors other than agriculture including tourism and services. However, the strategy of programs and projects such as the Poverty Alleviation Fund, and IFAD Western Uplands Poverty Alleviation Project (2003-2014) in general have been consistent with the agricultural policy and APP framework. In recent agriculture projects of the Asian Development Bank, women farmers' participation increased from 40% to 50%. Similarly, disadvantaged groups comprised over 50% of total participating farmers²².

102.

103. The Government's Millennium Development Goals (MDG) Progress Report 2010²³ stated that the poverty rate has decreased, a reduction in the population suffering chronic food insecurity, and reduced unemployment rates, and there is a positive trend towards gender equality as indicated by a balanced enrolment of girls and boys in primary schools. The Report notes there has been increased allocation of public resources in favor of marginalized groups in remote areas, and greater attention has been given to environmental conservation and adaptation to climate change. The policy environment for achieving most of the MDG targets seems favorable with the Interim Constitution of Nepal 2063 (2007) and its subsequent laws emphasizing inclusive, participatory and decentralized governance. As a guide for the ADS, the Report observes that the Government requires priority attention towards the following in meeting the MDG specified targets by 2015:

- Move people up from their below poverty line status;
- Create better environment for private sector investments;
- Develop and enforce supportive policies;
- Address food security and climate change issues;
- Maintain gender balance while providing access to the development opportunities;
- Ensure support entitlements for the benefit of marginalized groups.

Table 14: 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%
2011	26,494,000	21,970,000	25%

Source: EIC Survey 1977; National Living Standards Survey 1995, 2005, 2010; Central Bureau of Statistics 2011 (census)

2.7 Food Insecurity

104. One worrying aspect related to poverty is **malnutrition**. Indicators of malnutrition, particularly of children are still high not only in traditionally food deficit areas but increasingly also in food surplus areas. About 42% of children less than 5 years old suffer from stunting (NLSS 2010/11).

105. Three and half million people in Nepal, 13% of the population, are considered to be moderately to severely food insecure, and 42 out of 75 districts are classified as food insecure with respect to food grains²⁴. Cereal yields are among the lowest in the south Asia region. The national

²¹ Of 28 million population, total labor force is 21.84 million, agriculture employment 13.98 million (2010 census).

²² ADB (2009) "Technical Completion Report for the Crop Diversification Project L1778", and ADB (2009). "Technical Completion Report for the Community Livestock Development Project L2071". ADB Manila 2009.

²³ NPC (2010). "MDG Progress Report". NPC 2010. Kathmandu

²⁴ Draft Food and Nutrition Security Plan, MOAD 2012

cereal balance has been more or less in equilibrium, but with deficit in years of inadequate monsoon rainfall. The 2011/12 cereal balance was a surplus of about 886,000 tons, equivalent to over 17% of total requirement, but in the past decade Nepal's average food grain import was about 5% of domestic production annually²⁵. Despite national food grain surplus in 2001/12, about 1.8 million people received staple food supplements from Government - evidence that persistent food poverty, malnutrition, and food vulnerability can occur even if the country is "food self-sufficient". Nepal is expected to follow trends in other Asian countries: more wheat products will replace rice in the diet. The deficit that may increase is for animal feeds (maize and soybean, etc.) as demand for meat and other livestock products increases. At least for maize, there is considerable potential to improve based on higher yields from improved varieties achieved by a growing number of farmers.

106. Food and nutrition insecurity varies substantially across the fifteen sub-regions of the country as measured by the hunger index. The highest prevalence of hunger is in the Far- and Mid-Western Hill and Mountain regions, but malnutrition in food surplus areas of the terai indicate food utilization is also a problem. The global food price crisis in 2008-9 demonstrated that rural and urban poor are particularly vulnerable to high food prices. An indicator of this aspect of food insecurity is that major the portion of household expenses is on food, which has risen slightly from 59% in 2003/4 to 62% in 2010/11²⁶. More positively, the percent of households reporting inadequate food consumption has dropped substantially from 51% in 1995/6 to 16% in 2010/11.

107. Food security is often confused with calorie intake rather than a balanced diet of nutritious food. Protein from livestock sources in the Nepalese diet is a low 13% (compared to recommended 30%), but demand is increasing by 8-10% annually as incomes increase²⁷. Domestic production does not meet demand, contributing to about US\$67 million in imports of dairy, meat and eggs in 2010/11²⁸. The situation and trend for fruit and vegetables is similar

2.8 Some Positive Signals in the Agricultural Sector

108. In spite of the low development stage, there are some positive signals in the agricultural sector. For example, income per capita and productivity of agricultural labor have increased, poverty has reduced, and malnutrition has declined. The road network has considerably expanded and irrigation cover has increased as well. In almost all agriculture subsectors (crops, livestock, fishery, and forestry) there has been progress in terms of production or/and productivity.

109. **Agribusiness and commercial agriculture** is growing. The poultry and dairy processing industry are moving fast and the private sector is improving productivity; other dynamic agribusiness sectors include tea, flowers and vegetable seeds (Table 15). Poultry production has adopted a highly commercial profile and scale, solely through private sector investment. Growth in the poultry sector is an example of mobilizing private investment with the right policy and regulatory environment, demand growth, agribusiness functioning in the value chain (for feed, egg and meat processing, cold storage and distribution). By 2008 there were 1,288 companies processing and manufacturing agricultural products, in 2011 there were about 5,500 agricultural cooperatives (mostly dairy, tea, coffee, honey and citrus), and over 13,000 registered community forestry groups²⁹.

²⁵ MOAD Statistics, 2012

²⁶ NLSSIII 2010/11

²⁷ NPC 2011. *Nepal Nutrition Assessment and Gap Analysis*.

²⁸ Draft Food and Nutrition Security Plan, MOAD 2012

²⁹ Central Bureau of Statistics, 20010; Registry of Cooperatives, Department of Cooperatives. Kathmandu Accessed June 2011; and Registrar, Department of Community Forestry, MOFSC 2011.

Table 15: Annual growth in agribusiness indicators 1996-2006 (%)

Agribusiness Units	Production	Sales Volume	Export Value	Employment	Investment
Dairy	147	66	-	7	201
Tea	37	65	46	41	37
Floriculture	24	70	21	73	73
Vegetable seeds	20	34	29	7	16
Poultry	5	9	-	5	2

Source: IDL Ltd and Seeport Ltd (2007). "APP Implementation Status Report Vol 1". DFID and Government of Nepal, 2007

110. **Production** of fruit and vegetables, vegetable seeds, coffee, goats, and honey is accelerating. Vegetable production has grown consistently, up to 9%/year³⁰. Tea and coffee production have grown between 15% and 30% annually since 1996. Yields of most commodities have increased, but the large gaps in yields between best agricultural practices and average farm practices shows there is considerable potential for increase, particularly with better knowledge of how to use the existing available seeds, breeds, fertilizer and irrigation. Maize and wheat yields have grown by over 2% per annum, and real net returns from agricultural crops have doubled or tripled since 1995³¹.

111. **Investment** in agriculture, agribusiness and rural development by Government, development partners, and the private sector has increased since 2000, due to global and domestic factors including a more stable business environment³². For example, Morang Merchant Association and Chambers of Commerce and Industry report that Rs 2 billion industrial investment has been made in the Sunsari-Morang corridor between April 2010 and October 2011 in response to settlement of wage disputes and the integration process of Maoist combatants³³. Investment includes soy processing, rice milling, biscuit manufacture, and plywood; from both domestic and Indian investors. The private sector has invested quite strongly in dairy processing and marketing, and private sector investment in the poultry sector is about Rs 21 billion.

112. Several **policy** formulations including the National Agricultural Sector Development Policy 2010, the Three-Year Plans (TYP), Rural Infrastructure Plan 2004, Agro-Business Promotion Policy 2006, and several others are all emphasizing the central role of agriculture and the need of support to develop the sector. In addition, specific policies for seeds, land use, irrigation, trade and other key areas have been revised and harmonized with agriculture sector priorities.

113. Access to **infrastructure** and services including road, market, irrigation banks and agricultural service centers have also improving considerably (Table 16). Outside of the agricultural sector, the information and communication technology (ICT) revolution is also affecting Nepal, where already half of the population has access to telephone.

Table 16: Infrastructure Progress

Households with Access to Facilities	1995/96	2010/11
Agricultural Service Center	25%	43%
Commercial Bank	21%	40%
Market Center	24%	45%

³⁰ Vegetable Development Directorate 2011. Annual Progress Report.

³¹ Calculations (GDP deflated) from MOAC Statistical Yearbook 2011

³² MOF Economic Survey 2011

³³ L. Ghimire 2011. *Sunsari-Morang corridor sees fresh investments pouring in*. Kathmandu Post Nov 20, 2011.

Vehicle passable road	58%	80%
Electricity	14%	70%
Irrigated land area (% of land)	40%	55%

Source: NLSSIII, CBS

2.9 APP Targets and Achievements

114. The APP is the long term plan and strategy that informed agriculture development in Nepal since 1995/96. Over this period several other periodic plans, programs, and policies have been formulated and implemented. In most cases, these other plans are consistent with the APP.

115. The Agricultural Perspective Plan (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 2011 is estimated at 25%, which is still far from the APP target. 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.

116. The overall objectives of APP were as follows:

- accelerate the growth rate in agriculture through increased factor productivity;
- alleviate poverty and achieve significant improvement in the standard of living through accelerated growth and expanded employment opportunities;
- transform agriculture from subsistence to commercial orientation through diversification and realization of comparative advantage;
- expand opportunities for overall economic transformation by fulfilling the preconditions of agricultural development; and
- identify immediate, short-term and long-term strategies for implementation, and provide clear guidelines for preparing future periodic plans and programs.

117. The APP strategy is to accelerate the agricultural growth rate sufficiently to obtain strong multiplier effects on growth and employment, in both the agricultural and non-agricultural sectors. This growth would occur through technological change to be achieved through investment in research and extension. The APP aims for a broad-based participatory growth across regions and income classes and emphasizes sub-sectors particularly important to women.

118. The following six strategic thrusts are identified as essential to achieve APP objectives:

- a technology-based green revolution in agriculture which becomes the initial engine of accelerated growth;
- accelerated agricultural growth which creates a demand-pull for the production of high-value commodities in agriculture, as well as for non-agricultural commodities, with consequent large multiplier effects on other sectors of the economy;
- broadly based high employment growth, which then becomes the mechanism for achieving societal objectives;
- public policy and investment focus on a small number of priorities, building on past investment in human capital and physical and institutional infrastructure;

- a package approach to development, which would be different for the Terai, Hills and Mountains and would recognize the powerful complementation between public and private investment and priorities, and would ensure their co-ordination; and
- a regionally balanced and gender-balanced approach that explicitly ensures the participation of women and therefore achieves broad participation.

119. APP design gave priority to certain key inputs (i.e. irrigation, fertilizer, technology, roads and power, and financial credit for agriculture), and key outputs (i.e. livestock, high value crops, agribusiness, and forestry), that were envisaged to deliver the policy's expected social, economic and environmental impacts. These priorities remain relevant to in the present context, in addition to current and emerging issues such as food security, trade and agribusiness, climate change and natural resource sustainability.

120. Agricultural sector growth has been less than the APP target of 4 % annual AGDP growth, achieving an average of 3.0 %, slightly below the national GDP average growth of 3.5% in the past decade and rising only after 2010³⁴. APP targets and achievements are summarized in Table 17.

Table 17 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 9496 km of 400/220V distribution line	 17244 km of rural roads 15106 km of distribution line	MoPPW (2011), "Statistic of Strategic Road Network 2009/10", prepared by Department of Roads, MoPPW, 2011 NPC (2011), "Three Years Plan (2010/11 – 2012/13)", prepared by Nepal Planning Commission, June 2011 NPC (1995), "APP Final Report", prepared by National Planning Commission, 1995 <i>Nepal Electricity Authority (NEA), August 2011</i>
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

³⁴ National Accounts Estimates, Nepal 2012.

Item	Targets	Achievement	Data Source
			APP Implementation Status Report, MOAC, 2006.
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

121. **The overall performance of APP has been mixed.** The APP period saw a dramatic improvement in rural road infrastructure, community forest, and horticulture. Irrigation expanded considerably even though did not achieve the groundwater targets that were set by the APP. Within livestock, subsectors such as dairy processing and poultry performed quite well. Cereals sector in general did not perform well, partly because of the deficiency in availability of inputs such as improved seeds and timely, quality, and affordable chemical fertilizer, and partly because of higher incentives for farmers to engage in higher value commodity production.

122. 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. 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.**

123. In addition to the reduced government and donors' support there are other factors that contributed to the weak performance of the APP including:

- a) Lack of Coordination
- b) Withdrawal of Subsidies on Fertilizer and Tube Wells (shallow and deep tube wells)
- c) Faults in the Design and Economic Assumptions of the APP
- d) Weak institutional capacity on project/program 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

2.10 Review of Constraints to the APP Performance

124. The APP was reviewed in 2001/2002 as part of the Agricultural Sector Performance Review (ASPR) and in 2006 as part of the Agricultural Perspective Plan Support Program (APPSP). The mixed performance of the APP was one of the reasons for the request by GON to formulate a new long-term strategy for Nepal, namely the ADS. Other reasons included a changed internal and external context. The explanation of the slow progress is based on eight sets of interrelated factors discussed as follows.

2.10.1 Implementation

125. Implementation of the APP was penalized by declining public investment over the first years after its adoption, and particularly in the period of more intense conflict from 2001 to 2006. During this period both the government and development partners reduced public investment on agricultural programs. Policy inconsistency, particularly as related to subsidies, resulted in a loss of policy credibility and a very uncertain environment for private investment. Lack of continuity in leadership made it even more difficult to resolve the coordination issues that plagued the implementation of the APP.

2.10.2 Legal Aspects

126. 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 GON³⁵. 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.

127. 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 ADS 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.

128. 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

³⁵ 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.

and develop irrigation systems, that there is adequate legislation to allow the functioning of cooperatives in the value chain of the agricultural protection with adequate governmental oversight, that trade legislation and agreements enhances the ability of high value crops 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.

2.10.3 Design Aspects

129. Even though the APP was a very useful document to focus the attention of policy makers on agricultural growth and its contribution to overall development, there were some design issues that were already recognized as weaknesses in the 2001/2 Agricultural Sector Performance Review.. These design issue include:

- **Rigid targets** and traditional top-down approach
- **Simplistic view of technology** adoption process based on input/output relations and little attention given to incentives and demand supply relations
- **Narrow** green revolution perspective - sees the main source of growth in fertilizer and irrigation
- **Emphasis on guiding inputs and outputs** rather than on outcomes and impacts
- **Lack of systems for re-planning** based on evaluation of actual results achieved

2.10.4 Conflict

130. The 12 years conflict that concluded with the ceasefire in 2006 had negative impact³⁶ on the agricultural sector, including through:

- a) Limitation in accessing marginalized and remote areas for development projects.
- b) Access to market and economic activities constrained by hostilities and frequent *bandh* and other disturbances.
- c) Landowners often fled, so there was reduced investment and economic activities in the rural areas, land was barren and rural people had neither food nor wages.
- d) Productive labor (men and women aged 18 to 40) engaged in the armed conflict instead of agriculture.
- e) Instability and risk prevented or reduced private sector investment.
- f) Destruction of physical rural infrastructure.

2.10.5 Politics and Policies

131. Politics in Nepal has been characterized by frequent changes and short tenures of cabinets. Both before and after the conflict similar tendencies have been in place. During the 17 years of the APP, there have been 19 Prime Ministers and 18 Secretaries of MOAD. This has reduced coordination and commitment to carry out policies, plans, and investments.

132. Most policies in Nepal are supportive of agriculture. However, numerous policies have been left at a draft stage, not implemented, often lack supporting legislation and resources, because of the combination of various factors such as:

- a. Limited implementation capacity
- b. Limited financial resources

³⁶ See Chhaya Jha and Tracy Vienings 2004, Peace and Conflict Impact Assessment Summary, Canadian International Development Agency; and Anjana Shakya 2009, Social Impact of Armed Conflict in Nepal. Cause and Impact.

- c. Poor coordination
- d. Lack of supporting legislation
- e. Lack of monitoring and evaluation

2.10.6 Investment

133. Government expenditures on the agricultural sector include both capital and recurrent expenditures and are presented in Figure 7. 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. 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. Government expenditure in the agricultural sector as a ratio of AGDP declined (Figure 8).

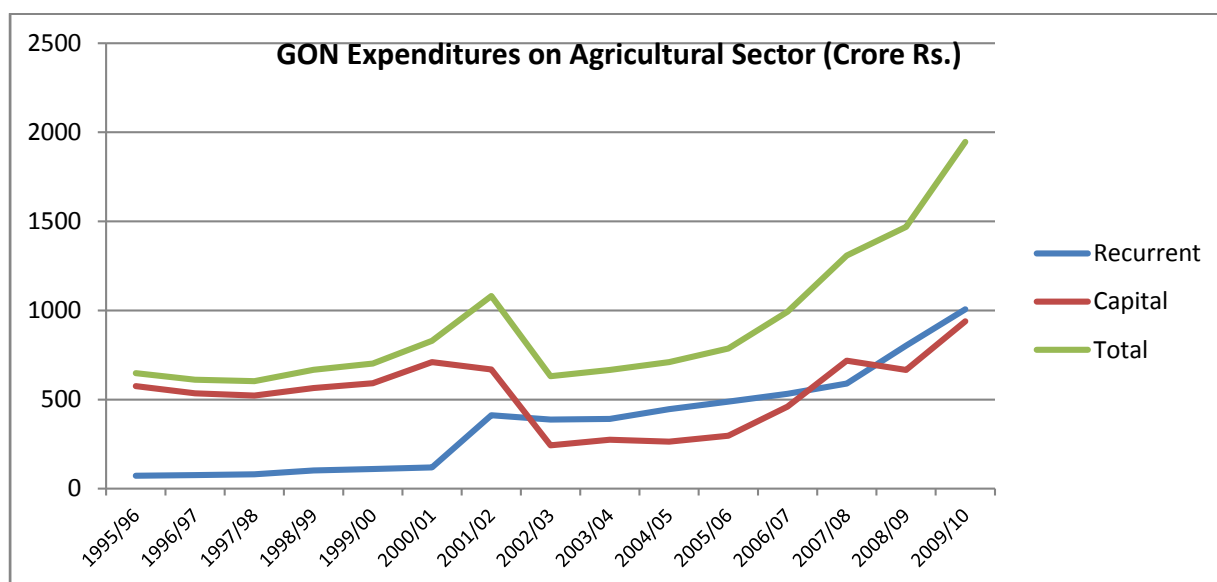
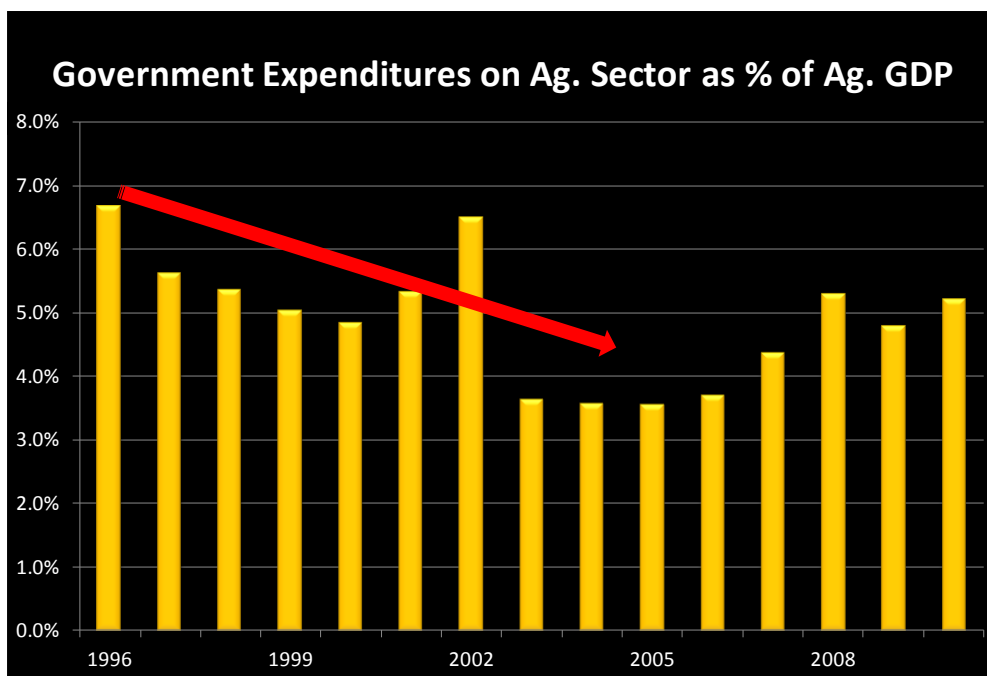


Figure 7 Trends in Government Expenditures in Agricultural Sector

Source: Economic Survey 2010, Ministry of Finance

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



Expenditures include: Agriculture, Irrigation, Forestry, Land Reform and Survey

Figure 8 Government Expenditures as Percent of Agricultural GDP

134. 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 9). Both loans and grants increased following cessation of conflict in 2006 until 2009. Subsequently donor commitment to the sector has increased, but disbursement has been constrained by Government’s partial budget in 2012/13, and limited capacity³⁷.

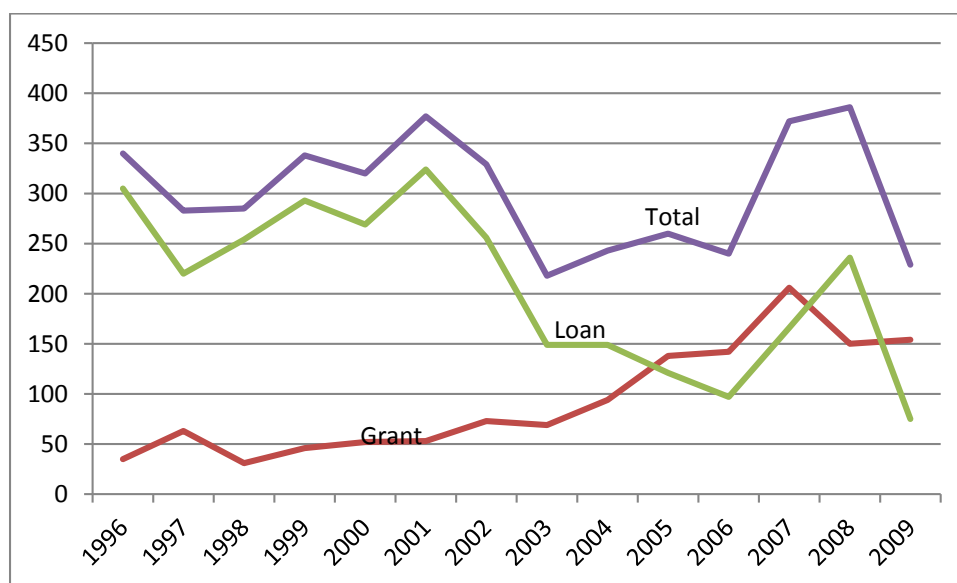


Figure 9: Donor Assistance to the Agriculture Sector (Rs 10 million)

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

³⁷ MOF, 2013. Report on Nepal Donor Portfolio Performance Review Conference

135. With few exceptions (i.e. dairy processing, poultry, tea, flower, vegetable seeds), there has been little private sector investment, partly because of an unstable political situation and partly because of risk and the lack of a conducive environment for investment.

2.10.7 Capacity and Human Resources

136. 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 farmers³⁸. 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.

2.10.8 Plans

137. Periodic plans include 5-year plans, 3-year plans, and multi-year plans like the APP. Planned development process was initiated in Nepal in 1956/57, and now has completed ten periodic Five-Year plans and almost two Three-Year interim plans, till 2010/13. The major issues of periodic plans include:

- Budgetary allocations were hardly ever as envisaged in plans
- Institutional development aspects were either not properly planned or not implemented as planned
- Human resources development was not properly planned and not implemented as planned
- Except for the rituals of midterm review and final evaluation, there was no system of regular monitoring of plan implementation.
- From Eighth to Tenth Plans and even in Three Years Interim Plan Periods aspects such as institutional development, infrastructure development, research, human resource development, and strengthening manpower were not prioritized but sometimes discouraged. Consequently agriculture sector capacity has been weakened.
- Consistently with the Ninth and Tenth Plans, in the Three Year Interim Plans more focus was given to the social sector at the cost of developmental sectors such as agriculture.

2.11 Summary and Lessons Learned from the APP

138. Agriculture in Nepal is currently more developed than it was 16 years ago, at the beginning of the APP. In less than a generation, society in Nepal has witnessed enormous turmoil and change. During these years, agriculture has been able to growth, sometimes against formidable odds presented both by internal factors and external factors. A disruptive conflict had negative implications for the implementation of policies, plans, and projects; both local elites and a sizable share of the labor

³⁸ 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%).

force have abandoned rural areas depriving agriculture of needed capital, resources, and labor; while increasing pressure on infrastructure and peri-urban area of already crowded major cities. Frequent changes in cabinets has made impossible continuity of leadership and tenures of senior officers thus making implementation of programs more difficult. In spite of numerous policies, often favorable to agriculture, having been drafted or approved, their implementation has been poor due to a combination of factors related to lack of resources, weak capacity, credibility of policies, lacking supporting legislation. The APP has mixed results due to this complex of factors. Not one factor can be identified as responsible for the lackluster performance of agriculture under the APP. Yet several lessons can be derived to improve the formulation of the ADS.

139. Review of the APP highlights important lessons from the difficulties encountered by the APP and the pitfalls that need to be avoided in the new long-term strategy for the agricultural sector in Nepal. The lessons have been part of a checklist for formulation of the ADS, as follows:

1. Does the lead agency have authority and capacity for coordination?
2. Are resources available for implementing?
3. Is M&E conducted timely? Is it used by the coordination agency effectively?
4. Is the private sector on board? Are Public Private Partnerships part of the strategy?
5. Are we sure that our implementation approach (e.g. value chain, cluster, pocket) is not bogged down by administrative constraints (e.g. approach limited to district)?
6. Are we focusing on results and impact, rather than on inputs and outputs?
7. Did we include women, marginalized groups and remote geographic areas?
8. Did we ensure that supporting laws and regulations are in place?
9. Do we have self-correction mechanisms in place (eg, how adapt to climate change, food price crisis, new subsidy policies, migration; how to respond to curtailing of resources)
10. Are the local institutions ready for implementation? If not what do we do?
11. Have we included a risk management system that continuously evaluates the risks facing the strategy implementation and proposes methods to mitigate and manage those risks?

2.12 Summary of Key Issues for the ADS

140. The assessment of the agricultural sector aimed at identifying the key issues that need to be considered in the new agricultural development strategy. The identification of key issues is partly an analytical exercise of reviewing the literature and the data, and partly the outcome of a consultation process with the stakeholders. The key issues for the ADS are summarized in Table 18 and related appendices.

Table 18 Summary of 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 farmers, the low availability of year-round irrigation, the limited availability and affordability of key inputs (fertilizer, seed, breeds, etc.), declining soil fertility, poor integration of research and extension with the agricultural education system, and high incidence of pests and diseases.
2.	Competitiveness	Nepal is ranking very low in competitiveness measures. Constraints to competitiveness include poor infrastructure, weak governance, limited capacity and human resources, an overvalued exchange rate, difficulty to access credit

No.	Category	Issues
		and doing business. 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	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. 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. 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. 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.	Infrastructure	In order to develop a required level of infrastructure base for the growth of the agriculture sector, it is essential that the government prepares an investment friendly environment for the private sector and for international investors to invest, particularly in the power and telecommunications infrastructures. The rural road sector suffers from increased fiduciary risks at the local (i.e. DDC and VDC) level where the guidelines for development of rural roads in a systematic manner following agreed District Transport Master Plan and Rural Roads standards are not followed.
6.	Credit, Insurance, Taxes	Credit to agriculture and agribusiness is constrained by numerous factors including the lack of agricultural insurance and effective credit guarantee schemes. Taxes are not discriminatory against agriculture; however a lax revenue collection system prevents from ensuring adequate source to finance agricultural development.
7.	Subsidies	Subsidies on fertilizer and irrigation are ingrained in the being of the average Nepali farmer. The debate about subsidies is affected by the comparison with highly subsidized but inefficient Indian agriculture. Recent subsidy policies have reversed years of lack of subsidies adding to higher expectations in the future. The ADS will need to address subsidies keeping into account these expectations but also realistic assessment of what are the economic implications of subsidies, and alternative methods to achieve similar results.
8.	Land	Land use planning is urgently needed in order to put a halt to unsustainable practices and environmentally damaging use of land. The current legislative work on land ceilings might have implication for farm size and alternative institutional arrangement to overcome the limitations of small and fragmented land holdings. Farm size has important implications for the formulation of the agricultural development strategy. Rural population could be roughly classified into three

No.	Category	Issues
9.	Food and Nutrition Security	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.	Institutions and Human Resources	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.
11.	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 adaptation 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.
12.	Social and Geographic 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. Budget allocations are often silent over how to enhance women's strategic positions through recognizing women as independent and autonomous farmers, ensuring women's access to means of production, enhancing their leadership competence and creating acceptance, and improving women's position in different structures of the government, non-government and private sectors.

No.	Category	Issues
13.	Legal	Although policy formulation in Nepal has addressed several dimensions relevant to 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.

141. The issues affecting the agricultural sector are numerous and complex. Three factors are needed to solve these issues: (i) a good plan and strategy; (ii) adequate resources; and (iii) credible policy commitment (see Figure 10).



Figure 10 Elements of a Successful Strategy

142. The key features of **a good plan and strategy** include:

- Relevance of the issues
- Clarity of the approach
- Evidence-based
- Based on extensive consultation with a broad range of stakeholders
- Paying attention to both social and geographic inclusion
- Paying attention to sustainability
- Keeping into account the likely structural changes the economy and society will go through over the next 20 years

143. **Adequate resources** required for the implementation of the ADS will be considerably higher than what is currently invested in the sector and also higher than what has been invested in the past. Resources to the agricultural sector have to be increased and be more predictable, so that programs can be formulated and provided with continuity. Public sector resources including development partner commitments should be identified early on to ensure that especially the initial years of the ADS implementation are successful so that momentum is gained to accelerate growth of agriculture. In addition to public sector resources, adequate incentives have to be created for mobilization of private sector resources, including remittances, and investment in the agricultural sector.

144. **Credibility of policy commitment** derives from the capacity of the political forces in the country to overcome their differences and jointly embark on an ambitious long-term plan to develop the sector. This will require continuity of leadership and program implementation, monitoring and evaluation, and transparency of investment. This is perhaps the most crucial element of success of the ADS.

3 VISION OF THE ADS³⁹

3.1 Future Trends affecting the Agricultural Sector in Nepal

145. The discussion of future trends in this chapter provides a context for the formulation of the vision of the agricultural sector in Nepal. A vision for Nepal is not an exercise in isolation of what happens in the rest of the world. A realistic and solid vision is anchored on an in depth understanding of the current situation and overall trends that affect Nepal in a regional and global context. It should also be noted that the formulation of the vision is the outcome of discussions with stakeholders in the regions and at the national level.

3.2 Agricultural Transformation

146. Over the 20-year period 2010-2030, one possible scenario is for GDP/capita of Nepal to increase substantially and Nepal move towards middle income country status. This scenario is consistent with the potential of the country and given an improvement in policies and institutions that will result in accelerated growth. During this movement towards middle income country status, Nepal will go through the process of agricultural transformation, a process whereby the economic structure of a society changes from one based on agriculture to one based on industry and services. Four lessons from the process of agricultural transformation are relevant to the formulation of ADS's vision. The lessons can be summarized as follows.

- a) Total Factor Productivity (TFP) growth is the main source of future agricultural growth. TFP requires not only land, labor and capital, but also such things as technology, innovation, efficiency, human resource capacity, and governance. TFP growth contributed between 40% and 70% of agricultural output growth in Asia over the last 50 years⁴⁰.
- b) At early stage of development, agricultural growth is the main engine of poverty reduction because most of the poor are in rural areas. Lower inequality enhances the impact of growth on poverty reduction.
- c) Increasing urbanization presents challenges that traditional food systems are not well prepared for. Integration of smallholder farmers with modern value chains is a feasible response to these urbanization challenges.
- d) As the economy moves closer to middle income status, the development of the rural non-farm sector (including agri-food manufacturing, services, marketing and logistics), becomes increasingly important in closing the gap between rural and urban areas.

3.3 Agricultural Labor Force

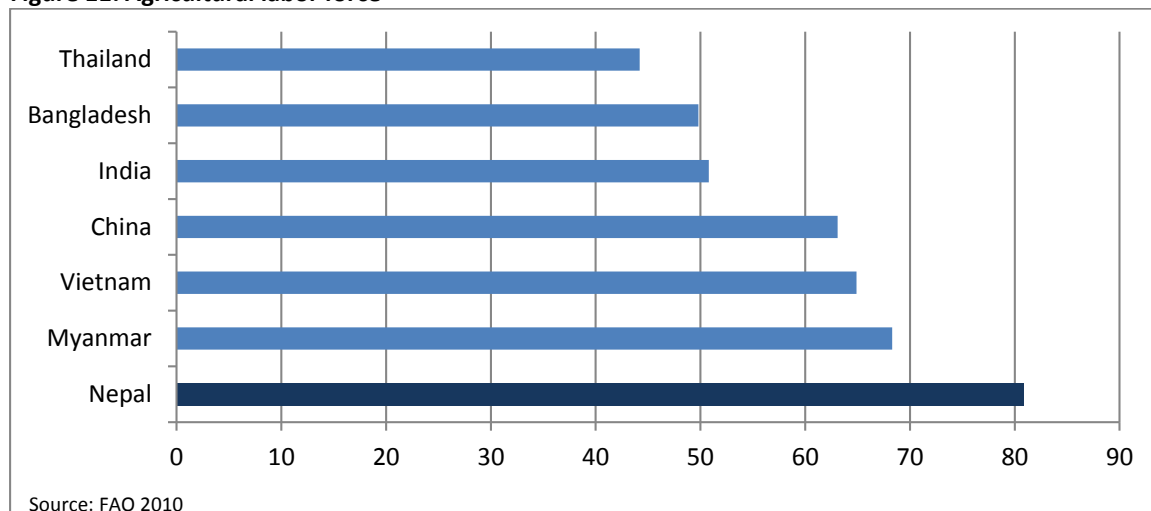
147. An over-arching demographic and economic trend is the structural transformation of labor gradually moving from agriculture to secondary processing and manufacturing industries and tertiary services industries. The growth rate in agricultural labor force is declining, from 2.5% (1988-98) to 2.1% (1998-2008), and is forecast at 1.7% (2010-20) (FAO 2010). For example, Figure 11 shows that the agricultural labor force in Nepal is much higher than in a more diversified economy such as Bangladesh. Driving this trend are rapid population increase, urbanization, reduction in poverty, rising

³⁹ This chapter is based on the Background Report on Vision.

⁴⁰ Keith O. Fuglie, 2010, Total Factor Productivity in the Global Agricultural Economy: Evidence from FAO Data.

non-farm incomes and employment, new technologies, increasing access to information technology (mobile telephone ownership in Nepal is about 46% of the population), increasing competition for land and water for agriculture and non-agricultural use, globalization, rising costs of energy, and climate change.

Figure 11: Agricultural labor force



3.4 Urbanization

148. An increasing urban population needs to be fed. For this population, food demand will be richer in protein, requiring more stringent quality standards, and be more convenient to prepare. Increasing urbanization implies more pressure on agricultural land in peri-urban areas. Food distribution systems appropriate for urban areas need improved marketing and distribution infrastructure. An increasing amount of food will be distributed via modern outlets and supermarkets. Agroindustry will need to develop, in order to provide with enhanced features such as storability, convenience, improved packaging, and diversified products.

3.5 Change in Diet

149. Due to increasing income and urbanization, diets will be more diversified, richer in protein and micronutrients. More animal products and more processed foods will be consumed. Also, more people will be more conscious of health issues (cholesterol, diabetes, allergies, etc.) related to food and food safety.

3.6 Globalization and Trade

150. Increase in cross-border trade will require Nepal to have an adequate capacity and network of agreements in place with major trading partners for food safety and quality standards, phytosanitary and quarantine, double tax agreements, transit, and harmonized trade and commerce legislation (e.g. anti-dumping, labeling, trade mark protection). It will also require Nepal's agri-food industries to become competitive with more countries.

3.7 Outmigration

151. In common with other countries, Nepal's rural youth are increasingly choosing employment in areas other than agriculture. Youth migration is leaving women, children, and old people in the villages. Labor shortage, noted by many regional consultations, suggests need for increased mechanization. Outmigration might also accelerate the process of increasing farm size, as long as there is an effective land use management regulatory system. As the agricultural sector transforms to a more commercial and competitive industry, it will attract more investment and support more semi-skilled, higher-paid employment.

3.8 Green Technology and Low Carbon Emissions

152. There will be global pressure for countries to implement green technologies (e.g. solar power) and reduce carbon emissions (e.g. Rs. 50/tonne coal tax in India). At the 2012 'Rio+20' UN Conference of Sustainable Development, Nepal and other member nations agreed to establish Sustainable Development Goals which based on green economy principles. To facilitate this, new multilateral financing mechanisms are emerging such as the Climate Change Fund, and increased provision for the Global Environment Fund, as well as carbon trading on international stock markets in response to voluntary and government-mandated emissions certification schemes.

3.9 Diversification

153. Developing a more commercial and competitive agricultural sector is essential to face the trends that have direct impacts on the food and agricultural sector. Rising incomes are changing food demand from cereals towards more protein, fruit, vegetables and processed foods. In the South Asia region, per capita consumption of rice declined from 20% to 15% of consumer food spending (1980-2008), while 85% of consumer food spending is on vegetables, meat, dairy and fish (Chen, 2011). Following this trend, farmers get about four times the income per ha from high value products than from rice.

3.10 Distribution Systems

154. Markets are increasingly open and will be increasingly homogenized toward international tastes and requirements for levels of quality, packaging, safety, and even process attributes such as socially or environmentally friendly methods. New distribution channels, dominated by larger firms including supermarket retailers, will impose high performance demands on their value chains. Food production, distribution and marketing chains are changing with improving infrastructure, communications, vertical business structures, integration into the world market, and the rapid rise of supermarkets. Some 80% of the consumer price of food is formed in the post-farm value chain, yet the policy is very focused on farm productivity. In the ASEAN country group, 75% of the food economy is in urban areas, in wholesale, post-harvest logistics, processing and food retail, and increases in efficiency post-farm therefore have strong impact on competitiveness (Chen 2011). The supermarket revolution is advancing in India and starting in Nepal. In China the top 47 food retail chains turned over USD 13 billion in 2001, rising extremely rapidly to USD 92 billion by 2009.

3.11 Quality and Safety

155. In the regional and global context, agricultural quality and safety systems are based on standards of best practice operating procedures, internal control systems and product traceability. They require strong government regulatory systems with sufficient capacity for monitoring, regulation

and enforcement, supported by non-government industry-based institutions to provide training, certification, auditing and analytical laboratory services. The regulatory capacity must encompass the whole food chain, from rigorous assessment and registration of agricultural inputs (such as pesticides, veterinary medicines and biotechnology products) and livestock feeds, through to food processing additives. The tragic 2008 “melamine in milk” episode shocked Asia. The fact that melamine was not previously monitored as it was not considered a potential agricultural input highlighted the need for dynamic and rigorous food safety system. The most frequent food safety events are due to bacterial contamination such as the deaths in the USA caused by from *E. coli* in tomatoes in 2007 and bean sprouts in Germany in 2011. In all cases, a system to trace the source of contaminated products was essential to rapid and effective response.

3.12 Cost of Energy

156. Rising costs of energy will drive up costs of fertilizers, irrigation, mechanization and thus food. In this context, profitable farming systems and their genetic materials need to be highly efficient, not necessarily relying on high-fertilizer and water input systems such as hybrid wet rice. Aerobic rice systems are emerging as more efficient and provide better yield in marginal conditions and under climate change. Increasing urbanization and agro-industry development results in large-scale concentrated waste that continues to be costly and polluting, and in response many countries are using this waste to manufacture bio-fertilizer.

3.13 Climate Change, Natural Disaster and Global Crises Management

157. Climate change, input and output market price fluctuations, trans-boundary disease and natural disasters have major local and regional impacts on agriculture. India, for example, has developed agricultural insurance and disaster response mechanisms for primary (crop failures) and to some extent secondary (livestock deaths) consequences of climate variability. Risks in commercial agriculture may be mitigated by response mechanisms that include catastrophe protection insurance and the protection of farmers under bankruptcy legislation.

3.14 Degradation of natural resources

158. Degradation of so-called renewable resources including agricultural land and water presents another set of challenges. Improving the land tenure system, markets for water rights, land use zoning, and regulatory capacity to ensure sustainable land and water resource use management are some of the policy and institutional mechanisms that have proven effective.

3.15 Fiscal discipline

159. Pressure for increased integrity of the tax system, including the administration of the taxation of agriculture will be an increasingly feature of more modern agricultural systems.

3.16 Vision Statement

160. The vision statement reported in this chapter is the outcome of a number of consultations at the regional and national level. The formulation below is based on (i) the National Workshop held in Kathmandu on 30 November 2011; and (ii) subsequent consultations with farmer organizations during 2012 and 2013. The statement incorporates several elements that address most of the concerns and aspirations of Nepali as they relate to the food and agricultural sector.

A self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth, and contributes to improved livelihoods and food and nutrition security.

3.17 Key Elements of the Vision

3.17.1 Self-reliance

161. Self-reliance relates to the capacity of the country to produce sufficient food to feed its own population. Currently, not only the food and agricultural trade balance of Nepal is in deficit, but also its major food staples are in deficit, including rice, wheat, and maize. Self-reliance is based on the aspiration that Nepal should not be dependent on imports for its food staples. This is an achievable target since even moderate increases in cereal productivity in Nepal can result in foodgrains self-sufficiency. The concept does not imply that for each and every commodity Nepal should be self-sufficient. Nepal should be self-reliant overall for food and agricultural products; for several individual food and agricultural products Nepal might continue to import based on its comparative advantage.

3.17.2 Sustainability

162. Sustainable agriculture includes environmental, economic, and social dimensions. With good practices, agriculture could be environmentally sustainable and contribute to biodiversity. Intercropping systems, conservation tillage, organic farming and agroforestry are some examples. Efficient water use management including non-conventional irrigation, treatment of livestock and agroprocessing wastes in biogas and biomass clean technologies, and integrated plant and soil nutrient management contribute to an environmentally sustainable agriculture.

163. Sustainable modernization of agriculture must strengthen resilience to climate change, global price fluctuations, availability of labor, and production risks associated with major outbreaks of pests and diseases. Rising economic costs will have to be counterbalanced by improved productivity, bigger farm size, value adding, and outsourcing of some operations to specialized companies and business service providers. Research and technology transfer programmes must expand to prepare for the future. In the longer term, consolidation of farms will be unavoidable, but before that occurs, the majority of smallholder farmers have to make a livelihood from their land.

164. Women represent the majority of agricultural labor force, and social sustainability depends on women gaining the power and capacity to control decisions about use of resources. Budget allocations need to recognize women as independent farmers, ensure women's access to means of production, enhance their leadership, and improving women's position in different structures of the government, non-government and private sectors. Marginalized groups often can no longer exercise traditional stewardship of natural resources, resulting in unsustainable impacts on agriculture and biodiversity. Addressing the constraints of these groups will contribute to social sustainability of the programs adopted in the ADS.

3.17.3 Competitiveness

165. Competitiveness of agricultural products from Nepal is low and declining. Constraints include poor infrastructure, weak governance, weak quality and safety control, low technology, limited capacity and human resources, an overvalued exchange rate, difficulty to access credit and to do business. Most exported agricultural products are in raw form and value addition is done in destination markets. Competitiveness implies a production and distribution system oriented towards the market

and meeting consumers demand effectively by providing higher value. Competitive products are not necessarily cheaper products, but are those that meet the preferences and budgets of the consumers, using efficient value chains. Competitiveness is based on comparative advantage, productivity and profitability, but goes one step further: rather than focusing only on cheaper costs, it looks at higher value added, quality, and safety. Improvement in competitiveness of Nepal agriculture could redress the large food and agriculture trade deficit.

3.17.4 Inclusion

166. Poverty, social and geographic exclusion, women's inequality 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 benefits of agricultural development should be shared by different groups, including the farmers, the land owners, the farm workers, and the enterprises. The majority of farmers (about 82%) own less than 1 hectare and 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, and provide employment for the landless. The vision indicates that marginal groups should be included in programs and share of benefits of agriculture. The ADS needs realistic and affordable mechanisms that reduce polarization, and needs leadership for its implementation.

3.17.5 Economic growth

167. Consistent with the insights of agricultural transformation, a more dynamic agriculture is accompanied by higher productivity growth. Growth of agricultural-based activities will have rural non-farm effects and imply increased employment in non-farm employment. This will typically include agroprocessing, storage, trade, food service, production services, and agri-tourism. Higher economic growth of agricultural sector will in turn contribute to higher GDP. Combined with a reduced population growth rate and reduced growth of agricultural labor, higher GDP per capita in agriculture will reduce poverty and improve living standards in rural areas.

3.17.6 Improved livelihood⁴¹

168. A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base. The key elements link work and employment with poverty reduction and well-being, and link the resilience of livelihoods with the wider economic, social and environmental resource base on which they depend.

3.17.7 Food and nutrition security

169. The definition of food and nutrition security proposed by FAO in 1996 entails the aspect of food availability, food access, food use and utilization, and stability, and is also related to the dimensions of inclusion and livelihoods of the vision statement. Agriculture is not the only determinant of food security, but it is a major one. The vision for the agricultural sector in Nepal implies that growth is reflected not only in additional income but in the availability, access, and utilization of more nutritious food, particularly of those who are currently food insecure. Food and nutritional security may entail a more diversified agricultural production system with a larger role of

⁴¹ This section is adapted from Ian Scoones 1998, Sustainable Rural Livelihoods. A Framework for Analysis, IDS Working Paper 72.

animal and horticultural products than foodgrains. As urban markets and international food trade increase, food safety issues will also become more important aspects of food and nutrition security. The ADS vision is aligned with the Multi-Sectoral Nutritional Plan and with the Food and Nutrition Security Plan of Action⁴².

3.18 Targets and Indicators

170. The targets are an indication of what is intended and possible to be achieved as results of the ADS being implemented. Targets are listed for the short term (5 years), medium term (10 years), and long term (20 years). Each target is accompanied by indicators that allow measuring of progress (or lack thereof) towards the target. An explanation of the assumptions used in each target (or how each target has been constructed) is included in Table 19.

⁴² Currently at draft stage

Table 19 Preliminary Indicators and Targets for ADS Vision

Vision Component	Indicators	Current Situation (2010)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)	Assumptions in estimating target	Source of data
Self-reliant	Self-sufficiency in foodgrains	Currently 5% trade deficit in foodgrains	0% trade deficit in foodgrains	0-5% trade surplus in foodgrains	0-5% trade surplus in foodgrains	Cereal yield growth rises from 1.7% (2001-2008) to over 2%/yr. Population growth rate no more than 1.4% (2010).	CBS MOAD
Sustainable	Year-round irrigation coverage	18%	30%	60%	80%	Based on historic rates of construction, O&M, and within potential irrigable area: - Surface irrigation 1000ha/yr - NCI 4000 ha/yr - Tubewells 150,000 ha	MOI
	Soil organic matter	Soil fertility at 1% organic matter	Soil fertility maintained at 2% organic matter	Soil fertility maintained at 4% organic matter	Soil fertility maintained at 4% organic matter	- Promotion of integrated soil and plant nutrient management - Improvement in agricultural practices for cultivation, crop residue use, integrated crop nutrition. - No increase in deforestation	MOFSC MOAD
	Ha degraded land	3.2 million ha (28% of land)	2.88 million ha (reduction of 10%)	2.56 million ha (reduction of 20%)	1.6 million ha (reduction of 50%)	- 10% growth in area under CF, LF, PF - rehabilitation/ reforestation - 2000-2010 poverty reduction rate continues. - Land conservation and land rehabilitation programs - Increased electricity coverage (reduced wood fuel demand).	MOEST MOFSC
	Forest cover	40%	40%	40%	40%	- No net change - Effective land use management regulation enforced.	MOFSC
	Agricultural land productivity (AGDP/ha)	\$1,804	\$2,302	\$2,938	\$4,787	5%/yr of AGDP increase due to: - expanded irrigation - improved practices - improved use of inputs - expanded rural infrastructure - No Increase in cultivated land	MOAD
	Agribusiness GDP as share of GDP	10%	12%	14%	20%	11.8%/yr average increased value of output due to: - improved business enabling environment - growth in agribusiness investment	Ministry of Industry CBS
Competitive	Agricultural trade balance	\$350 million trade deficit	Reduce food and agriculture trade deficit by 12% (\$310 million)	Reduce food and agriculture trade deficit by 48% (\$181 million)	Achieve Food and agricultural trade surplus of \$690 million	11% growth/yr of exports and 4%/yr growth of imports due to: - increase production of high value crops - cereal yield growth - increased value addition - improved rural infrastructure - growth in agribusiness investment	TEPC MOSC MOAD

Vision Component	Indicators	Current Situation (2010)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)	Assumptions in estimating target	Source of data
	Agricultural Exports	\$248 million	\$418 million	\$ 704 million	\$1999 million	11%/yr export growth	TEPC
Inclusive	Percent of land ownership by women or as joint ownership	10%	15%	30%	50%	- 20%/yr incremental registration on land title - Awareness programs on gender and land issues	MOLR
	Percent of rural households covered by agricultural services and programs	12%	17%	22%	30%	5%/yr growth in outreach: - increased rural infrastructure - expansion of ICT services - 5%/yr growth in agribusiness services	Census NLSS
Growth	Average annual growth of AGDP	3%	4%	5%	6%	- increased productivity growth - increased investment - increased rural infrastructure	MOF Economic Survey
Livelihood	AGDP/ Agricultural labor	\$794	\$979	\$1206	\$1833	0.7% growth in agricultural labor due to: - movement towards other sectors - outmigration - reduced population growth rate 5%/yr GDP growth due to: - increased productivity, investment, infrastructure - improved practices	MOF Economic Survey
	Poverty in Rural Areas	27%	21%	16%	10%	-4.8% reduction rate/yr continue 2000 – 2010 rate of reduction	NLSS
Food and Nutrition Security	Food Poverty	24%	16%	11%	5%	-7.5% reduction rate/yr continue 2000 – 2010 rate of reduction	NLSS
	- % stunting (height for age) among under 5 children - Underweight (weight for age) among under 5 children - Wasting (weight for height) among under 5 children - Women in reproductive age with chronic energy deficiency (measured as low BMI)	41.5% stunting; 31.1% underweight; 13.7% wasting; 18% women with low BMI	29% stunting; 20% underweight; 5% wasting; 15% women with low BMI	20% stunting; 13% underweight; 2% wasting; 13% women with low BMI	8% stunting; 5% underweight; 1% wasting; 5% women with low BMI	- nutrition education - health services outreach expansion - poverty reduction	Nepal and Health Demographic Survey

Sources for Baseline:

Agricultural trade balance and Agricultural Exports: TEPC, Nepal Foreign Trade Statistics 2009/2010.

Year-round irrigation coverage, Department of Irrigation (DOI)

Soil organic matter: MFSC

Ha degraded land: MoEST, 2006. Rural Energy Policy. Ministry of Environment Science and Technology

Forest cover: MFSC

Agricultural land productivity (AGDP/ha): Based on Statistical Information of Nepalese Agriculture, MOAD, 2010/11.

Agribusiness Share of GDP: Economic Survey 2010/11.

Percent of land ownership by women/ joint ownership: UN Women

Percent of rural households covered by agricultural services and programs: Nepal Living Standard Survey

Average annual growth of AGDP: Economic Survey 2010/11.

AGDP/ Agricultural labor: Economic Survey 2010/11.

Poverty in Rural Areas: Central Bureau of Statistics

Self-sufficiency in foodgrains: Based on Statistical Information of Nepalese Agriculture, MOAD, 2010/11.

Stunting of children 0-60 months: Nepal and Health Demographic Survey

Proportion of food insecure: Nepal Living Standard Survey

4 STRATEGIC FRAMEWORK

4.1 Implications of Agricultural Transformation for ADS

171. The ADS will guide the agricultural sector of Nepal over the next 20 years. Over the course of this period, the structure of the agricultural sector in Nepal is expected to change considerably with agribusiness to grow faster than agriculture. Strong linkages between agriculture and other sectors in the economy will be critical to the reduction of poverty particularly in rural areas where the development of non-farm activities based on agriculture will be fundamental for the growth of an overall robust economy, a more balanced rural economy, and employment generation.

172. In this context, it is worth emphasizing again that the ADS looks at the agricultural sector in its complexity, and encompasses not only the production sectors (crops, livestock, fisheries, forestry) but also the processing sector, trade and other services (storage, transportation and logistics, finance, marketing, research, extension).

173. The strategy is formulated taking into account the conceptual framework of agricultural transformation of Nepal from a society primarily based on agriculture to one that derives most of its income from services and industry. This process will have profound implications for the ways the Nepali population will shape their food production and distribution systems, the development of rural areas including the rural non-farm sector, labor and land productivity, trade balance, employment and outmigration of the youth, the role of women in agriculture, and management of natural resources in the context of increasingly more severe climate change events. The ADS will ensure that the process of agricultural transformation is accelerated and molded according to the aspirations and constraints of Nepali society.

174. In this process of transformation, several things take place at the same time⁴³. The share of agriculture in GDP and labor decline, but at the same time agricultural productivity and agricultural GDP increase. So, in spite of being less as a share of total GDP, agricultural GDP is still growing bigger.

175. The implications of the lessons from the agricultural transformation experience for the ADS can be summarized as follows⁴⁴:

- (i) Accelerate investment in Science and Technology. Invest in the Knowledge Triangle – research, education, and extension (REE).
- (ii) Ensure broad-based and inclusive agricultural growth. Invest in programs to moderate social and geographic inequalities.
- (iii) Integrate smallholder farmers with competitive value chains that are able to meet the more demanding requirements of growing urban population in Nepal and abroad.
- (iv) Promote rural infrastructure and rural agro-enterprises that energize the economic texture of rural Nepal.

4.2 Agricultural Growth and Poverty Reduction

176. In resource-poor low income countries, a given rate of GDP growth due to agricultural growth reduces poverty 5 times more than does an identical dose of GDP growth due to non-

⁴³ Timmer 2007.

⁴⁴ Based on Goletti 2011

agricultural growth⁴⁵ and investment in agricultural capital stock has been found to reduce hunger⁴⁶. Agricultural investment is crucial for agricultural growth. A scenario of “business as usual” like the relatively low growth of agriculture in Nepal at 3% will have repercussion on the time needed to reduce poverty. If the low growth of the past continues, it will take more than 20 years to halve the current poverty rate of 25% (see Figure 12). With an accelerated growth of 5%, the time needed to halve poverty will be less than 10 years. ADS will promote increased investment in the agricultural sector leading to faster agricultural growth and faster poverty reduction.

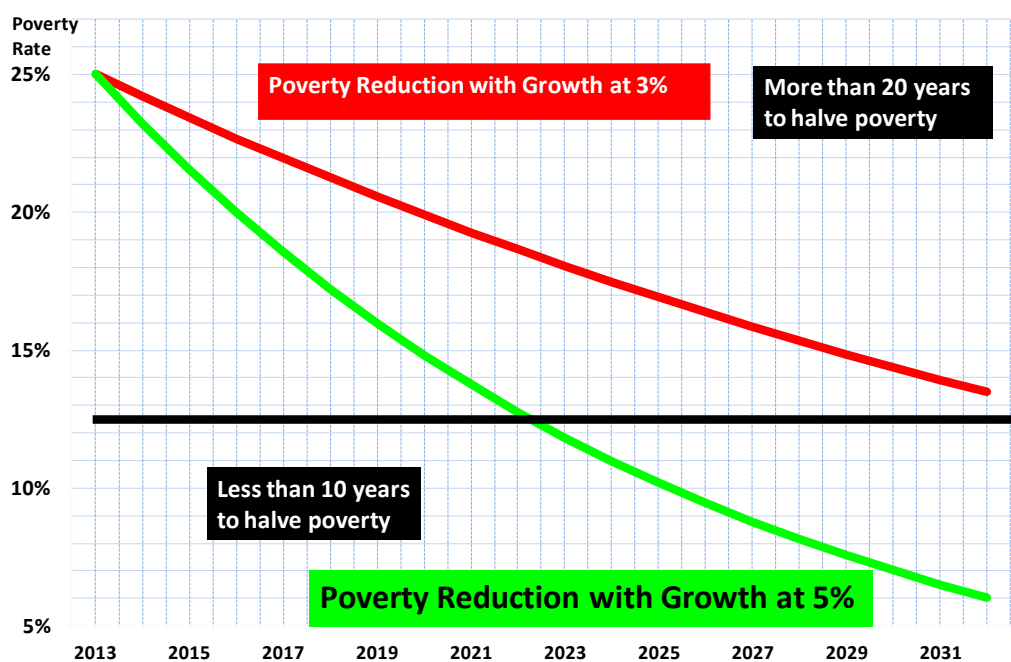


Figure 12 Growth and Poverty Reduction⁴⁷

⁴⁵ Christiansen, L., Demery, L., and Kuhl, J. 2010. The evolving role of agriculture in poverty reduction: an empirical perspective, *Journal of Developing Economics*, 96:239-254.

⁴⁶ FAO 2012. *The State of Food and Agriculture*.

⁴⁷ Based on growth poverty elasticity of -2.

4.3 The ADS Framework: Impacts, Outcomes, Outputs, Activities

In order to achieve the vision the ADS will accelerate agricultural sector growth through four strategic components including governance, productivity, profitable commercialization, and competitiveness while promoting inclusiveness (both social and geographic), sustainability (both natural resources and economic), development of private sector and cooperative sector, and connectivity to market infrastructure (eg agricultural roads, collection centers, packing houses, market centers), information infrastructure and ICT, and power infrastructure (eg rural electrification, renewable and alternative energy sources). The acceleration of inclusive, sustainable, multi-sector, and connectivity-based growth is expected to result in increased food and nutrition security, poverty reduction, agricultural trade surplus, higher and more equitable income of rural households, and strengthened farmers’ rights. Figure 13 provides an illustration of the strategic framework of the ADS.

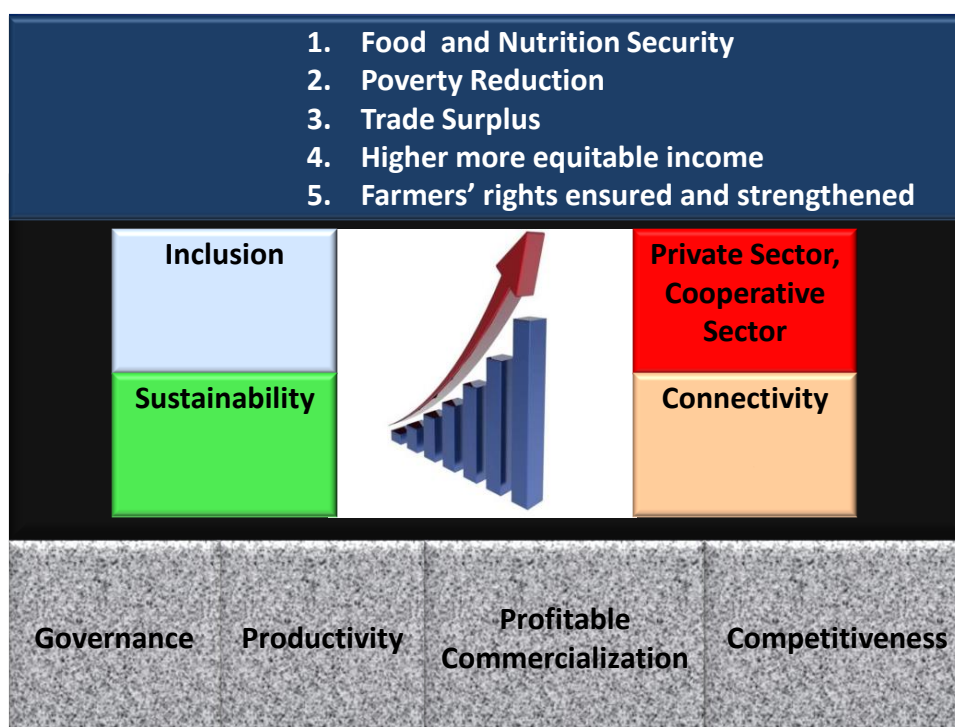


Figure 13 Strategic Framework of the Agricultural Development Strategy

177. The ADS Framework consists of a logical sequence of **impacts, outcomes, outputs, and activities**. Together this sequence is expected to contribute to the achievement of the Vision of the ADS presented in the previous chapter.

4.4 Impacts of the ADS

178. The overall impacts of the ADS consist of the five dimensions of increased food and nutrition security, poverty reduction, agricultural trade surplus, higher and more equitable income of rural households, and strengthened farmers’ rights.

4.4.1 Food and Nutrition Security

179. All outcomes, outputs, and activities of the ADS will contribute to improve food and nutrition security either directly or indirectly. At the same time, the ADS will address the food and nutrition security needs of the most disadvantaged rural population including lactating and pregnant women, janajatis, dalits, and groups in disadvantaged regions such as the Karnali. One output under the Governance Component is entirely dedicated to the improved food and nutrition security of disadvantaged groups. That output will be organized as a national flagship program (FANUSEP) that includes subprograms on Nepal Agricultural and Food Security Project (NAFSP), Food and Nutrition Security Plan of Action (FNSP), and a new comprehensive program on food and nutrition security that will be developed and started over the course of the first 5-year period of the ADS (see section 5.2.9). ADS interventions on food and nutrition security will be aligned with the recently approved MSNP.

180. Component 2 of the ADS on Productivity has an impact of food and nutrition security by (i) increasing the volume of food production in Nepal in a sustainable way through higher productivity and sustainable use of natural resources; and (ii) reducing vulnerability of farmers through improved food/feed/seed reserves, improved preparedness and response to emergencies, and climate smart agricultural practices.

181. Component 3 of the ADS on Profitable Commercialization has an impact on food and nutrition security by (i) increasing income of farmers; (ii) improving access to markets and (iii) reducing postharvest losses.

182. Component 4 of the ADS on Competitiveness has an impact on food and nutrition security by (i) improving food safety; (ii) relying upon trade for a more diversified diet; (iii) accelerating the growth of micro, small, and medium agroenterprises including those headed by women, youth, disadvantaged groups, and individuals based in disadvantaged regions.

4.4.2 Poverty reduction

183. As highlighted by the ADS framework illustrated in Figure 13 accelerated growth is crucial to the ADS. Accelerated growth of agriculture will be achieved through improved governance, increased productivity, profitable commercialization, and enhanced competitiveness. Section 4.2 has highlighted that agricultural growth is the most powerful mechanism for poverty reduction when an economy is at a low development stage. The ADS builds on this main finding and promotes additional measures to ensure that poverty is reduced through targeting disadvantaged and poor households, subsistence farmers and landless rural households; adopting a markets for the poor approach in the commercialization of prioritized value chains; and promoting micro and small agroenterprises, including those from disadvantaged areas.

4.4.3 Agricultural trade surplus

184. Nepal agriculture could be an important source of foreign exchange. The ADS promotes self-sufficiency in foodgrains and import substitution in a number of commodities where the country has a potential for growth. More importantly, Nepal has comparative advantage in a number of agricultural commodities and, with appropriate policies and investments the country could become competitive and a net agricultural exporter of high value products.

4.4.4 Higher and more equitable income of rural households

185. The ADS aims at increasing prosperity of farmers and agroentrepreneurs entrepreneurs through higher incomes, improved livelihoods, and food and nutrition security. The discussion of the relation between poverty and growth in section 4.2 has highlighted the importance of income distribution on poverty reduction: namely a more unequal income distribution will lower the impact of growth on poverty reduction. The ADS promotes inclusion of disadvantaged groups and regions and an approach to value chain development based on Markets for the Poor that emphasizes the need of more equal benefits distribution along the value chain. Similarly, the ADS promotes the growth of agroentepriises led by traditionally excluded groups such as women, youth, and other disadvantaged groups such as the Dalit and the Janajatis.

4.4.5 Strengthened Farmers’ Rights

186. The ADS provides institutional mechanisms to ensure farmers participation in the planning, decision making, implementation, and monitoring of the strategy. In particular, the ADS ensures that farmers’ representatives are part of the leading coordination mechanisms of the ADS at the center and local level; they are part of the Steering Committee of the ADS Implementation Committee; they are in the board of NARC; they are in the board of the almost 4,000 VDC-based Community Agricultural Extension Service Centers (CAESC); they are in the board of Commercial Agricultural Alliances and Value Chain Development Alliances; they are consulted when formulating policies for the agricultural sector; they are consulted when undertaking monitoring of the sector; and they are members of the Food Security Networks at the District level. By having their representatives in all these institutions, farmers will be able to ensure and strengthen their rights in the ADS.

187. Furthermore, the ADS promotes the formulation of legislation related to food rights and food sovereignty consistent with the principles of the Interim Constitution. Specific initiatives to deepen the understanding of farmers’ rights, promoting these rights, monitoring them, and protect them through institutions such as Farmers’ Commission are included for consideration in the activities of the ADS.

4.5 The Outcomes and Outputs of the ADS

188. The ADS has four main outcomes:

- Outcome 1 - Improved governance
- Outcome 2 - Higher productivity
- Outcome 3 - Profitable commercialization
- Outcome 4 - Increased competitiveness

189. Selected targets for each outcome of the strategy are presented in **Table 20**.

Table 20 Targets for the Strategic Components of the ADS

Outcome	Indicator	Current Situation	Target
Governance	Agricultural Growth	3% average annual growth	5% average annual growth
Productivity	Land productivity	\$1,804/ha	\$4,787/ha
	Labor productivity	\$794/agricultural labor	\$1,833/agricultural labor

Outcome	Indicator	Current Situation	Target
Commercialization	Marketed surplus	Less than 50% of agricultural production	More than 80% of agricultural production
	Agribusiness GDP	10% of GDP	20% of Agricultural GDP
Competitiveness	Agri-food exports	\$248 million	\$2,000 million

4.5.1 Improved Governance

190. Governance in the ADS refers to⁴⁸ “the capacity of government to design, formulate and implement policies and discharge functions.” In the absence of such capacity the ADS will not be implemented successfully. Key elements of governance include⁴⁹: accountability, participation, predictability, and transparency.

191. In spite of frequent pronouncements in support of the agricultural sector, policies to support the sector have either not been formulated or have not been implemented. Compounding the problem are the frequent changes in tenure of the key leaders for policy, program, and project implementation and also issues of consistency of policy itself. The result has been a loss of credibility in policy that is responsible in part for the failure of previous programs. In order to avoid this situation the ADS sets clear targets for the outputs of improved credibility of policy commitment and will monitor appropriately. The ADS also recognizes the complexity of the agricultural sector requiring coordination and effective planning among different agencies, different levels (central and local), and different stakeholders (government, civil society, development partners). Effective coordination and planning will key outputs to achieve the governance outcome. An implementation support unit will facilitate various institutions to implement the ADS. At the same time, the inclusion aspects of the ADS (gender, disadvantaged groups, geographically disadvantaged) will be taken into account through appropriate mechanism that also ensure participation and accountability in the planning, implementation, and monitoring of the ADS. Capacity of human resources both within the government and selected organizations in civil society (eg farmer organizations and cooperative organizations) will contribute to the overall strengthening of the governance of the ADS.

192. Without credible programs to alleviate the food and nutrition security conditions of the most disadvantaged groups, there could be hardly any credibility in the ADS and its contribution to food and nutrition security. One of the overall goals of the ADS is to improve food and nutrition security of its population. This is a long term goal towards which all the components of the ADS contribute. However, in the short term the test of governance of the ADS is the capacity of the government to meet the most urgent needs of the most disadvantaged groups. In order to respond to this governance test, a national flagship program on food and nutrition security has been included in the ADS under the governance component.

193. The Governance component is perhaps the most crucial one in order to achieve the vision of the ADS. Its effective implementation requires an improvement management based on performance and results. Measures to promote a system of results-based management will be piloted withing this component.

⁴⁸ World Bank 1992, “Governance and Development”, the World Bank

⁴⁹ ADB 1995, “Governance: Sound Development Management”, Asian Development Bank, October 1995

194. The overall outcome of improved governance in the ADS is achieved through 10 outputs as follows:

Table 21 Outputs for Outcome 1 on Improved Governance

No.	Area	Output	Description
1.1	Policy Credibility	Credibility of policy commitment	Credible and consistent policy and greater continuity in the program leadership and implementation of programs and projects consistently with promotion of farmers' rights.
1.2	Coordination	Improved coordination among institutions involved in the ADS implementation	Strengthen the capacity of existing coordination institutions and establish new mechanisms within the existing coordination institutions to address emerging needs to coordinate government agencies programs and projects with cooperative sector, private sector, farmer organizations, NGOs, and development partners.
1.3	Planning	Integrated planning	Assign to NPC the responsibility to oversee the implementation of multi-sector plans and policies, including the assurance that policies and plans are adequately budgeted.
1.4	Implementation Support	Effective implementation support	Establish an ADS Support Technical Assistance Unit under NPC to facilitate the implementation of the ADS through analytical services, monitoring and evaluation, and technical assistance.
1.5	Gender Equality and Social and Geographic Inclusion	Mechanisms established for gender equality and social and geographic inclusion in the ADS	Establish a comprehensive set of mechanisms at the policy, planning, and implementation levels to assure gender equity, social inclusion, and geographical inclusion in the ADS through capacity building of relevant institutions at the central and local level.
1.6	Monitoring and Evaluation	Timely and effective monitoring and evaluation of the ADS	Support various government units with capacity building and resources in order for them to carry out monitoring and evaluation on a timely and professional manner.
1.7	Participation and Accountability	Mechanisms established for participation of civil society in the planning, implementation, and monitoring of the ADS	Ensure that civil society including farmer organizations, cooperatives organizations, and trade/industry organizations are engaged in the ADS, have access to information, and provide comments and recommendations throughout the process of planning, implementation, and monitoring of the ADS.
1.8	HRD and Capacity Building	Enhanced capacity of key institutions involved in ADS coordination and implementation	Focused plan of capacity building and human resource development of targeted institutions to improve ADS coordination and implementation.
1.9	Food and Nutrition Security	Improved food and nutrition security of the most disadvantaged groups	Set of measures targeted to the most disadvantaged groups (socially and geographically) who are food and nutritionally insecure.
1.10	Performance-based Management System	Designed and piloted a system to reward good performance	Establish guidelines and standard operating procedures to promote and implement a system of results and performance based management.

4.5.2 Higher Productivity

195. Improved productivity of land and labor is at the cornerstone of the ADS. Agricultural productivity requires the adoption of appropriate technologies and know-how to increase efficiency and sustainability of agricultural production consistently with market demand. The measures to raise agricultural productivity include those related to (i) effective agricultural research and extension; (ii) efficient use of agricultural inputs; (iii) efficient and sustainable practices and use of natural resources (land, water, soils, and forests); and (iv) increased resilience to climate change and disasters.

196. In the ADS, the government sector will be one among other actors including private sector, cooperative sector, NGOs, leading farmers, and farmer field schools involved in the generation and dissemination of technology. The government sector however has a key role in coordinating the efforts of other actors, facilitating implementation of policies and plans, monitoring performance, and enforcing regulations.

197. The ADS recognizes that already a number of actors are involved in agricultural extension and over time their presence will become even more important. Rather than advocating a massive increase of human resources in the public extension service, the ADS promotes capacity building of existing government human resources and the transformation of their role from delivery of extension services to overall facilitator of agricultural extension services. This role change will be accompanied by a greater emphasis on the delivery at the VDC level, where Community Agricultural Extension Service Centers (CAESC) will be established.

198. The ADS also recognizes the critical importance that farmers' access and control of the means of production – primarily land – has for the success of the strategy. Critical land issues such as tenancy, fragmentation, degradation, land use planning need to be resolved over the course of the ADS and their resolution will require the participation of the farmers' organizations, cooperatives, and private sector in order to find equitable and efficient mechanisms for enhancing land productivity. Land productivity increases should be reflected in increased benefits for the farmers and the livelihoods of the rural households. Moreover, given the dominance of smallholder farmers in the agrarian structure of Nepal, promotion of farmer organizations and cooperatives will be fundamental to achieve economies of scale in marketing, finance, and logistics.

199. Productivity enhancement will also depend on timely availability of quality inputs. The ADS recognizes that in the long term productivity and competitiveness of the agricultural sector depend on the access and adoption to improved technology and effective management of natural resources and other inputs to achieve total factor productivity increase. While subsidies may be an expedient approach in the short term to address targeting issues or market failures, in the long term they are not a viable, efficient, or effective solution to sustainable improvement of productivity. The ADS will focus on generation and adoption of sustainable technologies and practices and will pilot a voucher system to empower farmers in their choice of inputs and extension services.

200. The overall outcome of improved productivity in the ADS is achieved through 13 outputs as follows:

Table 22 Outputs for Outcome 2 on Higher Productivity

No.	Area	Output	Description
2.1	Extension	A decentralized extension system responsive to farmers and agroenterprises' needs	Promote participation of private sector, cooperative sector, NGOs, and public sector in agricultural extension and adopt of a pro-poor decentralized extension system approach to dissemination and adoption of innovative and demand-oriented technology and know-how.
2.2	Research	A decentralized research system responsive to farmers and agroenterprises' needs	Restructure NARC with focus on decentralization and responsiveness to research needs of farmers and agroenterprises while fostering linkages within the Research-Education-Extension triangle.
2.3	Education	A strengthened agricultural education system	A comprehensive package of measures to ensure closer integration with research and extension, improved capacity of the university, agricultural colleges, and vocational schools, and better response to the needs of farmers and agroenterprises.
2.4	Land	A farming sector composed of adequately sized farms that use land efficiently and sustainably	Improve land use management and planning to promote a farming sector composed of adequately sized owner-operated, larger-size cooperatives and agro-business farms that use land efficiently and sustainably.
2.5	Irrigation	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	Expand irrigable area by the most economic and equitable means while increasing irrigation efficiency and intensity, and improving irrigation management.
2.6	Agricultural Inputs	Timely access to quality agricultural inputs at affordable price.	Formulate and adopt consistent policies for input supply and distribution.
2.7	Seeds	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	Ensure effective implementation of existing policies through sufficient investment in resources and capacity building.
2.8	Fertilizer	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.	Maintain fertilizer and other subsidies at 2011 level in the short term, review them in the medium term and remove them in the long term while initiating a number of measures to improve productivity and fertilizer use efficiency, promote organic/biofertilizer as supplementary and complementary to chemical fertilizer, and facilitate effective distribution and supply to meet demand.
2.9	Animal breeds	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	Ensure the desired level of improved breeds of livestock, poultry, and fish.
2.10	Mechanization	A range of mechanization options accessible to	Support private sector led mechanization with awareness creation, demand stimulation,

No.	Area	Output	Description
		farmers through the private sector.	concessionary financing arrangements, capacity building, and taxation.
2.11	Farmers' Resilience	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	Increase resilience of farmers to climate change events, disasters, and idiosyncratic shocks through the combination of measures such as adoption of stress tolerant crop and animal species, establishment of early warning systems (EWS), access to Farmers' Welfare Fund, food and seed reserves system, and climate smart agricultural practices.
2.12	Sustainable farming and GAP	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry practice (GVAHP) are established and adopted.	Establish Good Agricultural and Veterinary Practices standards and promote adoption of good practices in integrated soil fertility, plant nutrients, pest management, and herd management while promoting renewable energies based on biogas and biomass utilization.
2.13	Forestry	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	Develop subsistence production based forestry into a competitive, agriculture friendly and inclusive forest management practices in line with a holistic and community based landscape approach to natural resource management and livelihoods improvement.

4.5.3 Profitable Commercialization

201. The outcome of profitable commercialization in the ADS is part of the overall process of transforming the agricultural sector from a substantial proportion of farming carried out solely for subsistence, and by default (i.e. no other livelihood or household food security options are available to the household), into a sector in which the vast majority of farming is carried out for commercial purposes and is connected to the local, national, and international markets.

202. This transformation towards a more commercialized agriculture requires a set of measures that focus not only on farmers, but, fundamentally on agroenterprises involved in the commercialization of agricultural products and services. These enterprises include input providers, producer companies, marketing cooperatives, storage operators, logistic companies, agroprocessors, importers and exporters of agricultural and food products, distributors, traders, and agricultural service providers (including financial service providers, insurance providers, business service providers).

203. Profitable commercialization requires the combination of a number of measures such as an enabling investment climate and a number of reforms to strengthen contractual arrangements, taxes, and financial services to promote an efficient commercial agriculture. The ADS also emphasizes the need of prioritizing a number of value chains to ensure they achieve scale

economies and therefore have national income and employment impact. Finally, the ADS supports the improvement of physical and institutional infrastructure to promote commercial agriculture (agricultural roads, market information and market intelligence systems).

204. The overall outcome of profitable commercialization in the ADS is achieved through 8 outputs as follows:

Table 23 Outputs for Outcome 3 on Profitable Commercialization

No.	Area	Outputs	Description
3.1	Investment Climate	Improved investment climate for agricultural commercialization	Improved investment climate for agricultural commercialization through structured dialogues of the government with farmer organizations, trade organizations, cooperative organizations, and other private sector organizations.
3.2	Contracts	Contractual arrangements for commercial agriculture	Contractual arrangements for commercial agriculture, including contract farming, land leasing, equipment leasing, and secured transactions for warehouse receipts.
3.3	Taxes	Tax policy that supports an efficient commercial agricultural sector	Tax policy that supports an efficient commercial agricultural sector with the long term objective of agricultural sector providing the government with an additional source of revenues.
3.4	Finance and insurance	A variety of competitive and demand-driven financial and agricultural insurance products.	Diverse agricultural finance and insurance providers that supply a variety of competitive and demand-driven financial and agricultural insurance products.
3.5	Value Chains	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	A prioritized group of 5 value chains leading to national program to development competitive agricultural value chains that increase value added and benefits to smallholder farmers
3.6	Roads	Rural roads network expanded.	Rural roads network expanded.
3.7	Market Intelligence	Agricultural market information and ITC products for market intelligence.	Agricultural market information and ITC products for market intelligence.
3.8	Rural Electrification	Expanded rural electrification and renewable energies.	Rural electrification and renewable energies (water, solar, wind, biomass, biogas).

4.5.4 Increased Competitiveness

205. Accelerated agricultural growth represents the best way out of poverty for the millions in Nepal still living below the poverty line. Agricultural-based growth is 2 to 3 times more effective at reducing poverty than similar level of growth originating from other economic sectors. Experience from Asian economies has demonstrated that one of the most successful ways to stimulate growth in agriculture is by creating an enabling investment climate for agricultural

entrepreneurs and by creating increased access to the critical knowledge and inputs needed to achieve higher levels of productivity. For growth to be sustainable it needs to be rooted in structural changes and improvements that do not evaporate with fluctuations in global prices, disappear after a bad monsoon or depend on concessional external funding. The ADS has consequently placed its core focus on *competitiveness*. Competitiveness is founded on: a competent, hard-working and efficient work force; a clear understanding of what makes Nepal unique in the global market place; and, the determination and entrepreneurship to maximize productivity and innovate with new products and processes based on the country’s natural endowments.

206. To achieve this vision, the energy and inventiveness of the private sector is essential. Since the design of the APP, many years ago, the private sector in Nepal has made considerable investments in agriculture and created thousands of sustainable jobs and incomes; the poultry sector has made dramatic improvement in productivity and is a well-organized industry, nursery investors in Banepa reach out to 20,000 farmers and collectors of medicinal herbs, commercial milk production is gradually replacing subsistence dairy, and the dramatic expansion of the vegetable sector is the product of small and medium investments in sustainable supply chains that link primary producers with viable markets. This emergence of the private sector in agriculture is no casual accident; it is happening on a global stage as well as in India, Bangladesh and Pakistan. The age of communications and better education has enabled Nepali producers to learn better practices and access market information, while stability, rising market prices for land and remittances have created the disposable cash to make these investments.

207. These changes demand an approach to agricultural promotion and competitiveness that acknowledges the vital role of the private and cooperative sector, without conceding the critical function of the government to oversee, regulate and facilitate growth that is both competitive and pro-poor. This blending of private and cooperative sector energy and innovation with the steady hand of government to ensure positive public outcomes is often called public-private partnerships. The essence of these partnerships is to create some form of “*additionality*” that would not have been possible without the other’s involvement. From the public point of view it affords the opportunity to leverage its funds and channelize outcomes while for the private and cooperative sector the addition of public funds reduced the perceived exposure to investing in high-risk high-potential projects.

208. The overall outcome of increased competitiveness in the ADS is achieved through 4 outputs as follows:

Table 24 Outputs for Outcome 4 on Increased Competitiveness

No.	Area	Output	Description
4.1	Market Infrastructure	Market infrastructure developed	Market infrastructure developed through the combination of public investment, PPP and community participation, focused on the development of prioritized value chains
4.2	Innovation	Growth of innovative small and medium agribusiness enterprises	Growth of innovative small and medium agribusiness enterprises through the combination of tax incentives, innovation matching grant funds, and agribusiness incubators.

No.	Area	Output	Description
4.3	Export Promotion	Growth of food and agricultural products exports	Growth of food and agricultural products exports through stronger trade negotiation capacity; capacity to apply and comply with SPS, AD, and CVD measures; reduced/eliminated pro-manufacturing bias in tariff structure; and the policy of pegged exchange rate with India and its impact on the agricultural sector reviewed and assessed.
4.4	Quality and Safety	Enhanced food safety and quality	Enhanced food safety and quality standards, effective regulations and institutions.

4.6 ADS, Decentralization, and the new Federalist Structure

209. The emphasis of the strategic approach on inclusion and the governance pillar of the ADS have implications for two key dimensions which subsume the implementation of the ADS, namely decentralization and agroecological diversity.

210. The ADS will strongly support the implementation of the Local Self-Governance Act of 1999. Participatory planning at the local level will be essential to ensure identification of investments that are responsive to the local needs and accountability to the local communities. The new guidelines by the Ministry of Finance in Budget Speech 2011/2012 indicating a 15% investment in agriculture provide a new impetus for the involvement of the local government in agricultural investment.

211. A new administrative structure of Government Nepal, envisaging the possibility of a Federalist Structure is still under discussion by political forces. The formulation that is being prepared by the ADS Team is based on the existing administrative structure and might require some modification in the new administrative structure that will emerge in the future. In which case, the ADS Implementation Support Unit will be in charge of making the necessary revisions and submit to GON for approval.

212. The ADS current formulation is in harmony with the principles of decentralization, local self-governance, and participatory planning that are likely to remain present in the future. For example, the ADS is promoting the establishment of community-based and management agricultural extension centers or CAESC (see section 7.17.1); moreover, the ADS supports capacity building of regional and district agricultural development committees (see section 5.2.2).

4.7 ADS and Agroecological Diversity

213. Given the rich agroecological diversity of Nepal, investment programs will need to be tailored not only to the needs and potential of different communities but also to their different agroecological conditions. For example, in the design of irrigation projects, the conditions of terai, hills, and mountainous areas differ markedly and technological solutions will need to be adapted. Similarly, the approach to value chain development will require taking into consideration the geographical nature of the supply chain, from production areas to consumption or export destinations. In several areas of the hilly and mountainous areas of Nepal, commercialization of agriculture is not viable due to a number of factors including very poor infrastructure, difficult terrain, and agroclimatic conditions. Because of such diversity, even though the ADS will be one national strategy, its implementation at the local level will take into consideration specific

agroecological and socioeconomic conditions. The presence of Community (VDC-based) Agricultural Extension Service Centers (CAESC) will ensure that the local conditions and agroecological conditions are taken into account. The development and dissemination of productivity enhancing technologies and systems appropriate to subsistence agriculture will be a task for the research and extension system (see ADS Component 2 on Productivity).

214. The national programs of the ADS will coexist with local programs that are funded by local agencies (eg VDC, community based organization), private sector and cooperatives and integrated with national programs. The ADS will encourage local government to establish and fund local programs that address the specific local needs that cannot be addressed by national programs. In addition to the funding from the local agencies, additional sources of funding to local programs could be raised through application to various funds such as the Nepal Agricultural Research Fund (see section 5.3.2) and various funds for innovation and agroentrepreneurship of enterprises, youth, women, disadvantaged groups, and disadvantaged areas (see section 5.5.2).

4.8 ADS and Socioeconomic Diversity of Farmers

215. A simple way⁵⁰ to classify rural population is to consider three groups: (i) small commercial farmers; (ii) subsistence farmers; and (iii) landless or near landless. The first group of **small commercial farmers** includes those with holdings of 1.0 to 5.0 hectares, selling more than 30 percent of their output, ready for high intensity and high input agriculture, and also ready to participate in value chain development. These rural households 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 families⁵¹, 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 ADS 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 25 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

⁵⁰ The farm size thresholds considered in the simple classification should be adjusted for different agroecological zones and soil characteristics. Without going into considerable detail, the main point driven in the discussion is that different types of farmers, broadly classified in terms of farm size, require different approaches in the ADS.

⁵¹ This is based on Agricultural Census figures for land distribution in 2001. More recent comprehensive data are not available. However, the main arguments presented in this section will still be robust to slight changes in the land distribution.

216. The second category includes the **subsistence farmers** 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.

217. The third category includes 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 or other high value production – 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 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.

218. 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.

219. **The ADS recognizes the need of adapting approaches to different agroecological areas and different farm categories.** The promotion of community extension service centers in each VDC of Nepal will assure that the localized needs of farmers and agroenterprises are met by the extension system. At the same time, even within the same agroecological zone, the needs of commercial, subsistence, and landless farmers will be different. While the commercial development of value chains will involve primarily small commercial farmers, cooperative farming could be a favored approach for subsistence farming. Vouchers for extension services might be primarily used by commercial farmers, whereas vouchers for input might be targeted primarily to subsistence farming. Commercial banking will be more appropriate for commercial farmers and microfinance more appropriate for subsistence farming.

220. The ADS promotes a decentralized approach to science and technology and empowers communities to reorient the extension, research, and education system to meet their needs. The services covering the small commercial farmer will be generally inappropriate to the subsistence farmer, and in the context of institutions keyed to the small commercial farmer (eg value chains) the subsistence farmer will be left out except for those very few who can respond to the approaches suitable for the small commercial farmer. Therefore the ADS through its community based extension service centers (the CAESC) will promote approaches suitable to both subsistence and commercial farmers. The landless rural households will be benefiting from the ADS indirectly, through the employment opportunities expanded in the rural non-farm sector and the growth of agriculture-based enterprises.

221. Eventually, over the course of the ADS twenty-year implementation, the process of agricultural transformation will proceed and an increasing number of rural households will find employment either in the rural non-farm sector or in the urban sector; a considerable number of

rural household will also continue to migrate outside the country pulled either by higher income opportunity or pushed by the lack of profitable employment and attractive livelihood in the rural areas. Through either processes, the commercialization of the agricultural sector in Nepal will increase but commercial agricultural in Nepal will remain primarily a smallholder activity (namely farmers with less than 2 ha of land). Subsistence farming will continue to coexist with commercial farming for a long time, but its share of the total farming population will decline. The ADS will accelerate the process of commercialization, improving the income of the small commercial farmers and the livelihoods of the subsistence farmers, while generating growth and employment in the non-farm sector to absorb the increasing number of landless/marginally landless.

222. Table 26 shows the impact of different outputs of the ADS on the three groups of farmers (commercial, subsistence and landless). Commercial farmers are directly affected by most of the ADS measures and in some cases, the impact is direct and very strong, for example in the case of irrigation, mechanization, value chain development, and exports. Subsistence farmers are also directly affected by most ADS measures. The direct effect is very strong in the case of the ADS measures related to gender, social, and geographical inclusion; land (eg addressing the issues of tenancy, land leasing, cooperative farming, reversing the trend towards degraded land); access to quality and timely inputs (eg vouchers targeted to subsistence farmers, improved resilience); and access to microfinance and agricultural insurance. Landless or near landless will benefit from the ADS measures related to gender and social/geographic inclusion; access to forestry products; and growth of small and medium enterprises.

Table 26 Impact of ADS on different farm-size rural households

OUTCOME/Output	Commercial Farmers	Subsistence Farmers	Landless or near landless
GOVERNANCE			
Credibility of policy commitment	*	*	*
Improved coordination in ADS implementation	*	*	*
Integrated planning	*	*	*
Effective implementation support	*	*	*
Mechanisms established for gender equality and social and geographic inclusion	*	***	***
Timely and effective monitoring and evaluation	*	*	*
Mechanisms established for participation of civil society	*	*	*
Enhanced capacity of key institutions involved in ADS coordination and implementation	*	*	*
Improved food and nutrition security of disadvantaged groups	*	**	***
Performance-based Management System Established	*	*	*
PRODUCTIVITY			
Decentralized agricultural extension services	**	**	*
Decentralized agricultural research system	**	**	*
Strengthened agricultural education system	**	**	**
Adequately sized farms that use land efficiently and sustainably	**	***	*
Expanded and improved irrigation	***	**	*
Access to agricultural inputs	**	***	*
Implementation of seed policies	**	***	*
Fertilizer supply	**	***	*
Improved animal breeds	**	***	**

OUTCOME/Output	Commercial Farmers	Subsistence Farmers	Landless or near landless
Mechanization options accessible	***	**	*
Improved resilience of farmers	**	***	*
Sustainable farming, GAP, and GVAHP adopted	**	**	*
Forestry development	*	**	***
PROFITABLE COMMERCIALIZATION			
Improved investment climate	*	*	*
Contract arrangements for commercial agriculture	**	**	*
Tax policy to support commercial agriculture	**	*	*
Agricultural finance and insurance	**	***	*
Competitive agricultural value chains	***	**	*
Rural roads network expanded	**	**	**
Agricultural market information	**	**	*
Rural electrification and renewable energies	**	**	**
COMPETITIVENESS			
Market infrastructure developed	**	**	*
Growth of small and medium agro-enterprises	**	**	***
Growth of food and agricultural products exports	***	**	*
Enhanced food quality and safety	**	**	**

Note: * Indirect impact; ** Direct impact; *** Direct impact – Very high

4.9 ADS and Urbanization

223. Nepal urban population reached 17% of the total in 2011 and was increasing at a annual rate of 3.38%, more than three times the growth (1.03%) of the rural population. Over the next 20 years, this demographic change will have enormous repercussions for Nepalese society and the agricultural sector in particular. If current trends continue, by the end of ADS period, more than a quarter of the Nepal population will be living in urban areas.

224. Increasing urban population translates not only in increasing urban food demand, but also in growing demand for a more diversified diet (away from grains), more stringent requirements for food safety, an increasing awareness and expectation of quality nutrition, and the need of large investments for the food logistics necessary to move food from rural areas around the world to the cities.

225. The ADS address these challenges through the development of competitive value chains that are better able to meet the diversified demand of an urban population and also the development of value chain infrastructure to reduce postharvest losses. The ADS is also promoting the enhancement of quality and safety assurance system that are needed not only to penetrate foreign markets but also to protect the domestic population from a number of food safety hazards. Albeit focused primarily on the of the food insecurity of the rural population, some of the interventions in nutrition awareness will also have a positive spillover effect on urban areas.

226. At the same time, urban poverty and inequality between rural and urban income might become more pronounced. Urban poverty often is associated with food poverty and undernutrition; increasing inequality often leads to social tension and puts pressure on providing quick solutions such as food subsidies and public food distribution to the urban poor.

227. Rapid urbanization results in the loss of some of the most fertile agricultural land found in periurban areas throughout Nepal (“land plotting”); solutions to promote urban food production through land use planning and zoning to preserve agricultural land around the cities face enormous opportunity costs. Because of rising urban population and the loss of periurban agricultural land, food security becomes an additional challenge for urban planning.

228. The ADS has recognized the issue of land plotting and loss of fertile agricultural land in peri-urban areas and will strongly support the implementation of the recent policy on Land Use Planning.

229. Food safety events due to a number of foodborne zoonotic and non-zoonotic diseases can rapidly spread in urban environments. At the same time, nutritional unbalances are more pronounced in urban areas where undernutrition, particularly of the poor, coexists with malnutrition (associated to a sedentary lifestyle and resulting in obesity and a number of non communicable diseases) of the non-poor.

230. The ADS will help improve surveillance system for zoonotic diseases, improved diagnostic capacity and testing, and improved response capacity.

5 ACTIVITIES OF THE ADS ACTION PLAN

5.1 The Framework of Outcomes, Outputs, and Activities

231. In the ADS logical framework, the sets of activities are those which are required to achieve the desired outputs. In ADS there are 35 outputs (see Table 27) under 4 outcome groups, and there are 225 individual actions required to achieve the outputs.

Table 27 Outcomes and Outputs of the ADS

Outcome	No	Output
1. Improved Governance	1.1	Credibility of policy commitment
	1.2	Improved coordination among institutions involved in the ADS implementation
	1.3	Integrated planning
	1.4	Effective implementation support
	1.5	Mechanisms established for gender equality and social and geographic inclusion in the ADS
	1.6	Timely and effective monitoring and evaluation of the ADS
	1.7	Mechanisms established for participation of civil society in the planning, implementation, and monitoring of the ADS
	1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation
	1.9	Improved food and nutrition security of most disadvantaged groups and rights to food
	1.10	Performance-based management system with rewards to the performers established
2. Higher Productivity	2.1	A decentralized extension system responsive to farmers and agroenterprises' needs
	2.2	A decentralized research system responsive to farmers and agroenterprises' needs
	2.3	A strengthened agricultural education system
	2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably
	2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.
	2.6	Timely access to quality agricultural inputs at affordable price.
	2.7	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.
	2.8	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.
	2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.
	2.10	A range of mechanization options accessible to farmers through the private sector.
	2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.
	2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry practice (GVAHP) are established and adopted.
	2.13	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.
3. Profitable Commercialization	3.1	Improved investment climate for agricultural commercialization
	3.2	Contractual arrangements for commercial agriculture
	3.3	Tax policy that supports an efficient commercial agricultural sector
	3.4	A variety of competitive and demand-driven financial and agricultural insurance products.
	3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises
	3.6	Rural roads network expanded.
	3.7	Agricultural market information and ITC products for market intelligence.
	3.8	Expanded rural electrification and renewable energies.
4. Increased Competitiveness	4.1	Market infrastructure developed
	4.2	Growth of innovative small and medium agribusiness enterprises
	4.3	Growth of food and agricultural products exports
	4.4	Enhanced food safety and quality

5.2 Activities Related to Outcome 1: Improved Governance

232. Outcome 1 of the ADS is Improved Governance. The outcome is achieved through 9 outputs and 42 activities illustrated in Table 28 and detailed in the following sections.

Table 28 Activities related to Outcome 1 on Improved Governance

Outcome	Output	Action	
1			Improved Governance
	1.1		Credibility of policy commitment
		1.1.1	Conduct awareness campaigns on ADS
		1.1.2	Ensure ADS monitoring covers issues of policy consistency and program continuity
		1.1.3	Formulate and enact regulations to facilitate longer tenure for key ADS positions
		1.1.4	ADS 5-yearly review
		1.1.5	Promote policy and legislation changes to ensure implementation of the ADS
		1.1.6	Develop mechanisms to promote farmers' right
	1.2		Improved coordination in ADS implementation
		1.2.1	Formulate amendments of the regulations for the establishment of NADSCC and CADIC
		1.2.2	Strengthen the capacity of NADSCC
		1.2.3	Establish subcommittees of NADSCC and ensure they meet regularly
		1.2.4	Strengthen the capacity of Central Agricultural Development Implementation Committee (CADIC)
		1.2.5	Promote similar meetings of the RADC and DADC
		1.2.6	Prepare Annual Sector Report
		1.2.7	Develop ADS Implementation Guidelines and Monitoring System
	1.3		Integrated planning
		1.3.1	Ensure integration of multi-ministry plans
		1.3.2	Ensure integration of long-term plans with annual workplans and budget
		1.3.3	Ensure regular monitoring of plans
	1.4		Effective implementation support
		1.4.1	ADS Implementation Support TA under MOAD to facilitate implementation
	1.5		Mechanisms established for gender equality and social and geographic inclusion
		1.5.1	Strengthening of the Gender Equity and Environmental Division (GEED)
		1.5.2	Generation and maintenance of national level GESI-based and geographic inclusion-based statistics
		1.5.3	Establishment and strengthening of GESI staff at central department and at district level agencies
		1.5.4	Enhancement of qualitative and quantitative aspects of participation of men and women farmers
		1.5.5	Making the agricultural extension service GESI responsive in all districts
		1.5.6	Improvement in access of farmers
		1.5.7	Promotion of GESI responsiveness in agricultural research
		1.5.8	Develop a GESI strategy
	1.6		Timely and effective monitoring and evaluation
		1.6.1	Strengthen the capacity of Monitoring and Evaluation units of central and district level
		1.6.2	Establish an appropriate methodology and system to carry out systematic ADS monitoring and evaluation
		1.6.3	Monitoring and Evaluation of Food and Nutrition Security (institutionalization of NEKSAP)
		1.6.4	Conduct Agricultural and Livestock Census
		1.6.5	Conduct joint M&E missions including GON and development partners
	1.7		Mechanisms established for participation of civil society
		1.7.1	Establish and maintain an ADS website both in Nepali and English
		1.7.2	Establish an ADS Information Desk under the Planning Division
		1.7.3	Establish similar ADS information desks at regions and districts
		1.7.4	Periodic presentation of ADS Monitoring and Evaluation Report to civil society
	1.8		Enhanced capacity of key institutions involved in ADS coordination and implementation
		1.8.1	Capacity needs assessment
		1.8.2	Formulate a plan of capacity building of key institutions
		1.8.3	Implementation and monitoring of capacity building
		1.8.3.1	Conduct capacity building for GON institutions
		1.8.3.2	Conduct capacity building for Farmers' Coalition, Private Sector Organizations, and National Cooperative Federation
		1.8.4	Evaluate organizational reform of MOAD and related departments
		1.8.5	Establish Policy Analysis Division at MOAD
	1.9		Improved food and nutrition security of most disadvantaged groups
		1.9.1	Design targeted food and nutrition security program

Outcome	Output	Action	
		1.9.2	Implement targeted national food and nutrition security program
		1.9.3	Implement NAFSP
		1.9.4	Implement FNSP
		1.9.5	Coordinate with ongoing food and nutrition security projects (eg Feed the Future) and multisector initiatives on nutrition and poverty alleviation
		1.9.6	Review of NAFSP, FNSP, and other food and nutrition security projects
		1.9.7	Strengthen the capacity of the central and district food security coordination mechanisms
		1.9.8	Promote formulation of Rights to Food and Food Sovereignty Legislation and monitor their implementation
	1.10		Performance-based Management System Established
		1.10.1	Establish guidelines and standard operating procedures
		1.10.2	Conduct a pilot program on performance-based management system
		1.10.3	Evaluate the pilot and make recommendations

5.2.1 Activities related to Output 1.1 on Credibility of Policy Commitment

233. **Conduct awareness campaigns about ADS.** The campaigns will be intensive during the initial period of the ADS (say the first 2 years) and more regular during the remaining period of the ADS. The campaigns will include:

- a. Preparation and widely distribution of ADS Report (in Nepali and English).
- b. Preparation and widely distribution of ADS newsletters.
- c. Presentations about the ADS at the central level and at the district level (1 presentation per quarter over the first 2 years and 1 presentation every 6 months in the following years).
- d. Conduct regular (quarterly) press/media releases from MOAD on ADS.

In all the material and information disseminated throughout these campaigns, the message of policy credibility, including consistency and continuity, will be highlighted as a critical factor to the success of ADS.

234. **Ensure that the annual monitoring of ADS covers the issues of policy consistency and policy/program continuity** that might have arisen during ADS implementation. Make monitoring reports widely available through internet, annual ADS conference, reports dissemination, etc. Whenever major breaches in policy consistency and policy/program continuity are detected, proposals for remedial actions should be proposed by the ADS Implementation Support Unit and other stakeholders and discussed in the CADIC and NADSCC subcommittees related to the ADS.

235. **Formulate and enact regulations that facilitate longer tenure for key positions in the ADS implementation.** Such positions might include Secretary MOAD, Joint Secretary Planning MOAD, DG of departments (DOA, DLS, DFTQC), Program/Project Directors. The length of tenure for these positions should be at least 3 years. The length of the tenure of these positions should be monitored to ensure that staff assigned to these positions could complete their expected tenure. The Policy Division of MOAD will formulate a draft of the regulation and then submit it to NPC for review and endorsement.

236. **Review, assess, and update (if necessary) ADS every 5 years.** The review and assessment will be led by NPC chairing the ADS Implementation Support Steering Committee that includes representatives of relevant agencies and civil society stakeholders. The review and evaluation will be conducted by an independent panel selected by the ADS Implementation Support Steering Committee. The review and assessment will include a section on policy credibility, and highlight

the two issues of consistency of policy implementation with the ADS and continuity in policy and program implementation. The recommendations of the review and evaluation panel will be evaluated by the ADS Implementation Support Steering Committee who will make the final decisions regarding the need of updating or adjusting specific parts of the ADS.

237. Promote policy and legislation changes to ensure implementation of the ADS. The National ADS Implementation Committee (NADSIC) and the National ADS Coordination Committee (NADSCC) will be charged with the implementation and coordination of the ADS and to promote changes to ensure implementation of the ADS (see section 7.6 and 7.8) consistently with policy commitments.

238. Develop mechanisms to promote farmer rights in the ADS. Although farmers' rights can be assured only through the constitution and legislation, the ADS will commission studies to help a better understand of farmers' rights that could lead to the formulation of concrete proposals for adoption by GON. The studies will include:

- a. Conceptualization of farmers' rights in Nepal and their assessment
- b. Identification of gaps in farmers' rights as provided by existing legislation
- c. Recommendations regarding legislation needed
- d. Monitoring farmer's rights in Nepal
- e. Formulation of a proposal for Farmers' Commission in Nepal. The Farmers' Commission might be a permanent commission to protect and promote farmers welfare and rights in order to achieve the essence of Vision of ADS.
- f. Review and make recommendations for possible revision of existing policies and laws related to the use of natural resources and farmers' rights over natural resources.

5.2.2 Activities related to Output 1.2 on Improved Coordination among Institutions involved in the ADS Implementation

239. Formulate amendments of the regulations for the establishment of NADSCC and CADIC to ensure that: (i) subcommittees of NADSCC are established; (ii) the MOAD Secretary is elected as NADSCC Secretary ex-officio; and (iii) representatives of the farmer organizations, cooperatives, and private sector are among the members of NADSCC, CADIC, RADC, and DADC.

240. Strengthen the capacity of National ADS Coordination Committee (NADSCC). Provide a Secretariat through the ADS Implementation Support Unit to organize meetings, prepare agenda and minutes, and distribute documents. Also ensure that quarterly meetings are held and allocate resources for participants to the meetings. Put announcement of meetings on the ADS website and publish minutes of the meetings on the website as well.

241. Establish subcommittees of NADSCC and ensure they meet regularly (at least quarterly). Provide a Secretariat through the ADS Implementation Support Unit to organize meetings, prepare agenda and minutes, and distribute documents. Also ensure that quarterly meetings are held and allocate resources for participants to the meetings. Put announcement of meetings on the ADS website and publish minutes of the meetings on the website as well. The subcommittees will include:

- a. Subcommittee between agriculture and irrigation
- b. Subcommittee between government sector, private sector, cooperative sector, and farmer organizations
- c. Subcommittee between government sector and NGOs/INGOs
- d. Subcommittee between government and development partners

- e. Subcommittee between Research-Extension-Education institutions
- f. Subcommittee between Food Security, Nutrition, and Food Safety initiatives

242. **Strengthen the capacity of Central Agricultural Development Implementation Committee (CADIC).** Provide a Secretariat through the ADS Implementation Support Unit to organize meetings, prepare agenda and minutes, and distribute documents. Also ensure that quarterly meetings are held and allocate resources for participants to the. Put announcement of meetings on the ADS website and publish minutes of the meetings on the website as well.

243. **Promote similar meetings of the RADC and DADC and ensure that the outcome of the regional and district meetings reach the central committee of CADIC for further action.** Assign a staff of the Implementation support Unit to follow up with the outcomes of the RADC and DADC.

244. **Prepare Annual Sector Report** on ADS by CADIC to NPC with assistance of Implementation Support Unit. Ensure the report is on the ADS website.

245. **Develop ADS Implementation Guidelines and Monitoring System** with the support of the ADS Implementation Support Unit to be widely disseminated and adopted by central, regional, and district agencies and organizations.

5.2.3 Activities related to Output 1.3 on Integrated Planning

246. **Ensure integration of multi-ministry plans,** through amending the National Planning Commission Formation and Operation Order, 2067 (2010) by stipulating that:

- i. The NPC has the primary responsibility to coordinate and integrate sector plans and budgets of one Ministry that have an impact on or are impacted by the programs of another sector.
- ii. The NPC shall present a report to the Parliament, together with the budget proposal of the Government on the manner in which sectoral plans that impact more than one Ministry are synchronized and impacted in the workplans and budget requests of the Ministries.

247. **Ensure integration of long-term plans with annual workplans and budget** through amending the National Planning Commission Formation and Operation Order, 2067 (2010) to the effect that NPC is assigned with responsibility also for:

- i. The verification that 5-year plans are compatible with national and regional long-term strategies policies and plans;
- ii. The verification that annual plans and budget allocation are compatible with the 5 year plans; and,
- iii. The obligation to notify Government and Parliament of any deviation thereof.

248. **Ensure regular monitoring of plans** through effective use of existing policy level coordination forums of the National ADS Implementation Committee (NADSIC) chaired by the Minister of MOAD for projects that are primarily implemented by the MOAD and the National Development Action Committee (NDAC) chaired by the PM – by:

- i. Convening the NADSIC and NDAC as per regulations (every 2 and 4 months respectively at least);
- ii. Establish by Government Order under the Good Governance (Management and Operation) Regulations, 2009 that MDAC and NDAC annually report on the implementation of plans to the Government.

5.2.4 Activities related to Output 1.4 on Effective Implementation Support

249. **An ADS Implementation Support TA under MOAD to facilitate implementation of the ADS** through (i) capacity building in policy analysis, policy harmonization, and regulatory framework; (ii) monitoring the ADS implementation status and helping to adjust the strategy as per the developmental stage of the sector; (iii) reviewing and evaluating the concept of sector wide approach (SWAP⁵²) for Agricultural Sector to enhance better coordination and increase flow of investment in the sector; (iv) developing and institutionalizing performance-based management system; and (v) assisting various coordinating mechanisms (NADSCC, CADIC, DADC) with analytical information and advisory services, including preparation of annual ADS report by CADIC to NPC.

250. The Agricultural Development Strategy (ADS) Implementation Support Program (AISP) aims to provide continuity of technical support to Government of Nepal (GON) during the early years of implementation of the ADS. Its objectives are:

1. To facilitate the implementation of the ADS through technical assistance, advisory services and capacity building
2. To improve coordination, planning, and policy monitoring and evaluation of the ADS
3. To facilitate harmonization of donors' programs with the implementation of the ADS

251. The implementation of the ADS will require coordination among different agencies and policy, legal and analytical skills that are currently dispersed. Effective coordination in turn is the basis for effective planning and policy formulation and monitoring. A unit responsible to the NPC and providing secretarial services for the National ADS Coordination Committee (NADSCC) and subcommittees, and providing technical inputs into the Central Agriculture Development Implementation Committee (CADIC), endowed with policy, legal and analytical capacity, and assured of continuity at least over the first 7 years of the ADS will greatly contribute to bridging the gap between policy and implementation.

5.2.5 Activities related to Output 1.5 on Mechanisms Established for Gender Equality and Social and Geographic Inclusion in the ADS

252. **Strengthening of the Gender Equity and Environmental Division (GEED)** under the Ministry of Agriculture and Development (MOAD) for formulating and implementing agriculture policies, plans and programs from GESI and geographical inclusion perspectives. The activity will require at least 2 full time professional staff undertaking a number of capacity building activities (training, study tour, workshops) to allow them to contribute to the formulation and implementation of ADS from a GESI perspective. Additional capacity building could be provided by UN Women during the preparation of a GESI strategy for the ADS.

253. **Generation and maintenance of national level GESI-based and geographic inclusion-based statistics** at MOAD/GEED within the monitoring and evaluation system as 'built-in mechanism' and providing feed-back for formulating plans and policies. In coordination with national statistics offices and development partners, build a database of GESI-based and

⁵² Sector-Wide Approach (SWAp) is an approach to international development that "brings together governments, donors and other stakeholders within any sector. It is characterized by a set of operating principles rather than a specific package of policies or activities. The approach involves movement over time under government leadership towards: broadening policy dialogue; developing a single sector policy (that addresses private and public sector issues) and a common realistic expenditure program; common monitoring arrangements; and more coordinated procedures for funding and procurement."

geographic inclusion-based statistics to be maintained at MOAD/GEED. The activity will require the services of statistician and appropriate software and hardware. Periodic reports highlighting the key trends and issues emerging from analysis of data should be generated and disseminated by the GEED and contribute to the formulation of policies and plans.

254. **Establishment and strengthening of GESI staff with clearly defined responsibilities at central department and at district level agencies** for effective planning including budgeting, implementation and monitoring and evaluation/auditing of agricultural programs from GESI perspective. Ensure that in each related department (DOA, DLS, DFTQC, DOI, DOFSC) and district there is a staff with assigned responsibility and with capacity in GESI analysis and GESI-program implementation. Initial and follow up periodic training on GESI perspective and tools of analysis, planning, budgeting, and planning and evaluation will be provided to the GESI staff at the district level.

255. **Enhancement of qualitative and quantitative aspects of participation of men and women farmers** from all gender and social groups in agricultural development programs implemented by district, sub-district and community level entities. This activity implies that both in the design and implementation of agricultural program benefits accrue to women and socially excluded groups. Central level staff at GEED and GESI staff at the district level will alert if deviations from the inclusion principle occur during planning or implementation of ADS programs.

256. **Making the agricultural extension service GESI responsive in all districts.** GESI staff at the district level will ensure that at the planning and implementation stage, extension programs are GESI responsive. ADS will support cost of regular visits to project and program sites (e.g. once per month in each district) of GESI staff to monitor GESI-responsiveness of extension activities.

257. **Improvement in access of farmers** (from all gender and socio-economic groups in all geographical regions) to means of agriculture production (land, credit, inputs such as seeds, fertilizer, improved technology, irrigation, and market). This will require well functioning markets, extension system, infrastructure, and input delivery systems as already highlighted in other sections of the ADS. The GESI-perspective is to ensure that access of farmers to means or production includes different social groups, particularly disadvantaged ones. The GESI-staff will ensure that at project design and during implementation, this GESI-perspective is incorporated. The ADS will support technical assistance implemented by the Farmers' Coalition.

258. **Promotion of GESI responsiveness in the agricultural research** and technology development process in all geographical regions. GESI staff at NARC and GESI-staff at the central level and at district level should promote GESI-responsiveness in program design and implementation.

259. **Develop a GESI strategy** as part of the ADS to ensure GESI perspective in planning, implementation, and monitoring of ADS activities. The strategy might be formulated with the support of specialized agencies such as the UN Women. This will involve specialized technical assistance input.

5.2.6 Activities related to Output 1.6 on Timely and Effective Monitoring and Evaluation

260. **Strengthen the capacity of Monitoring and Evaluation units of central and district level.** This will include regular training of key staff at the M&E Division and M&E cell at central level departments (DOA, DLS, DFTQC, DOI, DOFSC) and staff in each district Planning and Monitoring cell of DADO and DLSO. Capacity building will also be complemented by resources (eg hardware

and software, survey budget, monitoring visit budgets) to carry out M&E activities on a timely and professional manner.

261. Establish an appropriate methodology and system to carry out systematic ADS monitoring and evaluation including

- i. Status and performance of major agricultural programs implemented by GON, private sectors, NGOs, Academia, financial institutions, public boards, public corporations and Councils.
- ii. Status and overall effectiveness of implementation of major policies and plans.
- iii. Performance of implementation units and agencies.

262. This will involve development of the methodology and implementation of it over the course of the ADS, so that regular monitoring reports on the ADS status are available publicly, both in Nepali and English.

263. Monitoring and Evaluation of Food and Nutrition Security, based on the development and institutionalization of the NeKSAP system already existing at MOAD as a project supported by WFP through EU funding.

264. Conduct an Agricultural and Livestock Census, in coordination with the Statistics Division of MOAD and Central Bureau of Statistics.

265. Conduct joint M&E missions including GON and development partners at central level led by NPC and local level by DDC/VDCs - given the multi-sector nature of some of the key components - this would ensure contribution as well as ownership of the key sectors to the ADS as a whole, and monitoring process specifically.

5.2.7 Activities related to Output 1.7 on Mechanisms established for Participation of civil Society in the Planning, Implementation, and Monitoring of the ADS

266. Establish and maintain an ADS website both in Nepali and English. In order to facilitate access of civil society to information pertaining to the ADS, a website on ADS will be established and information on ADS made available both in Nepali and English.

267. Establish an ADS Information Desk under the Planning Division Joint Secretary. The function of the ADS Information Desk will include:

- Make publications and reports on ADS available to the public (formulation reports, planning documents, monitoring reports, events, policy formulation, investment plans, projects and programs)
- Respond to general queries about ADS
- Redirect specific queries to relevant units of MOAD or other agencies
- Facilitate networking of ADS with the ADS stakeholders (farmer organizations, cooperatives, agribusiness enterprises, government officials at the central and local level, development partners)

268. The establishment and maintenance of this information desk will require capacity building of staff in communication, appropriate hardware and software, and documentation and printing budget.

269. Establish similar ADS information desks at the Agricultural Information and Communication Center, Departments, regional, district, and district level under the umbrella of DOA/DLS and the Community Agricultural Extension Service Centers.

270. **Periodic presentation of ADS Monitoring and Evaluation Report to civil society.** This will be an annual event in Kathmandu and in each district where MOAD will report on the progress of ADS to civil society to elicit their feedback.

5.2.8 Activities related to Output 1.8 on Enhanced Capacity of Key Institutions involved in ADS Coordination and Implementation

271. **Capacity Needs assessment** of key institutions involved in the planning, policy formulation, implementation, coordination, and monitoring of the ADS. The institutions will involve: NPC and MOAD, the key departments (DOA, DLS, DFTQC) under MOAD, NARC, Agricultural University, and related agencies (MOI/DOI, MOE, MOFSC/DOF, MLD/DOLIDAR, ...), key farmer organizations, and key cooperative organizations. The capacity needs related to coordination and implementation.

272. **Formulate a plan of capacity building of key institutions.** The topics to be covered will vary from institution to institutions to a certain extent. Also, the methods of training and capacity building will vary according to the users. The capacity building activities should be more in depth over the first year of the ADS and then annually over the remaining years.

273. **Implementation and monitoring of capacity building.** This will involve bi-annual or annual courses and monitoring of impact of those capacity building activities. Specific capacity building activities will be organized for:

- a. Key Government agencies
- b. Farmers' Coalition, National Cooperative Federation, and Private Sector Organizations

274. **Evaluate organizational reform of MOAD and at the department level** for improving effectiveness of the public system to implement the ADS. The evaluation and recommendations should take into account ongoing and previous analysis such the OIE gap analysis for the DLS.

275. **Establish a Policy Analysis Division at MOAD,** by upgrading the Policy Section currently under the Planning Division of MOAD. Capacity of such Policy Analysis Division of MOAD should be strengthened to ensure that it could professionally carry out its functions. This policy division would provide a mechanism to institutionalize capacity building in policy analysis within MOAD.

5.2.9 Activities related to Output 1.9 on Improved Food and Nutrition Security of Most Disadvantaged Groups

276. These activities will be organized under one national Flagship Program to be referred to as the Food and Nutrition Security Program (FANUSEP). The Program will consist of three subprograms: the National Food Security Project (NAFSP), currently been finalized as part of the Global Agriculture and Food Security Program (GAFSP); the Food and Nutrition Security Plan of Action (FNSP), currently been finalized with assistance of FAO; and a new targeted national food and nutrition security project to be designed and implemented to complement NAFSP and FNSP. In order to maximize synergies with existing and planned similar program and better targeting it will be essential to coordinate with the Multi-sector Nutritional Plan (MSNP). The set of activities under this output 1.9 of the ADS include:

277. **Design a targeted national food and nutrition security program** to complement existing projects on food and nutrition security. The project will be designed towards the middle of the first 5-year term of the ADS and will benefit from monitoring, mid-term review, and evaluation of existing food and nutrition security programs, in coordination with ADS Implementation Support Unit (ADSISU).

278. **Implement a targeted national food and nutrition security program.** This program will be targeted to poor and disadvantaged groups and to geographically disadvantaged areas (eg. Karnali) and include interventions to improve productivity, livelihood, and nutritional practices of targeted beneficiaries including pregnant and lactating women farmers. Based on the review and lessons learned from other similar programs including the already planned NAFSP and FNSP, the new program will use best practices (eg. food and input vouchers, backyard vegetable gardens, on-farm storage, preserving, and processing, indigenous food, collection centers, food and cash for assets programs, micronutrient supplementation for children, girls' incentive programs, school feeding) and expand them to broader national coverage.

279. **Implement National Food Security Project (NAFSP).** The project is currently at its final stage of formulation and will soon be implemented by GON under the supervision of World Bank. This is a project focused on 19 hill and mountain districts of the Mid- and Far-Western development region of Nepal. The beneficiaries of the project will be crop farmers (estimated direct beneficiaries 40,000), livestock farmers (27,000), women engaged in household/kitchen-garden production (35,000), and households with pregnant and nursing women (45,000). The project interventions will be organized and implemented through groups, including pre-existing groups in the project area. Also, given the crucial role of women in agriculture and nutrition, special attention will be given to their targeting and inclusion in project interventions.

280. **Implement Food and Nutrition Security Plan of Action (FNSP)** currently being finalized by GON and FAO. The project will be focused on 1 million hard core poor households (as defined in the Poverty Alleviation Fund program) and will involve a number of technology and nutrition interventions on field crops, fisheries, forestry, horticultural products, and livestock. GESI and Nutrition are mainstreamed in all components of the FNSP; the project also intends to support legislation such as Rights to Food and Food and Nutrition Security Act.

281. **Coordinate with ongoing food and nutrition security projects**, such as Feed the Future funded by USAID, programs supported by WFP, and programs funded by GON and other development partners within the umbrella of the Multisector Nutritional Plan (MSNP) to ensure that the rural households and farmers most food insecurity are reached by various programs. The Program Manager of FANUSEP will report to the subcommittee on food and nutrition security of NADSCC (see section 7.6).

282. **Review of national programs on food and nutrition security**, to be undertaken towards the completion of the first 5-year period of the ADS.

283. **Strengthen the capacity of the central and district food security coordination mechanisms** such as the High Level Nutrition and Food Security Steering Committee (HLNFSSC) and the Nutrition and Food Security Coordination Committee (NFSCC) at NPC level and the the District Nutrition and Food Security Steering Committee led by DDC at the district level. This will enhance the contribution of ADS towards MSNP and involves all the key actors on food security and nutrition.

284. **Promote formulation of Rights to Food and Food Sovereignty Legislation** and monitor their implementation. The rights to food and food sovereignty principles were established in the interim constitutions and are likely to be incorporated in the new constitution of Nepal. The interim constitution Article 18 has a view of Food Sovereignty as right to food or perhaps right to food sufficiency. The ADS is consistent with these principles provided they are not intended to preclude international trade in food and will monitor the implementation of the principles during the course of the ADS.

5.2.10 Activities related to Output 1.10 on Performance-based Management System

285. These activities aim at improving performance of government service delivery, particularly of extension workers. The objective is to link performance with an incentive system rewarding good performers.

286. **Establish guidelines and standard operating procedures** with clearly defined evaluation criteria and monitoring systems for good performance.

287. **Conduct a pilot program on performance-based management system** based on a sample of 15 district, one for each physiocratic region of Nepal. The idea is to monitor performance of different districts and based on good performance reward the 5 best DADO and DLS offices (see section 8.3.1). The pilot will include design and implementation of the system by ADSISU.

288. **Evaluate the pilot and make recommendation** for its possible extension and institutionalization.

5.3 Activities Related to Outcome 2: Higher Productivity

289. Outcome 2 of the ADS is Higher Productivity. The outcome is achieved through 13 outputs and 105 activities illustrated in Table 29 and detailed in the following sections.

Table 29 Activities related to Outcome 2 on Higher Productivity

Outcome	Output	Activity	
2			Enhanced productivity
	2.1		Decentralized agricultural extension services
		2.1.1	Establish Community Agricultural Extension Service Centers
		2.1.1.1	Formulate general guidelines for CAESC
		2.1.1.2	Awareness campaign about the initiative
		2.1.1.3	Capacity building to support establishment of the CAESC
		2.1.1.4	Seed money for establishment of CAESC
		2.1.1.5	Training of CAESC extension technician
		2.1.1.6	Technical backstopping of CAESC
		2.1.1.7	External monitoring of CAESC
		2.1.2	Strengthen capacity of agriculture and livestock service centers and sub-centers
		2.1.2.1	Training, workshops, study tours for technicians
		2.1.2.2	Resources for farm demonstrations and farmer training
		2.1.2.3	Improve infrastructure and equipment of the agriculture and livestock service centers and sub-centers
		2.1.3	Establish voucher system for extension and advisory services
		2.1.3.1	Design, implement and evaluate a pilot voucher scheme
		2.1.3.2	Provide budget for 50,000 vouchers in the pilot scheme
		2.1.4	Introduce farmer marketing schools
		2.1.4.1	Establish program capacity and training of trainers
		2.1.4.2	Implement FMS in those VDC prioritized for value chain development
		2.1.5	Promote ICT in agricultural extension

Outcome	Output	Activity	
		2.1.5.1	Provide PCs or tablet with internet for each CAESC
		2.1.5.2	Mobile-based applications
	2.1.6		Link farmer groups and organizations to banks and finance institutions
	2.1.7		Train field personnel to be sensitized to GESI and nutrition
		2.1.7.1	Training in GESI and nutrition
		2.1.7.2	Increase the representation of women in JTAs
2.2			Decentralized agricultural research system
	2.2.1		Restructure NARC as apex of NARS, with NRI and RARS implementing research, training under NARC
		2.2.1.1	Establish NARF, merge with NARDEF, integrate with NARC
		2.2.1.2	Finalize NARC Vision 2011-30 consistent with ADS
		2.2.1.3	Establish NRI for Horticulture, Animal Health, and Aquaculture and Fisheries
		2.2.1.4	Establish RARS in high hills, mid hills, terai of FWDR
		2.2.1.5	Establish Agricultural Mechanization Centers in terai (2), mid hills (1), and high hills (1) within existing research centers
		2.2.1.6	Consolidate and restructure RARS and programs to avoid duplication
	2.2.2		Strengthen linkages within the research-educational-extension triangle
2.3			Strengthened agricultural education system
	2.3.1		Improve facilities and capacity of Agricultural University
	2.3.2		Establish new Departments in Agriculture and Forestry University
		2.3.2.1	Establish Agribusiness Department
		2.3.2.1	Establish Technology Dissemination Department
	2.3.3		Support for joint educational and research programs
	2.3.4		Establish Agricultural University partner operations with private sector
	2.3.5		Establish new agricultural/veterinary science colleges in other regions
	2.3.6		Strengthen capacity of CTEVT
	2.3.7		Strengthen capacity of professional staff from government, educational system, and private sector through overseas degrees and training.
	2.3.8		Mainstream food and nutrition security into existing agricultural education system
2.4			Adequately sized farms that use land efficiently and sustainably
	2.4.1		Decide and adopt a policy statement to review or implement existing legislation and policies pertaining to land reform
	2.4.2		Issue a Government Order under the Lands Act to consolidate functions under a Land Management Office
	2.4.3		Establish land tribunals to settle tenancy and dual ownership cases
	2.4.4		Set and enforce targets for reduction of land holdings to the permitted ceiling
	2.4.5		Introduce regulation, incentives and disincentives to promote owner-operated farms, farming cooperatives and agribusiness farms.
	2.4.6		Pilot a "land bank" scheme
	2.4.7		Reduce land fragmentation
		2.4.4.1	Legal measures
		2.4.4.2	Financial and tax incentives
	2.4.8		Enact contract farming act to promote agri-business operations
	2.4.9		Enact a Land Lease Act (could be part of Contract Farming Act) allowing long-term leasing at fair terms without acquisition of tenancy rights
	2.4.10		Implement land zoning policy
	2.4.11		Identify degraded land for rehabilitation
	2.4.12		Raise awareness of women's rights to land
2.5			Expanded and improved irrigation
	2.5.1		Expand irrigation area by most feasible means
		2.5.1.1	Complete already commenced surface schemes
		2.5.1.2	Pilot construction of medium pond/ recharge basins
		2.5.1.3	Repair damaged surface schemes
		2.5.1.4	Repair damaged tubewells
		2.5.1.5	Construct new tubewells
		2.5.1.6	Develop non-conventional irrigation
	2.5.2		Increase effective area of existing schemes
	2.5.3		Increase irrigation intensity
		2.5.3.1	Improve catchment management
		2.5.3.2	Construct inter-basin transfers
	2.5.4		Improve irrigation system and on-farm water management
		2.5.4.1	Reform and strengthen Irrigation Management Division to become the Department of Irrigation Development
		2.5.4.2	Provide adequate budget from government or ISF collection

Outcome	Output	Activity	
		2.5.4.3	Build capacity of WUA and farmers
		2.5.5	Implement irrigation management system transfer
		2.5.6	Establish funding for O&M, strengthen ISF
		2.5.7	Implement integrated water resource management
		2.5.8	Build capacity of women farmers
	2.6		Access to agricultural inputs
		2.6.1	Formulate consistent policy
		2.6.2	Establish a voucher system for inputs
	2.7		Implementation of seed policies
		2.7.1	Enhance capacity of seed research stations
		2.7.2	Promote private, cooperative, community based seed production
		2.7.3	Enforce quality assurance systems
		2.7.4	Promote production of hybrids
		2.7.5	Establish an information system on seed demand and supply
		2.7.6	Implement Biodiversity Policy
		2.7.7	Pilot voucher system for seeds
	2.8		Improved fertilizer supply distribution system
		2.8.1	Gradual transformation of fertilizer subsidy system into more effective delivery
		2.8.2	Complimentary measures for efficient fertilizer use
		2.8.2.1	Demonstration and awareness campaign
		2.8.2.2	Promote organic and biofertilizer
		2.8.2.3	Conduct feasibility studies on fertiliser production and procurement
		2.8.2.4	Establish a fertilizer buffer stock
		2.8.2.5	Establish a database and monitoring system on fertilizer
		2.8.2.6	Voucher system for fertilizer
		2.8.2.7	Enforce quality assurance systems
	2.9		Improved animal breeds
		2.9.1	Develop livestock breeding policy
		2.9.2	Capacity building for improved breeds production
		2.9.3	Establish a voucher system for animal breeds
		2.9.4	PPP program for availability of liquid nitrogen
	2.10		Mechanization options accessible
		2.10.1	Information dissemination
		2.10.2	Improve customer access to finance
		2.10.3	Capacity building for service and maintenance providers
		2.10.4	Enable the business environment for leasing agricultural equipment
		2.10.5	Revise regulation and taxes to support mechanization
		2.10.6	Pilot a voucher scheme
	2.11		Improved resilience of farmers
		2.11.1	Research on stress tolerant varieties and breeds
		2.11.2	Early warning system
		2.11.3	Climate information and weather indexation systems
		2.11.4	Pilot a Farmers Welfare Fund
		2.11.5	Promote agricultural insurance
		2.11.6	Strengthen food reserve system
		2.11.7	Strengthen the seed and feed/fodder reserve system
		2.11.8	Improve capacity of extension staff and farmers in climate smart agricultural practices
		2.11.9	Establish a fund for preparedness and response
	2.12		Sustainable farming, GAP, and GVAHP adopted
		2.12.1	Formulate standards
		2.12.2	Extension programs with private sector
	2.13		Forestry development
		2.13.1	Strengthen enabling policy environment
		2.13.2	Develop and integrate land use models with forestry
		2.13.3	Forestry enterprises and marketing development
		2.13.4	Enhance forestry GESI
		2.13.5	Biodiversity conservation and climate change adaptation
		2.13.6	Develop institutional and human resources
		2.13.7	Research and extension for sustainable forestry
		2.13.8	Develop a forestry investment strategy and plan
		2.13.9	Develop a joint platform for policy

5.3.1 Activities related to Output 2.1 on a Decentralized Extension System Responsive to Farmers and Agroenterprises' Need

290. **Promote the establishment of Community Agricultural Extension Service Centers (CAESC) in each VDC.** Through awareness and capacity building activities initiated by the district offices for agriculture and livestock, the ADS will facilitate the establishment of CAESC in each VDC. The CAESC will be formed by local communities and will be governed by a board including representatives of local communities, cooperatives, farmer organizations, and agroenterprises. The members of the board will represent financial or in-kind contributions of different stakeholders. Initial funding of the CAESC will be provided by a combination of VDC funding (using the 15% guideline for agriculture investment), seed funding from the central government, and contributions of the different groups of stakeholders represented in the board. Each CAESC will be fully managed by its board and will recruit its own extension workers and technicians. The management of the financial and human resources of the CAESC will be fully dependent on the board of the CAESC.

291. The Program Manager for the flagship Decentralized Science, Technology, and Education Program (DESTEP) will organize the activities for the achievement of this output including the following contributions:

- a. Formulate general guidelines for the establishment of the CAESC
- b. Conduct awareness campaign about the initiative
- c. Carry out capacity building in supporting the establishment of the CAESC
- d. Provide seed money for the establishment of the CAESC; the seed money will be provided only under the condition that it leverages larger investment by the VDC and the community/cooperatives/private sector for the establishment of the CAESC
- e. Organize training of extension workers recruited by the CAESC
- f. Provide technical backstopping of the CAESC through the network of government Agriculture and Livestock Service Centers and Sub-centers (ALSC), district offices, and regional and national training centers.
- g. Carry out or commission external monitoring and evaluation of the CAESC

292. The recurrent and program costs of the CAESC will be borne by the community centers themselves. The VDC might decide each year to allocate a percentage of its budget to the CAESC. The funding of the CAESC might also come from other sources (farmer organizations, private sector, projects, etc) depending on the capacity of the management of the CAESC to raise funds. Priority of extension activities will be decided by the Board of each CAESC. Priorities in extension work will be linked to support local programs. Local programs will coordinate with national programs under ADS. The CAESC will be in the best position to target farmers in their community and establish priorities consistent with their governance bodies. The CAESCs will be linked to the government network of ALSC through exchange of information, training, and technical backstopping.

293. **Strengthen capacity of existing and planned agricultural and livestock service centers and sub-centers (ALSC).** The government has 378 agricultural service centers and 999 livestock service centers/sub-centers. The ALSC are often lacking in technical capacity of the staff to provide effective services, and in operational funds to carry out programs. The improved capacity of the government ALSC will be critical to the success of the backstopping of CAESCs at the VDC level. The ADS will support the strengthening of the ALSC as follows:

- a. Strengthen capacity of ALSC technical staff through training, workshops, demonstrations, and study tours. Specific capacity programs will address the following:

- i. Extension methods including farmer field schools (FFS), farmer marketing schools and (FMS)
 - ii. Value chain development
 - iii. Sustainable agricultural practices
 - iv. Good agricultural and veterinary practices
 - v. GESI
 - vi. Nutrition
 - vii. Farm budgeting
 - viii. Business plan preparation
 - ix. Use of ICT in extension
 - x. Special needs of subsistence agriculture
- b. Provide sufficient resources to carry out demonstrations and training activities including organization of FFS and FMS, visits to farmers, and monitoring activities.
 - c. Improve physical infrastructure and equipment of agriculture and livestock service centers and sub-centers.

294. **Promote a voucher system to empower farmers to access the best available extension and advisory services that meet their demand.** Establish the system on a pilot basis at first and then upscale contingent on favorable review of the pilot. The activity will require the following steps:

- a. Design, implement and evaluate a pilot voucher scheme.
 - i. Formulate the principles and institutional mechanism of a voucher system for extension services, including clear criteria for targeting.
 - ii. Introduce targeting system for extension by which vouchers are primarily targeted to subsistence and semi-commercial farmers in different agroecological areas.
 - iii. Approve a number of extension service providers that farmers can use to redeem their vouchers. The extension service providers eligible to provide extension services to farmers include private sector companies, cooperatives, universities, NGOs, CSOs, professional associations, or PPP.
 - iv. Design an initial pilot for the voucher system including different target groups of farmers (subsistence and semi-commercial) in different agroecological areas.
 - v. Conduct a baseline for the monitoring and evaluation of the voucher system, making sure to include a control group in the monitoring and evaluation process.
 - vi. Monitor and evaluate the system and make recommendation for its upscaling and replication or cancelling of the program.
- b. Provide budget for extension and advisory services vouchers for 50,000⁵³ farmers.

295. In case a favorable review of the pilot recommends the extension and replication of the voucher program to much larger number of beneficiaries allocation of adequate resources will be required. These could be obtained either by new budget allocation of GON or by reallocation of a part of existing fertilizer subsidies.

⁵³ The number of farmers in the pilot could be changed during implementation depending on budget available and the complexity of the pilot. On average the pilot will cover about 667 farmers per district, but the distribution might be altered depending on the level of development of the district. This comment related to the number of farmers in the voucher pilot is valid for other voucher pilots (eg seed, fertilizers, etc.) mentioned below.

296. **Introduce farmer marketing schools (FMS) program** to support the development of commercial agriculture and value chains in those areas where prioritized value chain development activities are planned through national programs (see section 5.4.5 on value chain development). The idea of farmer marketing school is to ensure sustainable and commercial linkages between farmers and consumers. Extension agents will work not only with farmer groups but with groups including farmers, traders, and agroenterprises (input suppliers, processors, logistics companies) to ensure higher value addition at each stage of the value chain. The activity will include different steps:

- a. Establish program capacity and training of trainers (TOT), in FMS by developing training material and capacity of extension agents.
- b. Implement FMS in those VDC prioritized for value chain development.
 - i. Identify groups of farmers, traders, and agroenterprises related to the national programs for value chain development
 - ii. Promote extension activities and information services to farmers and enterprises in facilities located inside or near collection centers and market centers where outreach will be more effective
 - iii. Carry out farmer marketing schools program
 - iv. Monitor and evaluate the program

297. **Promote Information Communication Technologies (ICTs) in agricultural extension.** Formulate program for ICT in agricultural extension involving use of two different technologies:

- a. Provide PCs or tablets linked to internet for agro-information centers located in CAESC
- b. Provide mobile-based applications

298. The applications (either computer-based or mobile-based) will provide technical and market information to farmers. Public-private partnerships between extension services (public or private), ITC companies, and mobile companies will be explored to make the services more cost effective. The type of services that could be provided include information about seeds, fertilizer, farming practices, market intelligence, crop forecasting, weather information, training programs, call for proposal from various matching grant funds, exports and imports, etc.

299. **Facilitate linkages of farmer groups and organizations with financial institutions, including commercial banks.** This will require a few steps as follows:

- a. Conduct capacity building of farmer groups and organizations in basic accounting and business plan preparation to ensure that they become more viable customers for financial institutions and commercial banks.
- b. Facilitate preparation of business plans for farmer group and organization to present to financial institutions.
- c. Organize quarterly or semi-annual workshops between farmer groups and organization and financial institutions to establish an ongoing dialogue and linkages.

300. **Train field level technical personnel to be sensitized to GESI and nutrition.** This will involve a number of measures such as:

- a. Training in GESI and nutrition, incorporation into extension programs, particularly nutrition targeted to women.
- b. Promote policy for increasing the representation of women in JT, JTA, and build GESI knowledge into the incentive-based reward system for promotion of technical personnel.

5.3.2 Activities related to Output 2.2 on a Decentralized Research System Responsive to Farmers and Agroenterprises' Need

301. **Restructure the national agricultural research system (NARS).** The NARS will be decentralized and made more responsive to the research needs of farmers, cooperatives, and agro-enterprises. The National Agricultural Research Council (NARC) will not implement any research projects and programs. Its functions will include formulating agricultural research policies, maintaining international relations and linkages, setting national standards, coordinating with national and international research institutes and educational organizations. NARC will act as the apex institution in national agriculture research system, a policy body to coordinate, facilitate, consolidate, monitor and evaluate research projects, fund research projects, manage human resources and training, and promote research linkages at national and international levels. The basic research, long term strategic research, applied research and adaptive research will be implemented by National agricultural research institutes (NARI). Agro-ecologically based regional agricultural research stations (RARS) will be responsible for collaborative and action research, and only action research will be managed at village level. Local level research activities will be managed according to the standards of central government. NARI and RARS will provide back up to local level stakeholders like CAESC, cooperatives, agro-enterprises, and others. The investment in public research institutions will be for public goods in agriculture such as food and nutrition security, food safety, bio safety, mitigating effect of climate change, environment and biodiversity conservation and reducing poverty. The restructuring will include:

- a. Establishment of National Agriculture Research Fund (NARF) integrated with NARC. The existing NARDEF will be merged with NARF.
- b. Finalize the NARC Vision 2011-2030 consistent with ADS strategy and taking into account the needs of commercial and subsistence agriculture.
- c. Increasing number of national research institutes. In addition to the existing National Agriculture Research Institute (NARI) and National Animal Science Research Institute (NASRI), establish the National Horticulture Research Institute (NHRI), the National Animal Health Research Institute (NAHRI) and the National Aquaculture and Fisheries Research Institute (NAFRI).
- d. Establish Agricultural Research Stations at different agro-ecological zones (high hills, mid hills, and terai) in the Far Western Region to complement the recent decision to transform the Agricultural Research Station in Doti into a Regional Agriculture Research Station (RARS) in Far Western Region.
- e. Establishment of Agriculture Mechanization Centers in the terai (2), mid hills (1), and high hills (1) within existing research centers.
- f. Consolidate research stations and programs that are physically located in the proximity and perform similar research activities. It will reduce administrative cost and duplication of resources especially operational expenses.

302. **Strengthen linkages within the Research-Education-Extension (REE) triangle including with private sector.** NARC will establish functional linkages with educational institutions and with the extension service for the availability and sharing of their facilities including for educational purpose. Private sector will be involved in agriculture research and technology sectors through partnerships. The gene bank and animal genetic resource program need to be strengthened for the use of IPR. Similarly agriculture education institutions will be used in academic research that promotes genetic enhancement and supports applied research through collaborative projects and research grants funded by NARF and other sources. NARC will:

- a. Establish guidelines on functional REE linkages for sharing facilities, staff and program collaboration with educational institutions and extension service.

- b. Establish guidelines for REE private sector partnership incorporating provisions for commercialization and protection of potential return on commercial investment under Intellectual Property Rights (IPR) law.

5.3.3 Activities related to Output 2.3 on a Strengthened Agricultural Education System

303. The ADS will support a comprehensive package of measures to ensure closer integration with research and extension, improved capacity of the university, agricultural colleges, and vocational schools, and better response to the needs of farmers and agro-enterprises. These measures will include:

304. **Improve facilities and capacity of Agricultural University**, based on periodic requests for improved laboratories and audiovisual and ICT equipment.

305. **Establish new departments in the Agriculture and Forestry University**, including an Agribusiness Department and a Technology Dissemination Department.

306. **Support for joint educational, research and extension programs** with NARC institutes under NARF and other funding sources, and with extension departments and district officers, including under the voucher system.

307. **Establish Agricultural University partner operations with private sector**. This may involve innovative ways such as: renting/leasing facilities, training to private/community organizations, and contract research under IPR.

308. **Establish new agricultural/veterinary science colleges in other regions** of Nepal.

309. **Strengthen capacity of Centers for Technical Education and Vocation Training (CTEVT)** through curriculum improvement and training of trainers. Ensure trainers are well acquainted with the needs of commercial and subsistence agriculture and able to direct trainees to research and extension resources to address their specific problems.

310. **Strengthen capacity of professional staff from government, educational system, and private sector through overseas degrees and training**. This will involve establishing an ADS Scholarship program to fund both short term and long term training and degrees for professional to study abroad, consistently with government regulations and needs. The program could be designed ensuring that after conferring degrees abroad, the beneficiaries have the obligations of returning to Nepal for a period of at least 2 years, in the same organizations from where they had left. The scholarship program should be open to government staff and non-government staff including educational organizations staff and students, and private sector professionals.

311. **Mainstream food and nutrition security into existing agricultural education system**, through coordination between public health/medical institutes and agricultural universities, colleges, and vocational schools.

5.3.4 Activities related to Output 2.4 on a Farming Sector composed of adequately sized Farmers that use Land efficiently and sustainably

312. **Decide and adopt a policy statement to review or implement existing legislation and policies pertaining to land reform**. This will include land use planning, land fragmentation, land

tenure, land ceiling, etc., while protecting the interest of farmers and providing the framework for the commercialization of agricultural production. Farmer organizations, cooperatives, and private sector representatives will need to be involved in the decision together with the government. Representatives of farmer organizations, cooperatives, and private sector will need to be members of any future land commission that the government might initiate.

313. Issue a Government Order under the Lands Act to consolidate functions under a Land Management Office. This will include functions of the existing Land Revenue Office, Land Reform Office, District Survey and Measurement Office, to fulfill the following functions:

- a. Land Survey;
- b. Cadastral Survey;
- c. Management of Public, Government and Trust (Guthi) Land
- d. Land Ceiling Enforcement; and
- e. Land Registration

314. Establish land tribunals to settle tenancy and dual ownership cases. To that end -

- a. Enact amendment to Lands Act 2021 that transfer responsibility for determination of disputed pre-1964 tenancy rights and dual ownership cases (Article 26 B) from the Land Reform Officer or Land Revenue Officer (the “prescribed authority” under the Act) to land tribunals formed of a professional judge of the District Court flanked by a representative of the landowners and a representative of the tenants.
- b. Set numerical goals for the settlement of these cases per year and region
- c. Determine sanctions upon District Land Management Offices that do not meet the targets

315. Set and enforce targets for reduction of land holdings to the permitted ceiling by the Lands Act and determine sanctions upon District Land Management Offices that do not meet the targets.

316. Introduce regulation, incentives and disincentives to promote owner operated farms, farming cooperatives and agribusiness farms. Improving sharecropping arrangements⁵⁴, reducing absentee landlord phenomena, and promoting land productivity will be supported by:

- a. Incentives and disincentives:
 - i. Reduce the maximum permissible sharecropping ratio of 50 – 50 (Lands Act, Article 33) to a ratio that will induce the sale of tilled land from landlords (especially absentee landlords) to the tillers, taking into consideration level of productivity of land;
 - ii. Impose an increasing rate of land tax on arable lands left fallow;
 - iii. Amend Lands Act to ensure that the utilization of land by tillers through sharecropping arrangements will not lead to acquisition of tenancy rights, thereby protecting sellers of land;
 - iv. Identify financial incentives (including, e.g. tax deductions for sellers; or matching grants possibly via the Poverty Alleviation Fund) for the acquisition of land by landless tenants from absentee landlords;
 - v. Clarify by policy statement that new tenancy rights will not be accrued.
- b. Formulate and enact a Land Lease Act (or include in Contract Farming Act) which will allow a long-term leasing at fair terms (fixed rent or sharecropping) without acquisition of tenancy rights;

⁵⁴ Keeping in mind that not all sharecropping arrangements are necessarily exploitative.

- c. Promote and encourage formation of multi-purpose agricultural cooperatives and other communal or consolidated forms of joint farming including by:
 - i. Amending the Cooperatives Act and the Land Act to allow land pooling (with or without registration in name of cooperative, with protection against tenancy acquisition arrangements);
 - ii. Amending the Cooperatives Act to facilitate formation of multi-purpose cooperatives as well as other forms of communal/consolidated forms of farming rather than the single purpose formats, including for purposes of joint tilling and/or joint inputs (including FMIS), joint outputs and the enactment of an effective oversight body to ensure proper management;
 - iii. Tax and financial incentives.

317. **Pilot a “land bank” scheme** to facilitate land leasing of currently unutilized land. “Land bank” refers to the idea of a land leasing company that provides intermediation between owners of land and prospective renters of land. The intermediary company guarantees the right of the owners and facilitates long-term leasing of land by private individuals, cooperatives, or private enterprises.

318. **Reduce land fragmentation.** Government would introduce legal, financial and tax incentives to reduce fragmentation.

- a. Legal measures.
 - i. Review the traditional inheritance law (Mulki Ayn) and make recommendations related to the possibility of allowing leaving land by testamentary disposition to one heir only;
 - ii. Create lower limit on registration of sub-divisions of small agricultural plots to the effect that subdivisions of small plots because of inheritance (or sale)⁵⁵.
- b. Financial and tax incentives. These will aim to encourage absentee (non-farmer) heirs to sell their inherited plot to the heir that tills the land by provision of:
 - iii. fallow land tax (see above);
 - iv. soft loans (e.g. through Agricultural Development Bank);
 - v. protection of seller from acquisition of tenancy during the years that the tiller pays for the land to the absentee-heir;
 - vi. introduce a “plot tax”

319. **Enact Contract Farming Act to promote agri-business operations**, that includes *inter alia*:

- a. Collective bargaining arrangements with multiple small farmers
- b. Protection of the parties to the contract (farmers against exploitation through credit and accumulation of debt and contractors against unauthorized sales)
- c. Provisions on insurance of crops and livestock
- d. Implementation of the Secured Transaction Act by establishment of Pledge Registry for Movable Property.

320. **Enact Land-Lease Act** (possibly as part of a Contract Farming Act) as a viable alternative to the sharecropping (with concern that tenancy may be re-enacted), and as a basis for agribusiness farming arrangements that provides for -

⁵⁵ Once zoning is introduced in Nepal, any subdivision of existing plots will be subject a procedure that could prevent creation of unsustainable plot sizes.

- a. Fair lease contracts (i.a. – fixed fee or reasonable sharecropping ratios)
- b. Measures to prevent acquisition of tenancy rights in long-term lease relations
- c. Ability to secure long-term leases by agribusinesses for farming.

321. **Implement Land Zoning Policy.**

- a. Introduce a simple zoning system on the basis of the existing Land Classification prepared by the Ministry of Land Reform and Management (MOLRM) by Government Order to be issued under Article 51E (1) the Lands Act and the recently approved Land Use Policy, as required by the Lands Act (Chapter 9A) to be able to prevent land plotting.
- b. Formulate bylaws to accompany the recently approved Land Use Policy; determine in the bylaws that the Ministry of Local Development may not change municipal boundaries of lands that are classified as agricultural lands without the consent of the Ministry of Agriculture Development and the Ministry of Land Reform and Management.

322. **Identify degraded land for rehabilitation and support program for rehabilitating degraded land.** This will involve survey and identification of suitable areas for rehabilitation, under collaboration between MOAD, MOFSC, MOLRM and local communities. It may include river beds/ flood damaged areas, eroded hill and mountain land, and degraded forest. After identification of degraded land, a program for rehabilitating degraded land will be established through integration of farm, forestry, fishery, livestock, and soil conservation measures.

323. **Raise awareness on women's rights to land.** ADS will support legal literacy and pro-GESI mechanisms to communicate with women and excluded groups. Mechanisms will include joint ownership, establishment of incentives such as tax rebate policy if the land is registered under women's name, equal inheritance rights for women.

5.3.5 Activities related to Output 2.5 on Irrigation Area expanded equitably and viably, and improved Irrigation Efficiency and Management

324. ADS will support a comprehensive package of infrastructure and capacity building for irrigation development. The large scale of the investment and resources required suggests that Government and development partners may implement the recommendations under manageable subprojects.

325. **Expand irrigation area by most feasible means.** The activities supported under ADS will include:

- a. **Complete already commenced surface schemes.** An estimated 80,000 ha remains to be completed in ongoing projects mostly in lowland areas, including the Sikta, Ranijamara and Babai Mahakali Irrigation, Karnali Zone Irrigation Development Project, Medium Irrigation and Sunsari-Morang and Bagmati Irrigation Projects, and others. About 113,000 ha of these schemes have been completed at a cost of \$477 million, approximately \$4,200/ha. Based on this, the estimated cost for completion of 80,000 ha is \$320 million.
- b. **Pilot construction of medium pond/recharge basins.** These are basins that store water and recharge groundwater, for use by both irrigation and water supply. They may be linked with surface or non-conventional irrigation (e.g. sprinklers, drip systems). At present no agency is specifically concerned with multi-purpose water resource development, but the Groundwater Resources Development Board (GWRDB) may be appropriate.

- i. Identify an appropriate responsible agency and conduct a study to identify potential recharge basin sites based on farmers' need and estimated cost-benefit analysis.
 - ii. Construct pilot recharge basins under ADS, and replicate based on impact assessment.
- c. **Repair damaged surface systems**, based on farmers' demand.
 - i. Prepare an inventory of damaged systems, estimate rehabilitation cost and prepare a project for government or donor funding for the rehabilitation.
 - ii. Implement the surface irrigation rehabilitation project, to cover a preliminary estimate of 34,000ha, costing about \$34 million at average of \$1,000/ha.
- d. **Repair damaged tubewells**, based on farmers' demand.
 - i. Each GWRDB should develop an inventory of tubewells that need repair, using GIS to plot position, ownership, condition and reason for non-operation.
 - ii. Prepare a project for government or donor funding for the rehabilitation.
 - iii. Implement the tubewell repair project covering a preliminary estimate of 24,000ha, costing \$2.4 million at average of \$100/ha.
- e. **Construct new tubewells.** STW capable of irrigating 2.5 to 4 ha cost around Rs70,000, including bore, lining, pump, pumpshed and water distribution hose (layflat). At between \$250 and \$400 per ha, an STW is less than 10% of the cost per hectare of a surface scheme. ADS however recognizes that farmers prefer surface schemes, since with STW they have to pay the electricity, kerosene or diesel cost of pumping. New deep tubewells are not recommended, until the STW program is nearing completion, since they are far more expensive per hectare irrigated and have greater requirements for social organization.
 - i. Prepare a project to construct new tubewells: (i) covering an estimated 75,000 ha (of 150,000 ha potential), (ii) involving private sector in the provision of equipment, construction and technical advice, and (iii) an incentive package such as cost-sharing, removal of VAT and duties on pumpsets and pipes.
 - ii. Implement the project.
- f. **Develop non-conventional irrigation (NCI)**, especially in hill areas. NCI based on small local water sources or water harvesting will be a preferable option. NCI including gravity piped, water harvesting and small-scale pumped systems, based on drip or sprinkler irrigation for high value crop production is consequently recommended as the focus of ADS irrigation sector investment in the hills. In the Terai, continuation of the treadle pump program is recommended, together with small lift pumping systems from nearby streams or other water sources. Additional methods include provision of hydraulic rams to lift water to land above river level. Steps to promote development of NCI supported by ADS are:
 - i. Prepare an NCI development project for financing through a: (i) district-wise survey to identify suitable areas/ agri-communities for NCI development (this output will update the Irrigation Master Plan); (ii) linkage to other development initiatives, e.g. horticulture value chain development, pond/ recharge basins; (iii) identifying government, donor, private sector, and beneficiary funding partners and mechanisms

such as cost sharing, incentive package for private sector equipment suppliers and commercial bank financing.

- ii. Implement the NCI development pilot cost-sharing project. Subsequent NCI development assumes private sector is fully able to develop the market for these technologies.

326. **Increase effective area of existing schemes.** ADS will support the following measures, on a cost-sharing basis (e.g. farmers contribute labor).

- a. Increase irrigation efficiency. An estimated 170,000 ha of irrigation schemes operate at less than 40% efficiency. ADS will therefore encourage water user associations (WUA) and farmers to increase the efficiency of irrigation by support for: (i) lining or upgrading canals to reduce transmission losses; (ii) control structures to improve water management and distribution; (iii) land-leveling, better management, and constructing distribution networks (field channels); (iv) piped water conveyance in special need situation; and (v) building capacity of WUA in efficient irrigated agriculture management.
- b. Expand command area. ADS will support canal network expansion to increase the irrigable area served by an existing irrigation system.
- c. Improve water allocation and crop planning through provision of irrigated agriculture extension services to assist representative farmers from all sections of the canal to prepare cropping plans with involvement of to improve water distribution, crop productivity, equity and strengthening WUAs.
- d. Construct permanent headworks and improve main canals on farmer-managed irrigation systems (FMIS). Government and donor funded programs to assist FMIS improve their main systems will be continued under ADS.
 - i. Identify selected schemes and needs based on site conditions and local hydrology.
 - ii. Prepare and implement works and build capacity for around 7000 FMIS.
- e. Construct STWs in the tail areas of water short systems for supplementary water supply, under the proposed tubewell development program.

327. **Increase irrigation intensity.** On surface systems, around 70% of the irrigable area is limited to supplementary monsoon season irrigation due to seasonal river flows, unwillingness of farmers to pay for pumping costs and lack of reliable electricity supply. ADS will support increasing irrigation intensity by:

- a. **Improve catchment management** and restoration including the program of Churia areas conservation, under responsibility of the Ministry of Forests and Soil Conservation.
- b. **Construct inter-basin transfer** schemes (IBT) to move water from permanent to seasonal rivers to augment supply in water-short irrigation systems if economically justified by generation of hydropower. Full environmental impacts must be assessed and mitigated for approval of any IBT. Specific activities are:
 - i. DOI to review East-West water transfer project proposal;
 - ii. Design and construct 7 IBT systems for hydro-electricity power and irrigation with full EIA and safeguards.

328. **Improve irrigation system and on-farm water management.** ADS will provide support for better irrigation system and on-farm water management by:

- a. Reform and strengthen the existing Irrigation Management Division to become the Department of Irrigation Development, for better management of agency-managed irrigation systems (AMIS);

- b. Provide adequate levels of budget, either from national resources or the collection of adequate irrigation service fees (ISF);
- c. Build capacity of WUAs and provide advice and possibly funding to farmers to improve their irrigation systems and practices.

329. **Implement irrigation management transfer (IMT).** WUAs or water committees are managing almost all of the 15,000 or so irrigation systems in Nepal. However, the main systems of 32 DOI developed irrigation schemes are managed by the Agency (DOI), with secondary and lower canals managed by WUAs and water user groups. ADS will support IMT to the WUAs to take responsibility for main systems in all or most of the remaining AMIS. Actions to be supported include:

- a. Joint (agency/WUA) management for large schemes, but with greater responsibility progressively transferred to the WUA, for example in relation to employment of gatekeepers.
- b. Full responsibility and ownership transferred a WUA or a federation of WUAs for medium schemes (5,000 to 10,000ha).
- c. Prepare and implement an Irrigation Management Transfer pilot project for two medium to large irrigation systems, with formation of farmer-owned Irrigation Management Company or cooperative (IMC) as one component, and TA commissioned to study international experience and recommend the mechanisms for ownership transfer. IMC would be responsible for operational and financial management including setting and collection of ISF, with the WUA (or federation of WUAs) acting as the board, and a professional irrigation manager (e.g. DOI engineer) appointed to recruit operational management staff.
- d. Harmonizing and streamlining legal structures required for ownership transfer to WUAs.

330. **Establish funding for Operation and Maintenance (O&M).** DOI is responsible for headworks and main canal management, including O&M of the main system of AMIS. WUAs are intended to contribute part of the irrigation service fee (ISF) that they collect, but this is currently not effective in a large majority of schemes. In the short term ADS will support measures to promote and enforce ISF collection to provide adequate funds for O&M of the lower canals, and a contribution to main system maintenance. Measures include:

- a. Introduce incentives into the system, with (for example) government budget support proportional to ISF collection, with a time lag sufficient to allow the amount to be included in the budget request.
- b. Introduce legislation to require a receipt for ISF payment to be attached to land tax payment. This option would require full or partial exemptions to be permitted when water cannot be provided to a particular canal or farmer.
- c. Enforce the existing requirement that ISF payments be brought up to date before a land sale can be registered.
- d. Define and charge ISFs – per crop in the short-term, and per volume of water in the long term on schemes with volumetric metering.

331. **Implement integrated water resource management.**

- a. Finalize the Integrated Water Resources Management (IWRM) policy drafted in 2010.
- b. Introduce the IWRM nationally, with management based on hydraulic boundary, starting in areas where there is inter-sectoral competition or conflict over water.

332. **Build capacity of Women Farmers in Irrigated Agriculture and Water Resource Management.** The programs to improve irrigation and water resources management designed

under the ADS will include a capacity building module. In order to meet GESI dimension a program of capacity building for women farmers in how to build, manage, and maintain irrigation system will need to accompany other measures.

5.3.6 Activities related to Output 2.6 on Timely Access to Quality Agricultural Inputs at Affordable Price

333. **Formulate consistent policy for agricultural input supply and distribution.** ADS will support formulation of policies that include:

- a. *Target* the poor, women, marginal, and remote farmers.
- b. *Size of subsidy* rationalized with other possible uses of public resources.
- c. *Phasing out* subsidies over time to avoid creating dependency or negative impact if they are withdrawn abruptly.
- d. *Affordability* to be sustained within the government's revenue and budget capacity.
- e. *Monitoring* subsidies distribution according to the regulations.
- f. *Outcome and impact* evaluation of the subsidies.

334. Guidelines for such a policy in order to ensure consistency with the overall ADS are:

- a. *Consistency over time*: Do not create abrupt changes unless those are announced with sufficient lead time and an adjustment policy is well designed.
- b. *Promotion of private and cooperative sector*: do not use subsidies to promote parastatals at the detriment of the private and cooperative sector involved in the supply and distribution of inputs.
- c. *Periodic review of subsidy policy*. A periodic review of the subsidy policy should be conducted (eg every 5 years). On the basis of the study the level, area and duration of subsidy will be declared for the subsequent five years. Some subsidies might be phased out (if they have accomplished their objectives) and others might be introduced.
- d. *Promotion of competitiveness*: ensure that there are complementary measures to ensure competitiveness (for example demonstrations about effective and efficient input use).
- e. *Promotion of sustainability*: ensure the sustainable use of input through improved practices and assured supply and distribution chains.
- f. *Promotion of quality*: ensure that agencies responsible to assure the quality of agricultural input have the capacity, resources, and authority of doing so.
- g. *Inclusiveness*: ensure that good and timely inputs are accessible to everybody particularly to the less favored groups.
- h. *Regressive nature of subsidies*: do not create a situation in which the greatest beneficiaries of the subsidy system are those who need the subsidies the least.

335. **Establish voucher system for inputs** whereby targeted farmers are provided with a voucher that empowers them to purchase the input of their preference. First pilot the system and on the basis of a positive review of the pilot, replicate the system and upscale. If evaluation leads to a replication and expansion of the voucher system, then a clear exit strategy should be established (for example a gradual withdrawal over a certain period of time or based on accomplishment of some productivity targets). One option is for vouchers to replace the existing subsidy system for fertilizer.

5.3.7 Activities related to Output 2.7 on Effective Implementation of Existing Seed⁵⁶ Policies including Seed Vision 2025 through sufficient Investment in Resources and Capacity Building.

336. The activities related to seed are consistent with Seed Vision 2025, Agricultural Biodiversity Policy 2005, and Seed Regulation 2069.

337. **Enhance capacity of seed research stations** to produce breeder and foundation seeds. This will involve:

- a. Increased funding to enhance capacity of public research institutions and research stations, universities, and private sector industry.
- b. Maintaining good quality land races and open pollinated varieties (OPVs) of different crops in the remote areas that are dominated by subsistence agriculture, and establish good linkages with international agencies.

338. **Promote private and cooperative sector and community based seed production.** This will involve:

- a. Promoting partnerships with relevant private and cooperative organizations, farms and nurseries for production of quality planting materials
- b. Encouraging private and cooperative sector to slowly take over the commercial production of saplings, seeds, while the role of government is that of facilitator, quality control, policy and regulations formulation, information provider, and monitoring and evaluation
- c. Providing breeder and foundation seed to private and cooperative seed growers
- d. Promoting private and private sector to produce breeder, foundation and hybrid seeds
- e. Promoting seed enterprise as an industry catering to the national needs and for export
- f. Promoting community based seed production and agro-biodiversity in inaccessible remote areas.

339. **Enforce quality assurance systems.** This will involve:

- a. Strengthening planting materials certification processes through improved capacity of concerned public organizations
- b. Enforcing compliance of nurseries with farm inputs quality standards
- c. Encouraging provision of quality control and certification from private sector as well as government
- d. Enforce legislation that compensates farmers when purchasing poor quality seed not complying with existing standards

340. **Promote production of hybrids.** This will involve:

- a. Allowing imports of suitable hybrids after necessary testing.
- b. Encouraging local hybrid seed production within GON organizations, the private and cooperative sector, and in partnership with foreign companies.

341. **Establish an information system about seed demand and supply.** This will involve an updated database available to the public containing timely information about seed production and seed stock for main crops with information about nurseries, breeding stations, and research

⁵⁶ Seed in the ADS includes both crop seed and fodder seed.

centers. The database will also contain estimated demand by crop and area and information about suppliers and inspections. Ensure information is readily available to women, Dalit, Janajati/Adivasi, and Madhesi farmers.

342. **Implement Biodiversity Policy.** This will involve:
- a. Strengthening collection, classification, and assessment of diversified bio resources relevant to agriculture, and support scientific report/ documentation
 - b. Initiate a system of registration of agro-biodiversity
 - c. Develop regulation for the research and experimentation of Nepalese Bio-diversity and Genetic Resources
 - d. Develop regulation of GMO having negative impact on bio-diversity, genetic resources, and human health.

343. **Pilot voucher system for seeds** whereby targeted farmers are provided with a voucher that empowers them to purchase the input (in this case seeds) of their preference. First pilot the system and on the basis of a positive review of the pilot, replicate the system and upscale.

5.3.8 Activities related to Output 2.8 on a pragmatic Solution to Fertilizer Supply that is acceptable in the short-term, clearly indicates a Strategy for the medium and long term, and aims at Improving Productivity

344. **Gradual transformation of fertilizer subsidy system into more effective delivery.** Maintain fertilizer subsidy at 2011 level in the short term, review them in the medium term and remove them in the long term. This will involve implementing a study possibly entitled 'Review of Impact of Fertilizer Subsidy' every 5 years during ADS.

345. **Complementary measures to improve productivity and fertilizer use efficiency** will involve promoting a greater private sector role, and include:
- a. Demonstration and awareness campaign to demonstrate efficient use of fertilizer and educate farmers about the cost and benefit of efficient use of fertilizer. The campaign should involve private sector fertilizer suppliers, e.g. to sponsor or conduct demonstrations and provide technical information to farmers.
 - b. Promote organic and bio-fertilizer at least at the supplementary or complementary level that can sustain the soil fertility and use inorganic fertilizers to attain higher production and productivity. This will involve:
 - i. Extension on best practices and demonstrations involving private sector suppliers and manufacturers.
 - ii. Facilitating establishment of commercial bio-fertilizer production enterprises based on municipal biomass and agro-processing waste, e.g. through PPP, quality and safety analysis, and registration of products that meet government standards.
 - c. Conduct feasibility studies on fertilizer production and procurement. These studies might include feasibility of:
 - i. Establishing a fertilizer factory in the country under PPP arrangement;
 - ii. Obtaining equity shares of fertilizers factory outside the country, possibly as a FDI trade deal with neighbors wanting hydro-electric power and irrigation water;
 - iii. Establishing long-term contracts with foreign suppliers of fertilizer (both in India and third countries).
 - d. Establish a fertilizer buffer stock under PPP arrangement.

- e. Establish database and monitoring system on fertilizer use and distribution, including both official and informal import (the latter to be obtained through survey data).
- f. Establish voucher system for fertilizer whereby targeted farmers are provided with a voucher that empowers them to purchase the input (in this case chemical or organic/bio-fertilizer) of their preference. First pilot the system and on the basis of a positive review of the pilot, replicate the system and upscale.
- g. Enforce quality assurance systems. This will involve:
 - i. Strengthening fertilizer inspection through improved capacity of concerned public organizations
 - ii. Enforcing compliance of importers and dealers with fertilizer quality standards
 - iii. Encouraging provision of quality control and certification from private sector as well as government

5.3.9 Activities related to Output 2.9 on a Variety of Improved Animal Breeds Appropriate for the Nepal Farming Systems Conditions are available to Farmers

346. Develop livestock breeding policy

347. Capacity building for improved breeds production.

- a. Support pure breeds production farms.
- b. Promote private sector and cooperatives to produce improved breeds with proper recording of progeny, productivity, and efficiency.
- c. Expansion of artificial insemination laboratories and service for the promotion of breeding programs for breeds improvement.
- d. Support private sector to establish grandparent stocks of poultry.
- e. Support production of improved breeds to private sector.
- f. Support recording and improvement of quality, health status, productivity of improved herds.
- g. Support implementation of livestock insurance schemes.

348. **Establish a voucher system for animal breeds, veterinary services, and livestock insurance**, whereby targeted farmers are provided with a voucher that empowers them to purchase the input of their preference. First pilot the system and on the basis of a positive review of the pilot, replicate the system and upscale.

349. **Reliable, efficient and continuous supply of Liquid Nitrogen (LN₂) for the AI program.** One of the effective approaches could be the establishment of LN₂ plant on PPP model.

5.3.10 Activities related to Output 2.10 on a Range of Mechanization Options accessible to Farmers through the Private Sector

350. A mechanization strategy led by the private sector, focusing on awareness creation, demand stimulation, a concessionary financing arrangement, technical capacity building of the dealer network, particularly for the 2-wheel power tillers and mini-tiller dealers throughout the country and some modifications in taxation. This strategy needs a lot of coordination with the private sector equipment providers and with the commercial banking sector. The approach would be oriented to: (i) power tillers with multifunctional tilling options in the terai; (ii) gradual increase in the numbers of mini 2-wheelers (with some optional attachments) in hilly areas; and (iii) labor-

saving low energy implements and mechanized irrigation in the mountains. There would be four components to this strategy:

351. **Information dissemination:** The private sector has engaged strongly in sales of 4-wheelers with approximately 4,500 tractors sold in 2011, but most farmers and potential clients of 2-wheelers (and mini tillers) have little information on 2-wheel tractor options and benefits. Therefore ADS will support the conduct of social marketing campaigns on a cost sharing basis with 2-wheel tractor importers and dealers emphasizing the advantages of a 2-wheel tractor over the traditional forms of cultivation, harvesting etc. There would be three separate campaigns one for the mountains, one for the hills and one for the terai. Each one of them would have the same aim, to inform farmers of the potential options and choices, however the orientation and relative weighting of these options would be different in the three different agro-economic zones.

352. **Improve customer access to finance:** Although 4-wheel tractors fall under the regular financing schemes of the commercial banks (hire-purchase), the 2-wheel tractors are largely ignored by bank financing and without license plates, the banks are hesitant to provide loans to the prospective owners of the mini-tillers. Likewise the importers and dealers of the 2-wheeled power tillers have yet to pursue the same kind of aggressive financing implemented by a few of the 4-wheel tractor dealers. Some commercial banks have shown a keen interest in financing 2-wheel tractor sales through dealer financing rather than through consumer financing. Dealers are already providing credit for mini tillers. With the dealers and importers co-investing in providing loans to the prospective clients, it is expected that sales would increase significantly from the first year itself.

- a. Promote commercial banks to finance dealers to on-lend to their customers under two options:
 - i. Extend credit on commercial terms to dealers so that they can also on-lend at rates around 17%⁵⁷;
 - ii. Access cheaper credit from the Rastra Bank's "deprived sector" lending program although there are restrictions on the targeting of end users.

353. **Capacity building of service and maintenance providers:** Though the 2-wheelers' and mini-tillers' technical configuration is relatively simple and can be compared to that of the diesel pump sets or even motorcycles, the linkage with after sales service and spare parts is poor. Hence it is proposed that ADS supports:

- a. Dealers to increase the technical capacity of the smaller existing workshops that are scattered through the countryside, instead of setting up their own repair workshops. These workshops could also stock spare parts and act as small brokers for some of the 30-35 dealers operating in major commercial centers.
- b. Dealers to offer technical training for 1,000 farmer/service providers to enable them to become local experts in the impacts of mechanization (additional germination rates, cost saving implications, the advantage of zero leveling, the impact of seed drills etc.)

354. **Enable the business environment for leasing agricultural equipment.** Introduce the following legal measures that would allow leasing companies to operate:

⁵⁷ Commercial banks must lend up to 3.5% of their outstanding portfolio to agriculture or face fines of 16% on loans unallocated to this sector. They therefore have an incentive to constantly look for lending to this sector. Commercial bank also have the option to access concessionary financing for the "deprived sector" (cooperatives and micro-finance institutions) at 10-10.5%, but there are restrictions on how the funds are deployed.

- a. Legal clarification (ruling) that the Banking Institutions Act does not restrict non-banking institutions to engage in leasing; and
- b. Establish a pledge registry (under the Secured Transactions Act or under by amendment to the Contracts Act) to allow securing the financing for leasing operations by leasing companies.

355. **Revise regulation and taxes to support mechanization:** To accompany the three above mentioned components, government will implement the following supportive fiscal measures:

- a. Waive the VAT amount and import duty on spare parts (which is over 28%), to reduce the proliferation of sub-standard spare parts brought illegally across the border and promote business of local dealers and sub dealers.
- b. Remove the 5-year restriction on change of ownership of 2-wheel tractors, to encourage mechanization.
- c. Impose full VAT on the purchase of 4-wheelers but not on 2-wheelers. The majority of 4-wheel tractors are used exclusively for commercial transport rather than for agriculture.
- d. Reduce the road tax for 2-wheelers. Currently it is Rs. 2,900 for 4-wheeler and 2,300 for 2-wheelers, which is a disincentive for a 2-wheel purchase if it is to be used for agriculture and is excessive in comparison to the 4-wheeler.

356. **Pilot a voucher scheme.** This may entail provision of a 30% subsidy on all attachments for 2-wheelers and 4-wheelers, to increase the rate of attachment usage (seed drills, reapers, laser levelers, planters etc.). This would last just 3 years and be accompanied by the above mentioned social marketing campaign.

5.3.11 Activities related to Output 2.11 on Improved Resilience of Farmers to Climate Change, Disasters, Price Volatility, and Other Shocks

357. **Conduct research on stress tolerant varieties and breeds** of crops, livestock and fish for the development of climate resilient agriculture that are at the same time higher in yield.

358. **Establish an early warning system** and adopt early warning information for managing climate change risks in agriculture and food and nutrition security.

359. **Establish climate information and weather indexation systems** designed to provide information to farmers. This will include building capacity of the Meteorology Department to provide weather risk indexation at local levels (as described for agricultural insurance), and building capacity for crop yield forecasting based on weather indexation.

360. **Pilot a Farmers Welfare Fund** that would provide assistance to farmers under distress through access to financial resources to overcome temporary losses of income. The fund could be attached to the Community Agricultural Extension Service Centers, and may be a revolving fund with initial seed funding from central and local government and replenished by members.

361. **Promote agricultural insurance** (details under Commercialization).

362. **Strengthen the food reserve system** to cope with emergency and food safety distribution to targeted farm households.

363. **Strengthen the seed and feed/fodder reserve system** to cope with natural disasters such as flood in the terai, heavy snow fall in the high mountain areas. Promote Community Managed Seed Banks at VDC level, in coordination with the CAESC.

364. **Improve capacity of extension staff and farmers in climate smart agricultural practices** through training, FFS, and demonstrations.

365. **Establish a fund for preparedness and response** to droughts, flood, epidemics and emergencies affecting rural areas and farmers not covered by agricultural insurance.

5.3.12 Activities related to Output 2.12 on Sustainable Farming, Good Agricultural Practices (GAP), Good Veterinary Husbandry Practices (GVAHP) are established and adopted.

366. **Formulate standards** for Good Agricultural Practices and Good Veterinary and Animal Husbandry Practices (GVAHP) suitable to socioeconomic and agroecological conditions, and comparable to international standards through interaction by public and private sector.

367. **Conduct extension programs with private sector** to promote adoption of best practices standards and green technologies, including the following:

- a. integrated soil fertility management,
- b. integrated plant nutrients management,
- c. integrated pest management (IPM),
- d. renewable energies based on biogas and biomass utilization,
- e. organic farming,
- f. farm sanitation and hygiene good practices,
- g. practices to prevent use of hazardous chemicals in crops and regulations of the use of antibiotics in livestock production process.

5.3.13 Activities related to Output 2.13 on Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.

368. **Strengthen enabling policy environment** for developing, managing, and sustaining forest products and services in a more commercial and sustainable way. This will require the following measures:

- a. Develop new forestry sector strategy aligning with changing political and institutional context.
- b. Develop forest land use planning in line with the national land use policy.
- c. Harmonize conflicting policies in line with overall national land use policy and forest sector policy, and international commitment of the Government and ensure ground actions.
- d. Develop policy measures to control the forestry land use conversion, startup scientific forest management and enhance the forestry sector contributions.
- e. Revise the policy and programs of community based forest managements to address their unintended negative effects on distant users, resource sharing, social inequity and traditional use rights of transhumance and transient glaziers.

369. **Develop and integrate land use models with forestry.** Productive, commercial, socially inclusive, agro-forestry production land use models will be integrated into existing forest management practices across the landscape/physiographic region. This will require the following measures:

- a. Identify and prioritize the most socially and economically competitive forest products for each of the management regimes across the various landscapes and physiographic regions.
- b. Develop multiple use context specific climate change friendly agro forestry modalities for each type of farmer (small to rich farmers).
- c. Develop and scale up intensive management model for community based forestry for each landscape/physiographic region actively contributing to productivity of farming system, increasing social, economic and environmental benefits and achieving food security.

370. **Enhance forestry enterprises and marketing development.** This will require the following measures:

- a. Improve the value chain of forestry products (timber and non timber) to be promoted for each of management regimes of farm or forests across the landscape/physiographic regions.
- b. Identify the role and involve stakeholders in the forestry sector management. Develop public-user-private partnership mechanism with well identified roles and responsibilities.
- c. Promote the establishment of agro forestry based enterprises providing emphasis to the poor, community and private sector based on context and appropriateness.

371. **Enhance forestry gender equity and social inclusion (GESI).** This will require the following measures:

- a. Strengthen the implementation of Gender and Social Inclusion Strategy of the forestry sector in all phases of program planning and implementation at all levels from center to the district levels.
- b. Restore the degraded lands, enrich the public lands and increase the productivity of low yielding farm lands with appropriate pro poor agroforestry models to achieve the goal of food security, environmental sustainability and poverty alleviations.

372. **Develop biodiversity conservation and climate change adaptation** and mitigation through the following measures:

- a. Support the Local Adaptation Plan of Action (LAPA) as implementation support for the National Adaptation Plan of Action (NAPA) for climate change and emphasize the role of forestry sector components for adaptation and mitigations.
- b. Support revision and implementation of National Biodiversity and Action Plan (NBSAP) and scale up the interventions on soil conservation and watershed management.
- c. Develop with policy decision, implement and scale up schemes related to payment of environmental services including carbon sequestrations.
- d. Promote use of alternative/renewable energy and energy saving scheme among the local forestry groups

373. **Develop institutional and human resources** for forest governance through the following measures:

- a. Restructure the forestry sector based on the new forestry strategy, periodically reorient the staffs and improve the service delivery mechanism.
- b. Prepare and implement a comprehensive human resource development plan.
- c. Democratize governance system of government, non-government, community and private institutions working in forests sector and making it inclusive, transparent and accountable.

374. **Implement research and extension for sustainable forestry** through the following measures:

- a. Develop and implement sustainable forest management research, communication, education and awareness raising strategies for national district and community level.
- b. Collaborate between stakeholder agencies by clearly recognizing needs and priorities on forest research and carry out adaptive research with high-quality support from national and sub-national research institutes.
- c. Develop extension package on best forestry practices and test. The extension package includes reduction on forest threats including forest encroachment, grazing management, sustainable forest management and improved agricultural practices.

375. **Develop a forestry investment strategy and plan** through the following measures:

- a. Develop and implement district forest development funds management.
- b. Develop strategy on public private partnership and increase the private sector investment in forestry
- c. Develop National REDD plus strategy, Biodiversity Strategy and Action Plan, Strategy on Green Jobs and Investment plan for receiving benefits from regional and international funding schemes.
- d. Create conditions for continuous and stable investments in the forestry sector through the process of realization of the new Forestry Strategy.
- e. Develop coordination and for planned investments between private and state sectors, international and national donors.
- f. Create the favorable climate for investments in the private and state sectors, international and national donors.
- g. Improve law enforcement to decrease the negative impact on forest markets and increase the income for the sector that will ensure larger reinvestments in forestry.
- h. Co-ordinate with the national and international financial assistance including international funds for support to sustainable forest management, to biodiversity conservation, protective functions of forests, payment of environment services and for carbon sequestration.

376. **Develop joint platform for policy** and actions on ground through the following actions:

- a. Join up the work of organizations to map and access policy initiatives for the agriculture and forestry sectors, and identify where the measures exist or are missing.
- b. Work to embed a common understanding and language, generate shared messages on the need to adapt, and incorporate new, consistent messages on farming systems and priorities for action

- c. Develop better information to help farmers consider the costs and benefits of capital investments that would improve their productivity
- d. Build on existing knowledge and research to ensure that agriculture and forestry complementing each other.
- e. Develop examples of good working practice and adding value to support decision-making engaging with the forestry user groups looking at existing and future schemes for forestry to support agriculture production.
- f. Develop critical capacity in research, expertise and the evidence base.

5.4 Activities Related to Outcome 3: Profitable Commercialization

377. Outcome 3 of the ADS is Profitable Commercialization. The outcome is achieved through 8 outputs and 38 activities illustrated in Table 30 and detailed in the following sections.

Table 30 Activities related to Outcome 3 on Profitable Commercialization

Outcome	Output	Activity	
3			Profitable commercialization
	3.1		Improved investment climate
		3.1.1	Promote formation of broad-based commercial agriculture organizations
		3.1.2	Increase participation of agribusiness, cooperatives and industry bodies
		3.1.3	Promulgate appropriate regulations
		3.1.4	Level the competitive environment between private sector and state enterprises
		3.1.5	Reform land use policy to stimulate commercial agriculture
		3.1.6	Provide information to assist commercial farming decisions
	3.2		Contract arrangements for commercial agriculture
		3.2.1	Strengthen contractual arrangement mechanisms
		3.2.2	Capacity building in commercial agriculture
	3.3		Tax policy to support commercial agriculture
	3.4		Agricultural finance and insurance
		3.4.1	Promote development of agricultural finance and insurance providers
		3.4.1.1	Provide long-term finance through leasing
		3.4.1.2	Implement policy to divest government shareholding and management influence in financial institutions
		3.4.1.3	Promote financial institution viability
		3.4.1.4	Facilitate development of a range of financial products for agriculture
		3.4.1.5	Provide incentives for agricultural finance
		3.4.1.6	Provide training in financial management for farmers
		3.4.2	Promote development of agricultural insurance
		3.4.2.1	Support the insurance industry in implementing the Agricultural Insurance Directive
		3.4.2.2	Promotion campaign to farmers
		3.4.2.3	Pilot a local-level weather indexing scheme
		3.4.2.4	Strengthen technical capacity of MOAD for regional and local level crop forecasting
		3.4.2.5	Pilot scheme for 50% premium subsidy
	3.5		Competitive agricultural value chains
		3.5.1	Establish 5 prioritized National Value Chain Programs
		3.5.2	Support to better expedite value chain development
		3.5.3	3.5.3.1 Enhance the development of the DAIRY value chain
			3.5.3.2 Value chain development fund
		3.5.4	3.5.4.1 Enhance development of the LENTIL value chain
			3.5.4.2 Value chain development fund
		3.5.5	3.5.5.1 Enhance development of the MAIZE value chain
			3.5.5.1 Value chain development fund
		3.5.6	3.5.6.1 Enhance development of the TEA value chain
			3.5.6.2 Value chain development fund
		3.5.7	3.5.7.1 Enhance development of the VEGETABLES value chain
			3.5.7.2 Value chain development fund
	3.6		Rural roads network expanded
		3.6.1	Update policy for rural roads to explicitly target agricultural roads.
		3.6.2	Establish a new section for agricultural roads in District Technical Office

Outcome	Output	Activity	
3			Profitable commercialization
	3.6.3		Provide separate funding for development and maintenance of agricultural roads.
	3.7		Agricultural market information
	3.7.1		Promote development of a suite of products for market information and market intelligence
	3.8		Rural electrification and renewable energies
	3.8.1		Establish a separate liaison section especially for power development in MOAD
	3.8.2		Establish a fund to support PPP for power development with farming community

5.4.1 Activities related to Output 3.1 on Improved Investment Climate for Agricultural Commercialization

378. **Promote broad-based commercial agriculture organizations** that could monitor and dialogue with government on improved investment climate for agricultural commercialization. These organizations will be complementary to existing chambers of commerce and their federation, trade associations, cooperative federation etc., in so far as they promote the formation of alliances across the value chain. Their structure could be similar to the Commercial Agriculture Alliance (CAA) in the Eastern Region in terms of broad coverage of actors such as farmer cooperatives, traders, input supplies, and agroindustry. In such a case, the monitoring and advocacy would be for a broader spectrum of commercial agriculture than other existing organizations. The establishment of these commercial agricultural organization will benefit from a review of strengths and weaknesses of the CAA in the Eastern Development Region. Similar organizations will be promoted in each development region and sub-region (or other alternative to emerge in any future federalist structure).

379. **Increase the participation of agribusiness, cooperatives, and industry organizations in sub-sector planning and implementation.**

- a. Representatives should be appointed to Steering Committees, CADIC, local planning and implementation bodies, and bodies that advise on regulation of commercial agriculture.
- b. Indicators to monitor investment climate should be agreed between the government and relevant organizations representing farmers, cooperatives, and private sector. A working group or sub-committee under CADIC could be held responsible for monitoring these indicators.

380. **Promulgate appropriate regulations** to promote larger scale commercial cooperative farming including enabling:

- a. merging of cooperatives across districts or regional boundaries;
- b. contract farming;
- c. lease farming.

381. **Level the competitive environment between private sector and state enterprises** in the distribution of agricultural inputs and outputs. For example, level playing field in the purchasing and distribution of fertilizer, seed, artificial insemination, milk. This may involve providing the private sector with the same commercial advantages (e.g. subsidies, permits, facilities), or removing these advantages from state enterprises.

382. **Reform land use policy to stimulate commercial agriculture**, such as on land plotting, land fragmentation, land ceilings, land tenancy, land pooling (see section 5.3.4 on Land)

383. **Provide information to assist commercial agricultural decisions** (e.g. crop gross margin, cash flow analyses, market information, trade related information), through preparation and dissemination of farm management economic information by collaboration between DOA, DLS, research institutes and Department of Agribusiness Promotion.

5.4.2 Activities related to Output 3.2 on Contractual Arrangements for Commercial Agriculture

384. **Strengthen contractual arrangements mechanisms** and promote awareness and demonstration of these regulatory mechanisms for commercial agriculture such as:

- a. Enact and implement a *Contract Farming Act* that, *inter alia* includes: (i) Collective bargaining arrangements with multiple small farmers; (ii) Protection of the parties to the contract (farmers against exploitation through credit and accumulation of debt and contractors against unauthorized sales); (iii) Provisions on insurance of crops; (iv) Implementation of the Secured Transaction Act (see below).
- b. Implement a *Secured Transactions Act* by establishing a registry of commerce movables as security - to (i) allow farmers to provide future crops as collateral for financing, whether as part of a contract farming arrangements or as collateral for farm credit or inputs; and (ii) allow development of hire-purchase or financial leasing for agricultural market⁵⁸. If implementation of STA proves impractical⁵⁹ one could amend Chapter 6 of the Contracts Act to ensure a simplified pledge procedure for the pledging of movables as security, including pledge registry.
- c. Enact land-lease act (possibly as part of a Contract Farming Act) to provide for a viable alternative to the sharecropping (with concern that tenancy may be re-enacted) and inducing of sale by absentee landlords as well as a basis for agro-business farming arrangements that provides for (i) fair lease contracts (i.a. – fixed fee or reasonable sharecropping ratios); (ii) measures to prevent acquisition of tenancy rights in long-term lease relations; and (iii) ability to secure long-term leases for agro-businesses to enable them to cultivate land for the agro-business.
- d. Promote Leasing Operations through: (i) providing for the formation of Leasing Companies to engage in financial leasing of farming equipment, by clarifying that Article 47(1)(d) of the BFIA which stipulates that FIs are permitted to engage in leasing operations does not limit non-FIs from engaging in leasing of farming

⁵⁸ In a typical leasing operation, a leasing company serves as the middleman between the financial institution that provides the financing for the purchase of the equipment, and the farmer who leases it, from the leasing company. In order to obtain bank financing the leasing company needs to put up collateral. That collateral is the equipment that is leased to the farmer. Thus the owner of the equipment is the leasing company, the bank has a security interest (collateral) in the equipment and the farmer leases it. In the absence of the registry only land can be collateral (or vehicles that are registered with the motor vehicle registration. The equipment cannot be registered as collateral and financing will not be forthcoming to the Leasing Companies. Since financial institutions (FIs) are usually not familiar with leasing operations FIs will not become lessors.

⁵⁹ The STA is a rather complex legislation which may not be suitable as an initial mechanism for using movables as collateral.

equipment⁶⁰; and (ii) establishing pledge registry either under STA or by amendment of Contracts Act, as described herein above.

385. **Capacity building in commercial agriculture.** The promotion of commercial agriculture through improved contractual arrangements, value development, and market intelligence, requires the training and capacity building in key concepts of agricultural commercialization and value chain development. ADS will support capacity building programs delivered in collaboration with farmers and their organizations (groups and cooperatives), agro-enterprises and their organizations, and service providers (government, professional).

5.4.3 Activities related to Output 3.3 on Tax Policy that Supports an Efficient Commercial Agricultural Sector

386. **Develop tax policy supportive of an efficient commercial agricultural sector** through providing subsidies and targeted tax incentives through the commercial transformation period, until the sector has reached a sufficient level of maturity and sustainability that those subsidies and incentives may be phased out. This will replace blanket exemptions with targeted concessions with termination dates (in accordance with the recommendations in IMF Country Report No. 11/319 of November 2011). In the long term the agriculture sector will provide government with an additional source of revenue for mobilization. ADS will support the revision, rationalization, specification of their terms (criteria) and duration (expiry dates), consultation and awareness campaign for all tax incentives and related to commercial agriculture and including the following:

- a. Determine and implement specific income tax concessions to (a) stimulate investment in farm plant, machinery and irrigation infrastructure; and (b) promote green technologies and reduce carbon emissions.
- b. Determine and implement tax incentives for the insurance industry to stimulate the growth of agricultural insurance contracts in accordance with the Agricultural Insurance Directive 2069 (2013).
- c. Determine and implement tax incentives for the banking industry to stimulate the growth of agricultural loans.
- d. Determine and implement changes to the way land is taxed.

5.4.4 Activities related to Output 3.4 on Agricultural Finance and Insurance Providers that supply a variety of competitive and demand-driven financial and agricultural Insurance Products.

387. **Promote development of diverse agricultural finance and insurance providers** that supply a variety of competitive and demand-driven financial and agricultural insurance products. ADS will support implementation of ongoing policies and measures in the finance sector such as:

- a. Provide long-term finance through leasing, especially for agricultural equipment and land.
- b. Implement existing policy to divest government shareholding and management influence on financial institutions. Regulatory actions include:
 - i. Privatize ADBL and Grameen Bikas Bank.
 - ii. Ensure management autonomy for financial institutions in the appointment of board and management team members, in

⁶⁰ The language of Article 47(1)(d) should not prevent non-FIs from engaging in leasing operations, but as the Rastra Bank apparently believes it does, one may have to resort to a legislative (or judicial) clarification that leasing operations may be conducted by non-FIs.

- management functions and in their commercial operations subject to prevailing prudential regulations.
- c. Promote financial institution viability:
 - i. Support ongoing efforts by NRB to promote consolidation of financial institutions through selective licensing of new financial institutions and through the merger of weak financial institutions.
 - ii. Implement the provisions of the Microfinance Act to establish a second-tier regulatory authority for MFIs that will facilitate improved viability and sustainability, and governance, in the microfinance subsector.
 - d. Facilitate development of a range of financial products for agriculture, subject to prevailing regulations such as Deprived Sector lending regulation, to better serve the diverse needs of agricultural enterprises. For example those based on information and communication technology [ICT]), and products that are readily available in many countries' financial systems but are effectively untried in Nepal such as stock and warehouse receipts.
 - e. Provide incentives for agricultural finance, to increase participation of financial institutions into the agricultural finance market by:
 - i. Provide incentives, if appropriate tied with directives, to promote an increased volume of lending. A good example is the NRB 2011 Directive that 'commercial banks must direct 10% of their total lending to agriculture' – the directive is supported by NRB provision of refinancing facility for agriculture at 6.5%.
 - ii. Promote financial institutions to branch into rural centers to gain experience of the needs of rural lenders, better understand agricultural finance and appraise agricultural credit needs. A good example is the present (2013) NRB provision of interest free loans to commercial banks to open rural branches.
 - f. Provide training in financial management for farmers, cooperatives, agri-entrepreneurs, rural women and rural youth, to enhance agricultural enterprise creditworthiness.
388. **Promote development of agricultural insurance** so that farmers have access to viable crop, livestock and fishery insurance products through the following measures:
- a. Support the insurance industry in implementing the Agricultural Insurance Directive 2069 (2013), and make policy adjustment as appropriate to develop viable commercial livestock and crop insurance products.
 - b. Promotion campaign to farmers on agricultural insurance products, in partnership with insurance industry. These will include: "Commercial Livestock Insurance Scheme (CLIS)", "Milk Cooperative Managed Livestock Insurance Scheme (MCLIS)" and "Weather Based Crop Insurance Scheme (WBCIS).
 - c. Pilot a local-level weather indexing scheme in 11 cereal production pockets through support to DHM.
 - d. Strengthen technical capacity of MOAD for regional and local level crop forecasting risk assessment based on indexing weather patterns with crop yields;
 - e. Pilot a scheme for 50% premium subsidy (as per the Insurance Board Directive), to kick-start the scheme in the short term, review the premium subsidy and gradually phase it out.

5.4.5 Activities related to Output 3.5 on Competitive Agricultural Value Chains that Increase Value Added and Benefits to Smallholders Farmers and Agroenterprises

389. **Prioritize a limited number of value chains (5 value chains) over the first 5 years of the ADS and establish National Value Chain Programs for each of the prioritized value chains.** The prioritized value chain are selected through a process that takes into account the following criteria: (i) Poverty reduction potential; (ii) Growth potential (or potential for increasing growth and access); (iii) Intervention potential; and (iv) Cross-cutting issues (social inclusion and gender, environmental sustainability, matching with national and regional strategic priorities, balance of trade (import substitution and export), and geographical spread). The prioritized value chains include: dairy, lentil, maize, tea, and vegetables.

- a. For each value chain, identify a Value Chain Program Steering Committee. The Steering Committee will include representatives of the industry related to the specific value chain and include farmer representatives, agribusiness enterprise representatives, and research and extension representatives with specific knowledge about the value chain.
- b. The Value Chain Program Steering Committee will select a Value Chain Program Manager. The Manager will be selected competitively and will be a highly reputed manager with business experience in the industry. The Program manager will be responsible for coordination of projects and initiatives related to value chain development. The Program manager will prepare a more detailed plan of action and investment for the development of the value chain. The plan of action will be approved by the steering committee and updated regularly.
- c. For each value chain, conduct value chain development capacity building activities, with emphasis on markets for the poor (M4P) approach to value chain development, an approach intended to facilitate the emergence of inclusive value chains, namely value chains that benefit the poor.
- d. For each value chain program, establish a baseline and targets and monitoring system and conduct regular monitoring.

390. **Support to expedite value chain development** Will involve the combination of the following activities:

- a. Facilitate and enable the development of a better working agribusiness environment through a number of government related initiatives such as:
 - i. Facilitate establishment of Value Chain Program Steering Committees
 - ii. Support the development of suitable policies and regulations for value chains (VCs) through technical assistance support.
 - iii. Train MOAD staff in private sector development (PSD) and VC development.
 - iv. Increase human resources of the Agribusiness Section of MOAD.
 - v. Establish and fund PSD coordination subcommittee of NSC for better management/ coordination of commodity/product VC projects and programs.
- b. Support to priority VCs niche products, deprived and isolated areas of Nepal, through government targeted support.
 - i. Provide technical support to MOAD in development of VC development plans in coordination with the VC Program Manager.
 - ii. Develop methodology and expedite district competitiveness planning for VCs.
- c. Support to private sector initiatives through improved financial support systems.
 - i. Technical and management support to MOAD and other entities in the review of financial instruments for VC development.

391. **Enhance the development of the DAIRY value chain** through production, marketing and policy/institutional support.

- a. Improve milk productivity for smallholder farmers through:
 - i. Capacity development of dairy smallholder farmers in improved dairy production technologies.
 - ii. Financial and technical assistance to service providers in improved services to dairy smallholder farmers.
- b. Strengthen local milk cooperatives, collection centres and improved market linkages through:
 - i. Training and financial support to cooperatives and collection centres in improved management practices for better quality milk delivery
- c. Improve advocacy and policies for dairy sub-sector through:
 - i. Support to local CCI in the establishment of "Dairy Chapters" for better advocacy and market development.
 - ii. Support to MOAD, DLS, CCI & Dairy Association in better policy development for the dairy sub-sector.
 - iii. Technical assistance support in development of monitoring & knowledge management system.

392. **Enhance the development of the LENTIL value chain** through production, marketing and policy/institutional support.

- a. Improve production and productivity of lentil at the farm level through:
 - i. Collaboration of NARC, private companies and seed producer groups for increased production and distribution of foundation seeds and certified seeds.
 - ii. Training package on improved production practices developed, and lead farmers (LFs) at community level trained on the improved practices to serve the farmers as Local Resource Persons (LRPs).
 - iii. Support to the National Grain Legume Research Program to address on the present problems of mineral imbalances and widespread diseases at the farm level.
- b. Improve post harvest operations and marketing of lentil through:
 - i. Support for farmer groups/cooperatives for collective marketing using cleaning and grading equipment, collection centers, storage facilities and contract farming.
 - ii. Facilitating linkage/networking with banks in the importing countries through government level negotiation for issuance of letter of credit for timely payment.
- c. Improved policies, regulatory framework and institutions for lentil sub-sector through:
 - i. Support for establishment of accredited laboratories for certification of quality standard.
 - ii. Support for establishment of research unit at the national level within TEPC for market intelligence and market research for export diversification.

393. **Enhance the development of the MAIZE value chain** through production, marketing and policy/institutional support.

- a. Improve production and productivity of maize at the farm level through:
 - i. Collaboration of NARC, private companies and seed producer groups for increased production and distribution of foundation seeds, certifies seeds, and hybrid seeds.

- ii. Training package on improved production practices developed, and lead farmers (LFs) at community level trained on the improved practices to serve the farmers as LRPs.
- iii. Support activities for increased and judicious use of production inputs (seeds, fertilizers, chemicals and irrigation) for productivity increase, and popularization of improved farm tools, implements and machineries to cope with labor shortage problem.
- b. Improve post harvest operations and marketing of maize through:
 - i. Support for initiating collective marketing through provision of seed money, and storage facilities at the community level.
 - ii. Support and facilitation for improved market linkage with feed and agro-industries through contract farming arrangement.
- c. Improve policies, regulatory framework and institutions for maize sub-sector through:
 - i. Support through DADO/VDC for establishment of resource centre at VDC level with service of Leader Farmers as LRPs
 - ii. Support through DADO for establishment of institutional network for community based seed production (OPV)/ seed sourcing (hybrid), and varietal selection at the district level.

394. **Enhance the development of the TEA value chain** through production, marketing and policy/institutional support.

- a. Improve production and productivity of tea through:
 - i. Facilitate and support the tea grower farmer groups and estates to establish nurseries and quality clone development
 - ii. Support for establishment of demonstration plots and training to the farmers for improved practices for quality tea production and increased productivity
 - iii. Support for identification and expansion of new tea plantation areas.
 - iv. Facilitation and support for technical manpower development (tea tester/technician) in the tea industry.
- b. Improve post harvest operations, processing, and marketing of tea through:
 - i. Support for promotion of improved packaging material by farmers, and improved transportation of green leaf from farm to factory.
 - ii. Facilitate in contract production of tea leafs by farmer groups and cooperatives.
 - iii. Support for technological upgrading of tea factories in the promotion of safety standards, production efficiency and GMPs.
 - iv. Support for development of small scale tea processing units to the farmers, and group branding.
 - v. Support for upgrading laboratory facilities and improved packaging.
- c. Improve policies, regulatory framework and institutions for tea sub-sector through:
 - i. Facilitation and support for establishment of central warehouse and auction market under PPP.
 - ii. Support to the NTCDB for establishment of tea research, development and training center.
 - iii. Support to TEPC for studies and market intelligence services for tea farmers and entrepreneurs.

395. **Enhance the development of the VEGETABLES value chain** through production, marketing and policy/institutional support.

- a. Improve vegetable productivity for smallholder farmers through:
 - i. Technological guidelines for off-season vegetable production, farmer production training.
 - ii. Expand introduction of poly-house & micro-irrigation technologies.
 - iii. Development of off-season vegetable production blocks.
- b. Improve post harvest operations and marketing of vegetables through:
 - i. Promotion of improved grading, packaging and collection centres
 - ii. Establishment of off-season vegetable call centre for market intelligence
- c. Improve policies, regulatory framework and institutions for vegetable sub-sector.

5.4.6 Activities related to Output 3.6 on Rural Roads Network Expanded

396. This will involve systematic efforts focused specifically on. ADS will support the following activities:

397. **Update policy for rural roads to explicitly target agricultural roads.** This aims to accelerate the program of development of agricultural roads, while improving their quality and maintenance. The policy will:

- a. Focus on connecting agricultural production centers to market centers;
- b. improve coordination with other agri-market infrastructure programs;
- c. clarify division of responsibilities between center and subnational levels for implementation of the policy.

398. **Establish a new section for agricultural roads in District Technical Office (DTO)** under the DDC headed by a separate Senior Engineer in all 75 districts to implement updated agricultural roads policy.

399. **Provide** separate funding for development and maintenance of agricultural roads. The funding mechanism should involve private sector and communities in the development and maintenance of roads, e.g. via matching grants. The initial fund would cover 5 years of construction at 50km per district, and could be replenished based on satisfactory review.

5.4.7 Activities related to Output 3.7 on Agricultural Market Information and ICT Products for Market Intelligence

400. **Promote the development of a suite of products for market information and market intelligence** using ICT products and involving private sector and incentives for the users to pay. The system of market information and market intelligence must be easily accessible to smallholder farmers, traders, and enterprises. This may involve preparation and implementation of a program coordinated under ADS that will include provision of start-up financing (e.g. matching grants) to private sector, industry organizations, and/or NGOs to establish commercially viable market intelligence products and services using mobile and internet communication technologies. The products and services may be developed and managed by consortium, e.g. between wholesale market authority and ICT systems provider.

5.4.8 Activities related to Output 3.8 on Rural Electrification and Renewable Energies

401. **Support expansion of rural electrification programs through the promotion of renewable energies** (water, solar, wind, biomass, biogas). Involve MOAD in the contribution of financial and technical support to farming communities in collaboration with NEA, AEPC, ESAP etc.

- a. Establish a separate liaison section especially for power development in MOAD. Make the section responsible for assisting the farmers’ community to: (i) reach NEA, AEPC, ESAP, and National Rural and Renewal Energy Program (NRREP) for power supply (ii) plan, design, procurement, implementation and maintenance and iii) provide financial support (in some cases) for power generation.
- b. Establish a fund to support PPP for power development with farming community partners. The fund will be administered by the MOAD power liaison section.

5.5 Activities Related to Outcome 4: Increased Competitiveness

402. Outcome 4 of the ADS is Increased Competitiveness. The outcome is achieved through 4 outputs and 12 activities illustrated in Table 31 and detailed in the following sections.

Table 31 Activities related to Outcome 4 on Increased Competitiveness

Outcome	Output	Activity	
4			Increased competitiveness
	4.1		Market infrastructure developed and managed
		4.1.1	Promote development of market infrastructure
		4.1.2	Implement PPP financing support mechanisms
		4.1.3	Capacity building programs for market infrastructure management
		4.1.4	Identify strategic locations for market development and undertake feasibility studies.
		4.1.5	Develop rules and regulations and SOP for improved market management.
	4.2		Growth of small and medium agro-enterprises
		4.2.1	Adopt tax incentives to stimulate investment in agro-based enterprises
		4.2.2	Promote establishment of Agribusiness Incubators
		4.2.3	Establish matching grants to promote agro-enterprise innovation
		4.2.3.1	Innovation Fund for Agro-enterprises and Coops
		4.2.3.2	Agro-Entrepreneurship Programs for youth, women, disadvantaged groups and regions
	4.3		Growth of food and agricultural products exports
		4.3.1	Strengthen capacity to promote exports and negotiate more favorable trade agreements
		4.3.1.1	Legislative Measures
		4.3.1.2	Promote foreign direct investment
		4.3.1.3	Institutional Measures
		4.3.1.4	International Measures
	4.4		Enhanced food quality and safety
		4.4.1	Adopt and implement internationally compatible food quality and safety standards
		4.4.1.1	Legislative Measures for a modern Food Act
		4.4.1.2	Formulation and promulgation of food safety and quality standards
		4.4.1.3	Adopt legislation on accreditation of standards certification bodies
		4.4.1.4	Adopt legislation on accreditation of national laboratories for FSQ certification
		4.4.1.5	Strengthen and upgrade laboratories to international accreditation
		4.4.1.6	Institutional measures to strengthen capacity and clarify roles (short term)
		4.4.1.7	Form Food Agency with authority under Food Act (medium term)
		4.4.1.8	Establish capacity for pest risk assessment, SPS management and surveillance
		4.4.1.9	Adopt <i>One Health Approach</i> and strengthen animal health surveillance, diagnostic, and response capacity
		4.4.1.10	Coordination and reporting to subcommittee on FNS and Food Safety of the NADSCC

5.5.1 Activities related to Output 4.1 on Market Infrastructure Developed

403. **Promote development of market infrastructure through the combination of public investment, private and cooperative sector investment, PPP, and community participation, focused on the development of prioritized value chains. Examples of PPP involving different types of infrastructure include:**

- a. Promotion of on-farm storage, cool/cold/CA storage
- b. Creation of new markets and improvement of existing ones
- c. Network of collection centers linked by hub and spoke system to wholesale markets
- d. Agroprocessing plants
- e. Creation of agroindustrial parks to facilitate access of agroindustry enterprises to land and basic infrastructure to conduct agroprocessing activities.

404. **Implement PPP financing support mechanisms.** Mechanisms appropriate to the size of the investment, the risk involved, and the ownership structure, may be: matching grants; back-end subsidies linked to credit; waiver of initial connection capital costs to government-owned roads (where the waiver period is specified), utilities and services (e.g. power, water, waste management).

405. **Capacity building programs for market infrastructure management and governance.** One key contributing factor to the effectiveness of PPP investment is the clear delineation of roles of different actors and improved capacity in managing market infrastructure as part of a supply chain. Hence, any investment in market infrastructure needs to be accompanied by capacity building programs to improve management and governance. Part of this capacity building will also include the software of market management such as price information, market intelligent, and market information systems.

406. **Identify strategic locations for market development and undertake feasibility studies.**

407. **Develop rules and regulations and standard operating procedures for improved market management.**

5.5.2 Activities related to Output 4.2 on Growth of Innovative Small and Medium Agroenterprises

408. **Adopt a number of tax incentives to stimulate investment in agro-based enterprises,** such as:

- a high tax free threshold for income tax to be applied to agro-based enterprises
- a lower income tax rate for income tax to be applied to agro-based enterprises
- accelerated depreciation
- investment allowances
- full deductibility of research and development costs
- carry forward of losses
- graduated level of concessions for developed, under-developed and undeveloped regions
- incentives for foreign investors in agricultural research and development in Nepal in collaboration with national research institutes and domestic companies.

409. **Promote establishment of Agribusiness Incubators** for nurturing the growth of small and medium agroenterprises through support in infrastructure facilities, training and capacity building, networking, advisory services, and access to finance. Agribusiness incubators provide a

mechanism for handholding start-up enterprises and to support their growth into sustainable small and medium agroenterprises⁶¹.

410. **Establish matching grants to promote agroenterprises innovations, through a number of initiatives such as**

- a. **Innovation Fund for Agro-enterprises and Coops**, oriented to support public private partnerships, and commercial research and development. The core criteria for its usage would be: that the proposal generates “additionality” in outreach to more farmers or primary producers with some form of innovation (product development, process, or technology) that leads to a measurable income increase for producers. Criteria for this scheme would include the need for proposals to have some matching funds (not necessarily 50-50) from the private sector and coops as a way of ensuring that the research had relatively short term impact. This fund would only be available to private entities and coops.
- b. **Agro-Entrepreneurship Programs for youth, women, disadvantaged groups, and disadvantaged areas**. In this case the matching grant will target different groups in rural areas who intend to establish agroenterprises. The matching grant can be combined with an agroentrepreneurship capacity building program. Four AgroEntrepreneurship Programs will be promoted:
 - i. Youth Agro-Entrepreneurship Program
 - ii. Women Agro-Entrepreneurship Program
 - iii. Disadvantage Group Agro-Entrepreneurship Program
 - iv. Disadvantaged areas (eg Karnali)

Each agroentrepreneurship program will consist of:

1. A capacity building component in which prospective entrepreneurs are trained and mentored in establishing agroenterprises
2. A competitive matching grant fund through which entrepreneurs can get access to seed money for establishing agroenterprises in rural areas.

411. As experience with other matching grant schemes in Nepal shows (eg PACT and HVIP), it is important that during the implementation of these scheme sufficient capacity building and support of local institutions is given to facilitate stakeholders to submit appropriate proposals.

5.5.3 Activities related to Output 4.3 on Growth of Food and Agricultural Products Exports

412. **Strengthen capacity to promote exports and negotiate more favorable trade agreements**, backed by an adequate and functioning import/export regime, including the ability to apply and comply with SPS, AD and CVD measures. ADS will support the following a combination of measures aimed at improving agricultural trade regime.

- a. **Legislative Measures** related to trade and foreign investment. Enact a modern Trade Act to create an environment that is conducive to exports and regulates imports. The proposed Trade Act will include (i) the regulation of imports in terms of the ability to take fair and non-fair trade protection measures permitted under the WTO regime but not enacted yet, such as measures for BOP reasons, or to counter import of subsidized (CVD) or dumped (AD) products that harm the Nepali producers; and (ii) the formation of an agricultural

⁶¹ For a review of agribusiness incubators see: Goletti, F., et al. (2011), “*Growing Food, Products and Business, Applying Business Incubation to Agribusiness SMEs.*” A publication of the World Bank Group/infoDev see <http://www.infodev.org/en/Article.800.html>

- products export promotion body either as part of the MOCS, Trade and Export Promotion Center (TEPC), or in the MOAD.
- b. **Promote foreign investment.** ADS will interact closely with the Investment Board to contribute to improving the investment climate, formulation of an investment Law to facilitate and regulate FDI, and to promote and attract FDI in agricultural sector.
- i. Commission a study on FDI in agriculture in Nepal and other countries in Asia to draw lessons and recommendations to formulate appropriate regulations for FDI in agriculture.
 - ii. In the short-term, (a) Prescribe Rules under Section 8 of the FITTA 1992 to promote Foreign Investment by granting incentives and proclaim incentives through annual Budget Acts; and (b) Reduce the number of agricultural sectors that are currently “closed” for FDI (fisheries, poultry breeding and bee-keeping).
 - iii. In the mid-term, enact a new Investment Act that includes the promotion of investments, by providing for incentives for foreign investments in agriculture and agro-businesses.
- c. **Institutional Measures.**
- i. In the short term, create within MOAD an International Agricultural Trade Division including a section on WTO (currently under the Division of Agribusiness Promotion and Statistics), a section to work as SPS Inquiry Point (currently under DFTQC), a section on International Trade Promotion to serve as a focal point for Nepali exporters of agricultural products, in matters of information about standards, export conditions, export incentives, market intelligence, including developing auction market for strategic commodities (eg tea), etc. This section would focus on policy issues differently from the existing program for international trade promotion under the Directorate of Agribusiness Promotion and Market Development under DOA (which focuses more on extension to farmers); similar function needed from Market promotion directorate of DLS and would coordinate with the Trade Facilitation unit with the MOCS.
 - ii. In the medium term, additional measures include strengthening trade negotiation capacity through (i) providing training to negotiating teams; (ii) conduct studies on the implication of negotiation agendas; and (iii) institutionalize stakeholder’s consultations.
 - iii. In the long-term, conduct a review and assessment of the policy of pegged exchange rate with India and its impact on the agricultural sector in Nepal to provide a critical input into the macroeconomic policy on exchange rate that goes beyond the scope of the ADS.
 - iv. Undertake a program of capacity strengthening in trade intelligence of Trade Division.
- d. **International Measures** for the short and medium-long term.
- i. In the short term: engage in dialogue (joint seminars for customs officials) with trading partners on correct implementation of trade agreements.
 - ii. In the medium-long term, conduct a review of the following aspects of the trade agreements of Nepal: (i) Tariff and quota exempt product coverage in bilateral and multilateral trade agreements of Nepal (reduction of sensitivity list); (ii) Technical barriers to Nepali exports; (iii) Nepali SPS certification recognition by 3rd parties; (iv) Exclude cereals

horticulture products from reciprocal duty free list of Nepal India trade treaty; (v) Take out agriculture products from negative list of trading partners under SAPTA; and (vi) Conclude bilateral preferential trade agreements with the countries of the region; (vii) Reducing / eliminating pro-manufacturing bias in tariff structure; and (viii) Reviewing export incentive system.

5.5.4 Activities related to Output 4.4 on Enhanced Food Quality and Safety

413. **Adopt and implement internationally compatible food quality and safety standards.** In order to allow Nepali export products to compete in international markets on the one hand while protecting the Nepali consumers from consuming unsafe food products, the following steps have to be taken:

- a. Enact a modern Food Act, prescriptive rather than reactive, that creates an enabling environment conducive to the development of internal trade and export market of agricultural and agro-business products as well as ensures that all foodstuffs sold meet acceptable standards, prevent and punish food adulteration, and promote food traceability. The new Food Act might include provisions on the following matters:
 - i. The formation of an independent Food Authority that is affiliated to but not part of structure of ministry with authority to issue standards and enforce these, including food quality and safety standards
 - ii. The stipulation that the Department of Food Technology and Quality Control DFTQC (or the Food Authority once established) is authorized to issue SPS standards for local and exported food products. The authority to issue SPS standards by a simplified procedure in case that the SPS standards are internationally accepted standards, such as those of the *Codex Alimentarius*.
 - iii. Promotion of private sector quality laboratory services.
- b. Formulate, adopt and implement Food Safety and Quality (FSQ) standards that meet international SPS standards to avoid import restrictions by trading partners for SPS reasons. Set numerical goals for proclamation of new standards.
- c. Adopt legislation on the accreditation of standards certification bodies;
- d. Adopt legislation on the accreditation of national laboratories for FSQ certification;
 - i. Establish Nepali accreditation body
 - ii. Join ILAC to establish recognition of Nepali accreditation body
- e. Strengthen and upgrade to internationally accredited level the following laboratories:
 - i. Food Quality Control Laboratory and its regional laboratories under DFTQC
 - ii. National Veterinary Diagnostic Laboratory and regional laboratories under DLS
 - iii. National Veterinary Quality and Medicine Management Office Laboratory under DLS
 - iv. Feed Analysis Laboratory under DLS
 - v. National and Regional Plant Protection Laboratories under DOA
 - vi. Soil/fertilizer Analysis Laboratories under DOA
 - vii. Seed Quality Control Laboratories under DOA
 - viii. National Avian Disease Diagnostic Laboratory in Chitwan under DLS

- f. Institutional measures in the short term include:
 - i. Strengthen the capacity of the DFTQC under the MOAD, in terms of transforming it to become a pro-active rather than reactive body, with annual plans and targets for the proclamation of FSQ standards, enforcement of FSQ standards and public awareness;
 - ii. Clarify functions and avoid overlapping between different agencies (for example regulation of animal feed and veterinary drugs could be under the jurisdiction of the DLS or DFTQC).
- g. In the mid-term:
 - i. Form Food Agency under new Food Act with full authority to proclaim FSQ standards and enforcement thereof;
 - ii. Establish Nepali accreditation body for laboratory certification.
- h. Establish capacity for pest and disease risk lists and preparing and disseminating accepted SPS management for these risks, as well as SPS and surveillance systems.
 - i. Strengthen the capacity of the Plant Protection Directorate to better carry out pest and disease surveillance activities, including: (i) crop pest surveillance and pest risk analysis; (ii) diagnostics and taxonomic identification; (iii) post-entry quarantine (PEQ) for seed and other propagative plant materials; and, (iv) response to plant pest and disease outbreaks.
 - ii. Plan and implement a sustained program of surveillance on priority crops, with scheduled completion dates. More robust taxonomic identification of survey specimens will be promoted (with regional support, and access to external support for difficult specimens) to expedite the diagnostics component of the survey. Plant Protection Directorate staff will be given on-the-job training. Upgrade current laboratory and equipment.
 - iii. Develop standards for phytosanitary measures for different crops, consistent with international standards for phytosanitary measures (ISPM).
 - iv. Develop early warning system to forecast plant pests and diseases.
- i. For animal health, adopt the *One Health Approach*, strengthening surveillance programs involves:
 - i. Enhance the National Animal Health Center (NAHC)'s TAD surveillance, diagnostic and response capacity. NAHC's ability to survey, test and respond to diseases of economic importance, emerging and reemerging including two priority diseases (FMD, CSF) will be strengthened in target areas with potential for production and exports. The main objective is to improve control of these diseases on a selective geographic basis, while simultaneously strengthening NAHC's generic surveillance and response capacity. Response for FMD and CSF outbreaks will utilize targeted vaccination and movement control measures.
 - ii. ADS will also support: (i) improved diagnostic capacity and testing (increased testing volumes based on upgraded NAHC equipment, refresher diagnostic training, etc); (ii) a surveillance program in target areas (based development on proper procedures, epidemiology staff training etc); (iii) more frequent and regular surveillance visits and public awareness campaigns; (iv) improved response capacity (and accessing vaccines from regional stockpiles).

- j. Ensure effective coordination among the institutions that regulate animal health, plant and food safety (SPS related issues) through periodic coordination meetings and reporting to the subcommittee on Food Nutrition Security and Food Safety of the NADSCC.

5.6 Other Programs

414. Other Programs include ongoing programs such as fruit development, fish, silk, goat development, and others. These programs are not included in the Flagship Programs or Core Programs of the ADS. Many are related to the development of specific value chains different from the 5 prioritized value chains. These programs can be supported through access to resources made available in the research and entrepreneurship matching grant funds (funds under NARF and INAGEP).

415. Most of the ongoing Other Programs are likely to be completed during the early years of ADS. If the evaluation of Other Programs shows promising national impact then these programs could become part of future Flagship or Core Programs.

Table 32 Other Programs Currently Ongoing

Sector	Program	Comment
Crop	Apple development program	
	Lemon Mission	
	Pomegranate Production program	
	Mango Development in eastern region and Nursery Development	
	Flower Development	
	Orange Orchard strengthening program	
	Support to Tea and Coffee cooperatives	Tea included in Flagship programs
	Special program for Cardamom and Ginger	
	Virus free plant production for Cardamom	
	Onion Mission	
	Plant protection program	May be incorporated in Core programs on Productivity
	Industrial entomology	
	Mushroom Program	
	Industrial crop program	Irrigation in Core programs
	Indigenous crop promotion	Seed policy in Core programs
	Seed Production (DISSPRO)	Implementation of seed policy in Core programs
Oilseed crop	Irrigation in Core programs	
Soil testing and improvement service	May be incorporated in core programs on fertilizer	
Livestock and Fisheries	Silk Development Program	
	Fish development program	
	Animal health service program	In Core programs on Productivity

	Livestock development program	In Core Programs on Productivity (forage, breeds), and Flagship (dairy)
	Livestock Market Development	In Core programs on Governance and Competitiveness
Agribusiness	Agribusiness and market development	In Core programs on Productivity and Competitiveness

6 COSTS

6.1 Approach to Cost Estimation

416. The costs to implement the ADS Action Plan for the first 10 years (2014-2023), are estimated to be \$3,607 million (Rs 310.2 billion) in total. This amount covers implementation of the 225 activities specified in chapter 5. The activities are grouped and costs estimated under the 35 outputs the sets of activities are expected to produce. The costs reported in this chapter are constant price estimates. The costs have mostly been estimated from the bottom up – including for example:

- Farmers’ production models (e.g. based on average farm size, cropping pattern and yield),
- Stakeholders’ existing plans (e.g. Department of Irrigation plans for surface irrigation expansion),
- Stakeholders’ aspirations of scale (e.g. agricultural extension services to 3,915 VDC)
- Statistics of rural population, women and disadvantaged groups,

417. Unit costs have been based on evidence from within Nepal, or if unavailable from a similar context abroad, for example:

- Historic costs (e.g. cost per hectare of irrigation constructed in completed or ongoing projects)
- Current prices (e.g. agricultural machinery)
- Normative costs (e.g. monthly salary for Junior Technician or government official)
- Specialist estimates (e.g. program for breeder seed multiplication)
- Generic estimates (e.g. training courses, or the cost to establish a research station)

418. The summary of ADS costs by component program is in Table 33.

Table 33: ADS Action Plan 10-year Cost Summary

	FANUSEP flagship 1	DESTEP flagship 2	VADEP flagship 3	INAGEP flagship 4	TOTAL FLAGSHIP	CORE PROGRAMS	OTHER PROGRAMS	TOTAL	PERCENT
Governance	323	-	-	-	323	101	-	424	12%
Productivity	-	451	-	-	451	1,273	-	1,724	48%
Commercialization	-	-	766	-	766	226	-	992	27%
Competitiveness	-	-	-	205	205	167	-	373	10%
Other Programs							97	97	3%
TOTAL USD million	323	451	766	205	1,744	1,767	97	3,607	100%
TOTAL Rs billion	28	39	66	18	150	152	8	310	
Percent	8.9%	12.5%	21.2%	5.7%	48.3%	49.0%	2.7%	100.0%	

419. The approach taken to cost estimation and structuring of the activity-cost groups is based on a number of principles including:

- The unit costs need to be adequate for the envisaged activity to be completed;
- Similar activities and their costs are complimentary, not duplication;

- New initiatives, such as voucher scheme for agricultural inputs, are included as pilot project costs (i.e. costs for possible nation-wide expansion will be subject to performance assessment and is not included);
- The target output quantities are feasible, based on existing and anticipated improved capacity (e.g. technical offices recommended that 5km of agricultural roads per year in each district is a feasible rate of construction);
- Cost sharing mechanisms between public and private sectors, are not intended as ongoing subsidy, but will be limited-term measures intended to share initial capital requirements, support restructure, or to stimulate growth to a sustainable level (e.g. tax incentives for 3 years to promote agricultural mechanization industry, or matching grants for infrastructure);
- Contribution from private sector, farmers and cooperatives strengthens responsibility for achievement of outputs as well as sustainability of private goods and services;
- Costs of tax incentives are limited to the administrative cost of adjusting tax regulation, but do not include any estimate of revenue forgone, or revenue generated;
- Recurrent costs of government operation, such as existing staff costs are not included, whereas incremental staff costs are included (e.g. increased number of women junior technicians).

6.2 The Detailed Costs

420. Considering the costs for each of the 35 outputs that are grouped under the four outcomes, is a way to give more insight into which outputs and activities are more costly and which are less so (Table 37). Detailed costs for each of the 225 activities are included in Appendix 1, which is intended to be a guide that implementing agencies can use to when they subsequently carry out the detailed design and planning of ADS activities. The detailed costs also identify and quantify the outputs and required resource inputs for each activity. The quantities indicate the scale or scope, for example some activities are limited to central or agency level, while others are intended to be implemented in all 75 districts and 3,915 VDCs. These considerations will be relevant to Government and development partners in their portfolio planning, resourcing and execution.

421. Many of the activities in the Core Program are supporting the continuation of existing activities and plans of agencies. Some high cost items are obvious, for example under Core Programs: Productivity there is a large cost for implementing the irrigation plan because it is large scale (e.g. complete 80,000 ha of ongoing surface irrigation projects; the construction to date cost \$4,000/ha; total therefore \$320,000,000). Similarly for agricultural roads under Core Programs: Commercialization, although the cost estimate under ADS is to start with only 3,750km (50km per district), out of 23,000km requirement identified by MOAD, as this was considered feasible based on the construction rate achieved by MOAD and DOLIDAR in recent years. Strengthening coordination and participation under Core Programs: Governance, are supported with the cost of stakeholders getting to and conducting meetings to plan, coordinate, and review activities. While each coordination group is funded with only \$500 for a minimum of four meetings a year, the total may seem large because there are 75 district and five regional committees, and the funding is for 10 years.

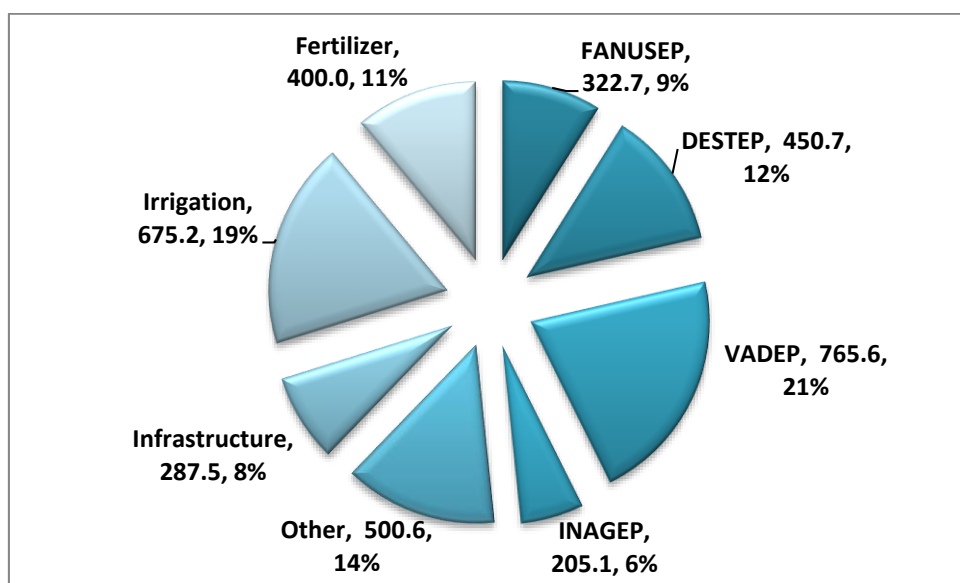


Figure 14 Composition of ADS Costs (\$ million, %)

6.3 Flagship and Core Programs: Complement not Duplicate

422. The activities and costs under Core Programs compliment the Flagship Programs, but have a different specific output target and scope. For example market infrastructure (Output 4.1), is obviously important for the five prioritized commodities in the Value Chains Development Program (VADEP), but market infrastructure is also required for other priorities also such as to construct a VDC multi-purpose market facility, or municipal wholesale market premises. Irrigation, roads, power and many other activities are similar. The cost structure is therefore intended to be complementary rather than duplication.

423. Flagship programs are mechanisms to bring together outputs and activities that involve multiple stakeholders and agencies. Some of the activities under Core Programs will complement the Flagship Programs. All of the activities under Governance will contribute to the success of the Flagship programs, while others may be more specific. For example VADEP, will develop the full value chain of lentils (and four other prioritized commodities). The value chain includes seed production, effective input supply, extension and advisory services to farmers, access to finance, mechanization, market infrastructure and processing capacity, taxation, contract and commercial legal arrangements, export promotion, and quality enhancement. While Core Programs have cost provision for many of these activities, VADEP provides resources earmarked specifically for the lentil value chain (and four other prioritized commodities). This ensures there are adequate resources allocated to successfully develop the lentil value chain (and four other prioritized commodities).

6.4 Financing by Private Sector, Community, Cooperatives and Farmers

424. Agriculture is an economic activity, and three of the four ADS outcomes involve private sector financial contributions to the activities. 'Private sector' in the economists' view includes the stakeholders that get a private benefit from an economic activity: therefore this includes any kind of private enterprise, company, cooperative, individual farmer, peasant, trader or laborer.

425. Financing arrangements for many of the ADS activities that generate economic activity include cost sharing or public-private partnerships. Overall the ADS expects \$598 million (Rs 51 billion) contribution from the private sector, which is 17 percent of the total ten-year cost (Table 34). The largest contributions from private sector are obviously for activities involving increased productivity and commercialization. Equally obvious, governance activities are fully financed by government. Many activities to enhance competitiveness are also government responsibilities such as trade and agri-food safety and quality regulation.

Table 34: Financing by Public and Private Sectors

ADS		Costs USD million			
Outcome		Govt, Donor	Private, Community	Sub-total	percent
1	Governance	423	0.9	424	12%
2	Productivity	1,586	138	1,724	48%
3	Commercialization	613	378	992	27%
4	Competitiveness	292	80	372	10%
5	Other Programs	96	-	96	2.7%
TOTAL		3,010	598	3,607	100%
percent		83%	17%	100.0%	

6.5 ADS Costs and Government Budget for Agriculture

426. There has been some variation in budget expenditure allocation to agriculture over recent years. The most recent available data to compare with ADS cost estimates is the financial year 2011/12. This is the year that was used as basis for cost estimates (for example fertilizer, irrigation, and agricultural roads). Obviously some regulations have changed or been implemented more strongly, but these do not have substantial implications for the overall size of typical budget for agriculture. The MOF presents budgeted amount in different forms: by 'Economic Activity: Agency Allocation' (Table 35); by functional group; and other forms (e.g. by targeting to poverty, gender equity, etc.). We therefore use this budget to make some observations and comparisons with the costs of ADS.

Table 35: Agriculture Budget by Economic Activity - related agencies

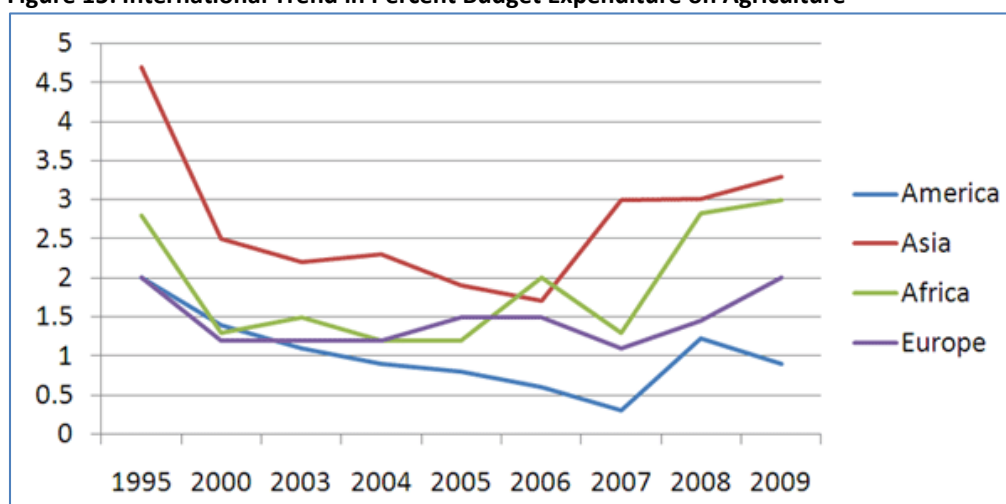
Budget Head	Planned Expenditure Rs'000			Planned Expenditure USD		
	Recurrent	Capital	Total	Recurrent	Capital	Total
MOAD	11,045,798	1,385,286	12,431,084	128,439,512	16,107,977	44,547,488
MOFSC	3,675,572	1,610,755	5,286,327	42,739,209	18,729,709	61,468,919
MOLRM	1,476,947	506,705	1,983,652	17,173,802	5,891,919	23,065,721
MOI	874,801	9,153,583	10,028,384	10,172,105	106,437,012	116,609,116
Total	17,073,118	12,656,329	29,729,447	198,524,628	147,166,616	345,691,244

Source: Annexes to Budget Speech 2011, MOF 15 July 2011

427. ADS will have a slight impact on the overall government Budget. The 2011/12 Budget allocation was about Rs 30 billion (\$345 million) per year including both capital (Rs 12.9 billion) and recurrent (Rs 17.1 billion) expenditure. The total is about 8% of total budget expenditure. The ADS will cost Government an average of Rs 26 billion/year⁶², but not all can be considered additional to the existing recurrent and capital Budget amount. , Costs of Rs 8.2 billion (\$96 million⁶³) are included in ADS as well as the 2011/12 Budget, so the additional annual ADS cost impact is Rs 18.2 billion (\$214 million) This implies an annual Budget for agriculture inclusive of ADS program (funded by government and donors) of about Rs 48 billion⁶⁴, increasing agriculture’s share of Budget from 8% to perhaps 12% of the total. The increase in the annual Budget is manageable with assistance from development partners, and represents a 60% increase relatively to the Budget 2011/2012.

428. Internationally, governments have increased spending on agriculture since food price crisis (Figure 15).

Figure 15: International Trend in Percent Budget Expenditure on Agriculture



Source: FAOSTAT online statistics database⁶⁵

429. ADS includes mostly capital, rather than recurrent expenditure. The amount of government budget that is recurrent and capital varies across agencies, but overall the majority of expenses are for recurrent functions. Expenditure by MOI is predominantly capital for construction and maintenance of irrigation infrastructure, while MOAD expenditure is predominantly for recurrent agricultural inputs (particularly fertilizer subsidy) and services. Capital expenditure is generally recognized as a driver of economic growth. ADS will provide capital, developmental expenditure, complementary to the current budget composition.

⁶² i.e. not including Rs 5.1 billion funded by private sector and communities

⁶³ The major cost items included in ADS and 2011/12 Budget which should not be double counted are: i) fertilizer subsidy (approximately Rs 3.4 billion (\$40 million)), (ii) completion of ongoing surface irrigation schemes that have funding in place (approximately Rs 2.7 billion (\$32 million)); and other ongoing programs (approximately Rs 2.1 billion (\$24 million)).

⁶⁴ i.e Rs 30 billion 2011/12 plus Rs 18 billion net annual ADS totals Rs 48 billion.

⁶⁵ Source: <http://www.fao.org/economic/ess/ess-economic/ess-expenditure/en/>

430. There is rationale and scope to increase the budget concentration on agriculture. Agriculture contributes about 32% of Nepal’s GDP and allocates 8% of its budget to agriculture. Dividing the agricultural budget by agricultural GDP gives a measure of the budget’s orientation to agriculture. In a rich country highly dependent on agriculture the ratio may be close to 1. India has a much more diverse economy, but budget orientation of 0.54⁶⁶ compared to Nepal’s 0.25. In a study of 11 countries in Asia⁶⁷, the budget orientation to agriculture was 1.5, far greater than in Nepal. While real budget expenditure in Asian countries grew by 4.4% between 1980 and 2002, the trend has been a decline in agriculture’s share of government expenditure at a greater rate than decline in agriculture’s contribution to GDP.

Table 36: International comparison of budget orientation to agriculture

Country	Agricultural GDP	Agricultural Budget	Budget Orientation to Agriculture
Nepal	32%	8%	0.25
India	14%	7.6%	0.54
Asia (11 countries)	6%	9%	1.50

Sources: Nepal: MOF. India: MOF. Asia: World Bank

431. Clearly the costs of ADS will require expenditure to be allocated across multiple agencies, and requires longer-term commitment than annual budget. Therefore the ADS will adopt a financing mechanism such as a Trust Fund, of which there are existing examples (e.g. Nepal Peace Trust Fund, Poverty Alleviation Fund). ADS will also follow Ministry of Finance reforms that allocate budget against agencies’ approved multi-year business plans. The measures will facilitate an increase in the grant and loan financing of budget, which is currently around 24 percent.

432. Another issue for Nepal is whether the government – and private, cooperative and farmer partners – have the absorptive capacity for increased spending in agriculture. Effective governance is the critical factor in this issue, and ADS has prioritized governance, including strengthened mechanisms for stakeholder participation and consensus in planning and implementation, in the ADS design to improve absorptive capacity. At the January 2013 Nepal Portfolio Performance Review held by MOF, the need to improve absorptive capacity was apparent in sectors dominated by large projects, notably the energy sector. Agriculture and irrigation funded by ADB showed a ratio of contract award to disbursement of 83-90%. World Bank’s disbursement ratio was heavily impacted by lack of stakeholder consensus in implementation of large projects, as well as the inability of the government to implement a full budget in 2012-2013.

⁶⁶ Source: Union Budget 2013-14, MOF India

⁶⁷ S. Akroyd and L. Smith, 2007. Review of Public Spending to Agriculture, DFID/ World Bank Study, Oxford Policy Management, London UK.

Table 37: ADS Action Plans Cost by Output and Proposed Implementing Agency

ADS ACTION PLANS			10-yr COSTS SUMMARY BY OUTCOME				
Outcome	Output		Implementation Main Agency	Costs USD million			Outcome total
				Govt, Donor	Private, Community	Output total	
1		Improved Governance		422.6	0.9		423.6
	1.1	Credibility of policy commitment and farmers' rights	MOAD	3.5	0.1	3.6	
	1.2	Improved coordination in ADS implementation	NPC, MOAD	8.0	-	8.0	
	1.3	Integrated planning	NPC, MOAD	1.1	-	1.1	
	1.4	Effective implementation support	NPC, MOAD	7.0	-	7.0	
	1.5	Mechanisms established for gender equality and social and geographic inclusion	MOAD, MOCPR	21.5	-	21.5	
	1.6	Timely and effective monitoring and evaluation	MOAD	17.1	0.8	17.9	
	1.7	Mechanisms established for participation of civil society	NPC, MOAD	17.5	-	17.5	
	1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation	NPC, MOAD	15.8	-	15.8	
	1.9	Improved food and nutrition security of most disadvantaged groups and rights to food	MOAD, FANUSEP Manager	322.7	-	322.7	
	1.10	Performance-based management system with rewards to the performers established	MOAD	8.5	-	8.5	
2		Higher Productivity		1,585.8	137.8		1,723.6
	2.1	A decentralized extension system responsive to farmers and agroenterprises' needs	DOA, DLS, DESTEP Manager, CAESC	327.5	20.3	347.8	
	2.2	Decentralized research system responsive to farmers and agroenterprises' needs	DOA, DLS, DESTEP Manager, CAESC	52.6	-	52.6	
	2.3	A strengthened agricultural education system	MoEdu, DESTEP Manager	49.1	1.3	50.3	
	2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably	MOLRM	32.5	-	32.5	
	2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	MOI	590.5	84.8	675.2	
	2.6	Timely access to quality agricultural inputs at affordable price.	MOAD	0.6	-	0.6	
	2.7	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	MOAD	8.6	4.3	12.9	
	2.8	A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.	MOAD, MOF	429.1	21.1	450.3	

ADS ACTION PLANS			10-yr COSTS SUMMARY BY OUTCOME				
Outcome	Output		Implementation Main Agency	Costs USD million			Outcome total
				Govt, Donor	Private, Community	Output total	
2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	MOAD	5.2	3.1	8.4		
2.10	A range of mechanization options accessible to farmers through the private sector.	MOAD, MOCS	11.8	1.8	13.5		
2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	MOAD, MOEnv	36.0	-	36.0		
2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established and adopted.	MOAD, MOEnrgy	4.3	1.3	5.5		
2.13	Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	MOFSC	38.1	-	38.1		
3	Profitable Commercialization		613.1	378.5		991.6	
3.1	Improved investment climate for agricultural commercialization	MOAD, MOF	1.5	0.4	1.9		
3.2	Contract arrangements for commercial agriculture	MOAD, MOCS	8.1	-	8.1		
3.3	Tax policy that supports an efficient commercial agricultural sector	MOF, MOAD	0.1	-	0.1		
3.4	A variety of competitive and demand-driven financial and agricultural insurance products.	NRB, Insurance Board, MOAD	2.2	0.9	3.1		
3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	VADEP Program Manager, VCDAs	471.5	294.1	765.6		
3.6	Rural roads network expanded	DOLIDAR, MOAD	67.1	65.6	132.8		
3.7	Agricultural market information and ITC products for market intelligence.	MOAD	2.5	2.5	5.0		
3.8	Expanded rural electrification and renewable energies	MOEnrgy	60.1	15.0	75.1		
4	Increased Competitiveness		291.6	80.4		372.0	
4.1	Market infrastructure developed	MOAD, MLD	41.7	37.9	79.6		
4.2	Growth of innovative small and medium agribusiness enterprises	INAGEP Program Manager	162.6	42.5	205.1		
4.3	Growth of food and agricultural products exports	MOAD, MOCS	5.3	-	5.3		
4.4	Enhanced food quality and safety	MOAD, MOH	82.0	-	82.0		
5	Other Programs	MOAD	96.5		96.5	96.5	
TOTAL			3,009.7	597.6		3,607.3	

7 IMPLEMENTATION ARRANGEMENTS

7.1 Introduction

433. The ADS is a comprehensive strategy based on four components related to improved governance, productivity, commercialization, and competitiveness. Each of these components includes outcomes, outputs, and activities that combined together will contribute to the achievement of the ADS vision: **“a self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth, and contributes to improved livelihoods, and food and nutrition security.”**

434. The agricultural sector spans across different agencies and includes multiple stakeholders. Therefore the implementation of the ADS requires the coordination of various agencies and stakeholders and innovative approaches to facilitate its successful execution.

435. Innovative approaches to implement the ADS are necessary given that the continuation of old ways is unlikely to yield the desired effects. The review and assessment of the agricultural sector has indicated a number of implementation constraints (lack of policy consistency, weak coordination, lack of integrated planning, weak implementation, etc) that were taken into account into the formulation of the ADS. Overall those constraints were part of governance issues. The ADS builds on the understanding of the governance issues and proposes a set of mechanisms that will help overcome the constraints.

7.2 Traditional and Innovative Approaches

436. The implementation of the ADS will entail the combination of traditional and new mechanisms. The traditional way of implementing strategies and plans for the agricultural sector envisages an institutional framework whereby the NPC provides overall policy coordination, the Ministry of Agricultural Development (MOAD) provides leadership in implementing agricultural programs, and related agencies support the implementation. For example, the Department of Irrigation (DOI) would be in charge of irrigation development, the Department of Local Infrastructure Development and Agricultural Roads (DOLIDAR) is in charge of agricultural road, Department of Agriculture (DOA) and Department of Livestock Services (DLS) are in charge of agricultural and livestock extension, and Nepal Agricultural Research Council (NARC) is in charge of agricultural research.

437. The traditional way of implementing programs and plans has its own logic and rationale. However, in the traditional way coordination has been weak, partly because of the weak capacity of implementation agencies in policy formulation, integrated planning, policy monitoring, procurement, and financial management; and partly due to the new challenges arising during the process of agricultural transformation including migration, global value chains, food crises, and loss of agricultural land.

438. In the traditional way of implementing agricultural programs in Nepal, the key stakeholders of the agricultural sector, namely farmers, cooperatives, and private agroenterprises have often been left in the backstage of development, with the front stage taken by government agencies.

439. The traditional mechanisms offer useful lessons and guidance for the future; clearly NPC, MOAD, and other line agencies have an important role to play in the ADS and this role has to be acknowledged and strengthened. However, the traditional mechanisms are also limited in their implementation capacity and their relegation of key stakeholders (farmers, cooperatives, and private sector) in the back stage. More fundamentally, the traditional way of implementing agricultural policies and programs in Nepal has not produced the desired results of accelerated growth and poverty reduction.

7.3 Overview of the ADS Organizational Structure

440. A bird's view of the ADS implementation is presented in Figure 16. The implementation of the ADS requires the concerted effort of various institutions from the state, civil society, and development partners. The NPC will provide overall policy and planning coordination and MOAD will lead implementation. Several related agencies will implement the core programs of the ADS, the four flagship national programs (on food and nutrition security; value chain development; decentralized science, technology, and education; and innovation and agro entrepreneurship), and other programs.

441. Overall, the ADS will be implemented through existing Government of Nepal structures. Recognizing the complexity and multi-agency requirements to implement the ADS, steps will be taken to strengthen existing agencies to assist with planning, coordination, implementation, and monitoring.

442. Overall coordination of policies and programs will be achieved through the National ADS Coordination Committee (NADSCC) which is based on existing coordination mechanisms (such as NSC, CADIC, RADC, and DADC, at national, regional, and district level); overall implementation of programs and projects will be undertaken under the overall guidance of the National ADS Implementation Committee (NADSIC). The NADSIC will serve as the Steering Committee for the ADS Implementation Support Unit (ADSISU) which will be established under MOAD and act as the responsible agency to support implementation of the ADS for the initial 5 to 7 year period.

443. All the current modalities of financing to the sector will remain the same. The only additional modality will be a multi development partners ADS Implementation Trust Fund (ATF). Resources may be used for (a) any TA which supports the ADSISU (b) non-government and government entities for implementation of ADS programs, (c) milestone performance payments to parties (individuals and teams) responsible for implementing the ADS in line with approved performance management plans, and (d) payment of the independent ADS implementation and strategic direction review.

444. The ADS proposes new mechanisms to improve implementation. The new mechanisms build upon the existing mechanisms and complement them, support them, and strengthen them. Specifically, in addition to the NPC, MOAD and other related agencies, the ADS implementation will rely on the combination of new organizations, national programs, and leading stakeholders.

Box 1 The ADS Mechanisms

Organizations

1. National ADS Coordination Committee (NADSCC)
2. National ADS Implementation Committee (NADSIC)

<ol style="list-style-type: none"> 3. ADS Implementation Support Unit (AISU) 4. ADS Implementation Trust Fund (ATF) <p>National Programs</p> <ol style="list-style-type: none"> 1. Food and Nutrition Security Program (FANUSEP) 2. Decentralized Science, Technology, Education Program (DESTEP) 3. Value Chain Development Program (VADEP) 4. Innovation and Agro-entrepreneurship Program (INAGEP) 5. Core Programs 6. Other Programs <p>Leading Stakeholders</p> <ol style="list-style-type: none"> 1. Farmer Organizations 2. Cooperative Organizations 3. Private Sector Organizations

445. A summary of the key actors and their role in the implementation of the ADS is provided in Table 38.

Table 38 Key Actors in the Implementation of the ADS

Actors	Role in the ADS	Comments
Prime Minister (PM)	Receives regular briefing about progress of the ADS from NPC and MOAD and addresses any issues that require high level solution.	<ul style="list-style-type: none"> • Chief Guest at the annual ADS Conference.
NPC	National Planning Commission. Provides overall policy coordination. Ensure integrated planning and budgeting of ADS	
NADSCC	National ADS Coordination Committee to ensure high level coordination among agencies of policies and plans consistently with ADS strategy.	<ul style="list-style-type: none"> • Chaired by VC of NPC • This committee is the same as the existing NSC (National Support Committee). The new name reflects the ADS focus.
NADSCC subcommittees	Overall activities coordination of ADS through is sub-committees for <ul style="list-style-type: none"> • Irrigation-Agriculture • Agribusiness, Private Sector, Coops • Civil Society/NGOs • Research, Extension, Education • Food Security and Nutrition • Development Partners 	
CADIC	Central Agriculture Development Implementation Committee. Overall coordination of agricultural activities at national level	<ul style="list-style-type: none"> • Chaired by Secretary MOAD
RADC	Regional Agriculture Development Committee. Overall coordination of agricultural activities at regional level	<ul style="list-style-type: none"> • Chaired by Senior Regional Director
DADC	District Agriculture Development Committee. Overall coordination of agricultural activities at district level	<ul style="list-style-type: none"> • Chaired by DDC Chairperson
NADSIC	National ADS Implementation Committee. Guides and ensures overall implementation of the ADS.	<ul style="list-style-type: none"> • Chaired by Minister of MOAC
ADSISU	ADS Implementation Support Unit. Facilitates implementation of ADS through capacity building, communication activities, support services, and monitoring and evaluation support. It provides	<ul style="list-style-type: none"> • ADSISU Team established as unit to support ADS during the first 5 to 7 years.

Actors	Role in the ADS	Comments
	support to the NADSCC, other coordination committee, implementation agencies, and flagship program managers.	<ul style="list-style-type: none"> • Technical assistance team and funded by Development Partners with government counterparts. • Reports to the NADSIC which will act as its steering committee. • Main unit locate at MOAD and subunits at other key agencies. • Provides secretarial services to the NADSCC.
ATF	ADS Implementation Multi-donor Trust Fund. A financing modality additional to current modalities of GON. Resources in the fund may be used for (a) any TA which supports the ADSISU (b) non-government and government entities for implementation of ADS programs, (c) milestone performance payments to parties responsible for implementing the ADS, and (d) payment of independent ADS implementation and strategic direction reviews.	<ul style="list-style-type: none"> • Initially established and held by a development partner and later to be transferred to GON
MOAD	Ministry of Agricultural Development. Lead the Implementation of the ADS. Minister will chair NADSIC and Secretary MOAD will chair CADIC and prepare ADS Annual Report. MOAD will be present in the board of all the ADS Flagship programs.	<ul style="list-style-type: none"> • DOA, DLS, DFTQC; and NARC involved in the implementation of activities of the ADS
Other Ministries	Include MOI, MLD, MOCPR, MLRM, MOE, MOTS, MOInd, MOFSC, etc. They implement related policies, programs, and projects that need to be coordinated within the ADS.	<ul style="list-style-type: none"> • Departments of related ministries (eg DOI, DOLIDAR, DOFSC, DOC, ...)
Other Agencies and Programs	Investment Board, PAF, CBS	<ul style="list-style-type: none"> • Will coordinate with ADS programs
FANUSEP Flagship 1	Food and Nutrition Security Program. Helps coordinating programs on food and nutrition security and implementing projects such as NAFSP, FSNP. Aligned with MSNP.	<ul style="list-style-type: none"> • MOAD, DOA, DLS, DDC
DESTEP Flagship 2	Decentralized Science Technology and Education Program. Helps establishing Community based Agricultural Extension Service Centers (CAESCs) in each VDC, strengthening existing agricultural/livestock service centers, restructuring of NARC, strengthening agricultural education system, and supporting capacity building and training of professionals in the sector.	<ul style="list-style-type: none"> • DESTEP established by Act as a professional society • DESTEP manager selected competitively by Recruitment Committee established by ADS Commission • Coordinates with implementing agencies NARC, DOA/DLS, Agricultural University,...
VADEP Flagship 3	Value Chain Development Program. Coordinates 5 value chain programs (maize, dairy, lentils, vegetables, tea), each program implemented by Value Chain Development Alliance (VCDA) through a Value Chain Development Fund (VCDF)	<ul style="list-style-type: none"> • VADEP established by Act as a professional society • VADEP manager selected competitively by Recruitment Committee established by ADS Commission • CEOs of VCDA elected by Board • VCDA registered as foundations
INAGEP Flagship 4	Innovation and Agricultural Entrepreneurship Program. Fosters agricultural innovation and agroentrepreneurship through the combination of tax incentives, agribusiness incubators, and matching grants.	<ul style="list-style-type: none"> • INAGEP established by Act as a professional society • INAGEP manager selected competitively by Recruitment Committee established by ADS Commission

Actors	Role in the ADS	Comments
		<ul style="list-style-type: none"> The main beneficiaries of this program will include private enterprises, cooperatives, and targeted groups including the youth, women, and disadvantaged groups.
Farmers' Coalition	A coalition of farmer organizations with representatives from 7 major parties. They will have member representatives in NADSIC, NADSCC, CADIC, DADC, RADC, NARC, CAESC, Policy Review Panel of MOAD; and they will ensure the presence of women representatives in those institutions.	
National Federation of Cooperatives	They will have member representatives in NADSIC, NADSCC, CADIC, DADC, RADC, NARC, CAESC, Policy Review Panel of MOAD; and they will ensure the presence of women representatives in those institutions.	
FNCCI	Federation of Nepal Chambers of Commerce and Industry. They will have member representatives in NADSIC, NADSCC, CADIC, DADC, RADC, NARC, CAESC, Policy Review Panel of MOAD; and they will ensure the presence of women representatives in those institutions.	
CNI	The confederation of Nepalese Industries (CNI) is the apex body of the large and medium scale industrial community of Nepal. They will have member representatives in NADSIC, NADSCC, CADIC, DADC, RADC, NARC, CAESC, Policy Review Panel of MOAD; and they will ensure the presence of women representatives in those institutions.	

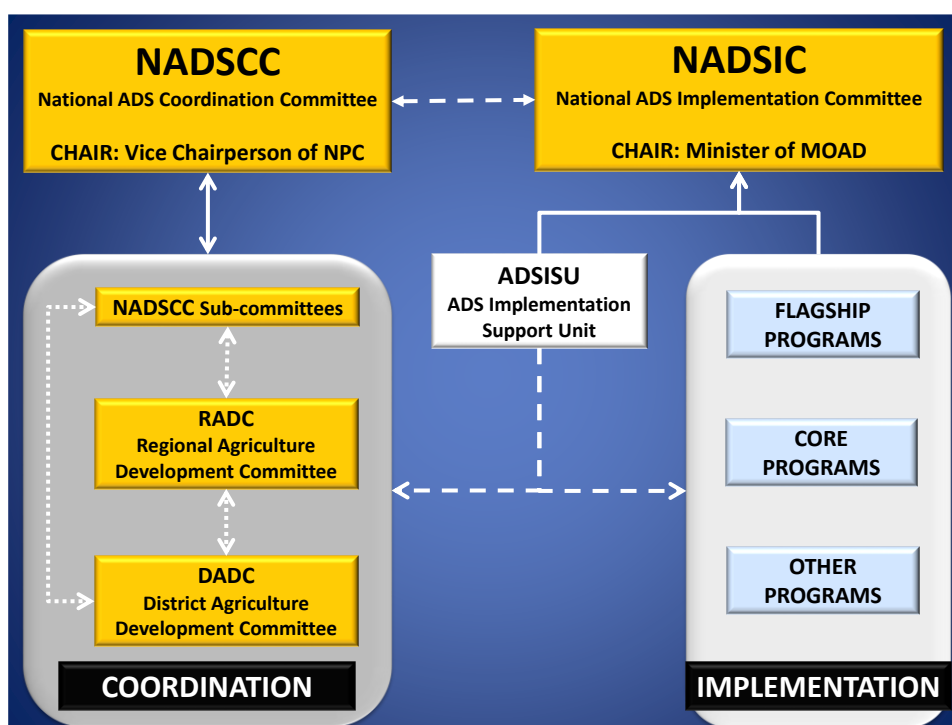


Figure 16 ADS Implementation and Organization Mechanisms

7.4 The Prime Minister

446. Agriculture, together with energy and tourism is generally recognized as one of the key economic engines of the nation. However, the contribution of agriculture to livelihoods and employment of the population surpasses that of any other sector of the economy. Its development is vital to the socioeconomic development of Nepal. Given this context, successive prime ministers of Nepal have strongly supported the ADS since its inception. During future implementation of the ADS the Prime Minister will receive regular briefings about the progress in implementation of the ADS from the NPC and MOAD and address any issue that needs solution at the highest level. The Prime Minister will be the Chief Guest at the annual ADS Conference.

7.5 The National Planning Commission (NPC)

447. The NPC will be responsible for overall policy coordination of the ADS and integration and budgeting of periodic and annual plans consistently with ADS planning. The ADS Implementation Support Unit will report to it. The Vice Chair of NPC will also chair the National ADS Coordination Committee (NADSCC), the highest coordinating body for the ADS, and be the chair of the Board of the ADS Implementation Trust Fund (ATF).

7.6 The National ADS Coordination Committee (NADSCC) and its Subcommittees

448. The National ADS Coordination Committee will coordinate the ADS at the national level through periodic meetings. The NADSCC will be based on the existing National Support Committee (NSC); the NSC Act will be amended to reflect the focus on the ADS and an expanded composition including representatives of farmer organizations, private organizations, and cooperative organizations. The NADSCC is the national coordination committee of line agencies under the chairmanship of Vice Chairman (VC) of NPC. NADSCC will be strengthened through secretariat service provided by the ADS Implementation Support Unit (ADSISU) and will be enhanced with the establishment of the following NADSCC sub committees charged with improving the coordination of ADS relevant issues such as:

- a. Coordination between agriculture and irrigation extension (specifically between DOA and DOI)
- b. Coordination among public sector, private sector (e.g. Federation of Nepal Chambers of Commerce and Industry or FNCCI, Agroenterprise Center or AEC, agribusiness associations, associations of small and medium enterprises), cooperative sector (e.g. National Federation of Cooperatives), and farmer organizations (e.g. Peasants' Coalition)
- c. Coordination between government sector and non-governmental organizations/international non-governmental organizations (NGOs/INGOs)
- d. Coordination between government and development partners
- e. Coordination among Research-Extension-Education organization (NARC - DOA, DLS, DFTQC - University of Agriculture and Forestry, Colleges of Agriculture, Center of Vocation Education and Training)
- f. Coordination between Agricultural Development and Food Nutrition Security and Food Safety (MOAD and MOHP, National Nutrition and Food Security Steering Committee- NNFSSC)

7.7 CADIC, RADC, DADC

449. The Central Agriculture Development Implementation Committee (CADIC) chaired by Secretary MOAD will periodically convene agencies involved in the implementation of agricultural programs and coordinate activities.

450. Similar coordination mechanisms exist at the regional level - Regional Agricultural Development Committee (RADC) coordinated by Regional Director Agriculture – and at the district level - District Agricultural Development Committee (DADC) chaired by DDC Chairman. All these mechanisms need to be strengthened and revitalized with support of the ADS Agricultural Support Unit.

451. Effective communication among DADCs, RADCs, and CADIC should be assured through periodic briefings from DADCs to the RADCs and CADIC. The ADS Implementation Support Unit (AISU) will facilitate these briefings.

452. The ADS will support regular meetings of CADIC, RADC, and DADC and dissemination of the meetings minutes through the services of the ADS Implementation Support Unit (AISU). A focal person in each DADC will be identified to liaise with other agencies in the district.

453. Annual ADS Report will be prepared by CADIC and submitted to NPC with the assistance of the ADS Implementation Support Unit (AISU).

454. Regulation will be enacted to allow for the composition of CADIC, RADC, and DADC to include representatives of farmers organizations, cooperative organizations, and private sector organizations.

455. The composition and functions of the RADC are likely to be considerably revised if and when a federalist structure will be approved by the Constitutional Assembly.

7.8 The National ADS Implementation Committee (NADSIC)

456. A National ADS Implementation Committee (NADSIC) will be established, which will be chaired by Hon. Minister for Agricultural Development, with VC of NPC, VC University of Agriculture and Forestry, Secretaries from the Ministries of Finance, Irrigation, Forestry, Federal Affairs and Local Development, Cooperatives and Poverty Alleviation, Presidents of FNCCI and CNI, representative of Farmers' Coalition as members, and MoAD Secretary as Member Secretary. Observer status will be made available to the independent professionals, DP representative, NGOs and academia. The ADS implementation committee will be responsible to ensure the Implementation of ADS and should meet bi-monthly. The TOR of the Committee will include the following:

- i. To coordinate implementation of projects and programs between line ministries and institutions engaged in ADS implementation, from the grassroots to the national level.
- ii. To facilitate ADS implementation supporting related institutions.
- iii. To develop programs and projects in line with the ADS for donor funding.
- iv. To act as the Project Steering Committee for the TA which supports ADS implementation,
- v. Together with NADSCC and the NPC, will organize periodic assessment of the ADS and recommend adjustments.

7.9 ADS Implementation Support Unit (ADSISU)

457. The implementation of the ADS requires coordination among different agencies and stakeholders, and policy, legal and analytical skills that are currently dispersed. Effective coordination in turn is the basis for effective planning and policy formulation and monitoring. A unit endowed with capacity in policy formulation and analysis, and assured of continuity at least over the first 7 years of the ADS will greatly contribute to bridging the gap between policy and implementation. The unit will be established at MOAD as a project initially and will support the ADS implementation and capacity building of related stakeholders and the agencies involved in ADS implementation and coordination. While the main ADSISU will work with MOAD (and be responsible to a Project Director selected by MOAD); subunits of ADSISU will operate at MOF, MOI, MFALD, FNCCI, and in University of Agriculture and Forestry.

458. Furthermore this unit will extend support to ensure the capacity enhancement of Regional and District Institutions engaged in ADS implementation. The National ADS Implementation Committee will work as the Project Steering Committee for the ADS Implementation Support Project. It is proposed the ADSISU is supported with donor funded technical assistance. ADS flagship program managers should have observer status on the ADSISU.

459. Over time, the unit and subunits will be institutionalized as part of the regular activities of MOAD and other ministries.

460. Functions of the ADSISU include:

- i. Provide capacity building in policy analysis and policy monitoring and integrated planning to relevant implementation agencies;
- ii. Support to development of a system and database for ADS monitoring;
- iii. Support formulation and amendment of policies and regulations for implementation of the ADS;
- iv. Support formulation of integrated periodic plans (annual and 5-year plans, and revisions /updates of ADS plans);
- v. Support NADSCC, NADSIC, ATF Secretariat and professional service;
- vi. Support coordination mechanisms (NADSCC, NADSIC, CADIC, RADC, DADC) in terms of capacity, logistics, and analytical units;
- vii. Support monitoring of the ADS implementation and institutionalization, including monitoring of related policies;
- viii. Facilitate implementation of national programs such as the ADS Flagship programs through advisory services to the Program Managers;
- ix. Support harmonization of Sector Policies with international commitments and guidelines;
- x. Help to develop and institutionalize a performance-based management system for ADS and institutionalize performance based incentives for ADS implementation institutions;
- xi. Collect and analyze data of strategic importance to ADS implementation as needed and in synergy with existing data collection systems;
- xii. Coordinate development partner investments and programs to be in line with implementation of the ADS;
- xiii. Evaluate and possibly formulate a sector wide approach for agriculture and, in case such approach is pursued by GON, support its implementation;
- xiv. Commission studies to look at costs and benefits of alternative policies (eg minimum price schemes for rice and wheat).

7.10 ADS Implementation Trust Fund (ATF)

461. All current modalities of financing to the sector will remain the same. The only additional modality will be a multi donor ADS Trust Fund (ATF) established and initially held with a development partner, and which may later be transferred to GON. The fund will be managed by a board under the NADSCC. Resources may be used for (a) any TA which supports the ADSISU (b) non-government and government entities for implementation of the ADS, (c) milestone performance payments to parties (individuals and teams) responsible for implementing the ADS in line with approved performance management plans, and (d) payment of the periodic (eg biannual) ADS implementation and strategic direction review. The Board will be chaired by Vice Chairperson of NPC, and the members will include Sec Finance, Sec MoAD, Sec Irrigation, Sec MFALD, DPs, and President FNCCI and CNI, DPs and independent experts. The ADS Trust fund could follow the Nepal Peace Trust Fund model, with two tracks, having a separate track for Government agencies, which could also allow for requiring matching funds from GON.

7.11 The Ministry of Agricultural Development (MOAD)

462. The MOAD leads the implementation of the ADS. The Minister of MOAD will chair the NADSIC; the Secretary MOAD will be (i) Member Secretary of the NADSCC; (ii) Chair the CADIC; and (iii) Board Member of the ATF. As chair of the CADIC, the Secretary MOAD will be responsible for preparing the ADS annual report. MOAD will nominate members in the boards of all the ADS Flagship Programs. The departments of MOAD (DOA, DLS, DFTQC) and NARC will be involved in the implementation of extension and research programs of the ADS. Moreover, MOAD and the departments will coordinate with other agencies and stakeholders in the implementation of other ADS programs that are not part of the flagship programs.

7.12 Other Ministries and Agencies

463. Other ministries involved in the implementation of the ADS (MOF, MOI, MOFSC, MoEDU, MOHP, MOE, MLRM, MOCT, MoInd, etc.) will coordinate activities with the ADS through coordination bodies such as NSC and its subcommittees, and CADIC; and through implementation of joint programs (eg. MoEDU and MOAD will work together on the implementation of the DESTEP).

464. Other relevant agencies relevant to the implementation of the ADS include financial institutions (eg. Nepal Rastra Bank), Investment Board, Insurance Board, PAF, and Women Commission.

7.13 ADS Programs

465. The ADS will be implemented through three different types of programs: the Core Programs, the Flagship Programs, and Other Programs. The Core Programs are implemented mostly through existing agencies already in place at the ministry levels or department levels of agencies. The Flagship Programs on the other hand require different management structure in view of the innovative and multisector nature of their activities. Other Programs are those that are currently implemented but are not part of the existing Flagship or Core Programs.

7.14 Exit Strategy for Other Programs

466. Other Programs include ongoing programs such as fruit development, fish, silk, goat development, and others. These programs are not included in the Flagship Programs or Core Programs of the ADS. In many cases, they are related to the development of specific value chains different from the 5 prioritized value chains.

467. Before the implementation of the ADS, the existing Other Programs will be evaluated for restructuring by independent professionals. Based on the suggestions received from the evaluation report, MOAD will restructure (e.g. modify, merge, drop etc.) the existing Other Programs and resource allocation will be made according to the prioritization.

468. Most of the ongoing Other Programs are likely to be completed during the early years of ADS. If the evaluation of Other Programs shows promising national impact then these programs could become part of future Flagship or Core Programs.

469. It should be noted that even though these Other Program are not included in the currently formulated Flagship or Core Programs, they still could be supported through access to resources made available in the research and entrepreneurship matching grant funds (funds under NARF and INAGEP).

470. Over time, the ADS will include only two types of programs, namely the Flagship and the Core Programs. The existing Other Programs (see Table 32)will be either discontinued after their completion or will be absorbed in a new formulation of Flagship and Core Programs.

Table 39 Flagship and Core Programs of the ADS

	OUTCOME/Output	FLAGSHIP PROGRAMS	CORE PROGRAMS
No.	GOVERNANCE		
1.1	Credibility of policy commitment		√
1.2	Improved coordination in ADS implementation		√
1.3	Integrated planning		√
1.4	Effective implementation support		√
1.5	Mechanisms established for gender equality and social and geographic inclusion		√
1.6	Timely and effective monitoring and evaluation		√
1.7	Mechanisms established for participation of civil society		√
1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation		√
1.9	Improved food and nutrition security of disadvantaged groups	√	
1.10			√
	PRODUCTIVITY		
2.1	Decentralized agricultural extension services	√	
2.2	Decentralized agricultural research system	√	
2.3	Strengthened agricultural education system	√	
2.4	Adequately sized farms that use land efficiently and sustainably		√
2.5	Expanded and improved irrigation		√
2.6	Access to agricultural inputs		√
2.7	Implementation of seed policies		√

	OUTCOME/Output	FLAGSHIP PROGRAMS	CORE PROGRAMS
2.8	Fertilizer supply		√
2.9	Improved animal breeds		√
2.10	Mechanization options accessible		√
2.11	Improved resilience of farmers		√
2.12	Sustainable farming, GAP, and GVAHP adopted		√
2.13	Forestry development		√
	PROFITABLE COMMERCIALIZATION		
3.1	Improved investment climate		√
3.2	Contract arrangements for commercial agriculture		√
3.3	Tax policy to support commercial agriculture		√
3.4	Agricultural finance and insurance		√
3.5	Competitive agricultural value chains	√	
3.6	Rural roads network expanded		√
3.7	Agricultural market information		√
3.8	Rural electrification and renewable energies		√
	COMPETITIVENESS		
4.1	Market infrastructure developed		√
4.2	Growth of small and medium agro-enterprises	√	
4.3	Growth of food and agricultural products exports		√
4.4	Enhanced food quality and safety		√

7.15 ADS Flagship Programs

471. The ADS envisages some prioritized programs around which could be mobilized sufficient consensus, resources, and effective management. These prioritized programs will be referred to as “ADS Flagship Programs”. The four flagship programs of the ADS are:

- i. Food and Nutrition Security Program (FANUSEP)
- ii. Decentralized Science, Technology, and Education Program (DSTEP)
- iii. Value Chain Development Program (VADEP)
- iv. Innovation and Agro-entrepreneurship Program (INAGEP)

7.16 Food and Nutrition Security Program (FANUSEP)

472. The Flagship Program FANUSEP aims at improving food and nutrition security of the most vulnerable groups. It consists of three subprograms: the Nepal Food Security Project (NAFSP), currently been finalized as part of the GAFSP; the Food and Nutrition Security Plan of Action (FNSP), currently been finalized with assistance of FAO; and a new food and nutrition security project to be designed and implemented in the second 5-year period of the ADS action plan. The set of activities in this output are then complex subproject including NAFSP an FNSP.

473. The implementation of the program requires coordination between the national programs NAFSP and FNSP and other food and nutrition programs funded by development partners (such as Feed the Future funded by USAID, programs funded by WFP, and programs funded by GON and other development partners within the umbrella of the MSNP to ensure that the most food insecure rural households and farmers are reached. The Program Manager of FANUSEP will report to the subcommittee on food and nutrition security of NADSCC (see section 7.6). The ADS in general and FANUSEP in particular will align with the MSNP a five year program already approved by the GON.

474. After the first 5-year implementation of the program, a review will be undertaken by the Program Manager of FANUSEP to assess lesson learned and design a new program on food security to make a major indent in reducing food insecurity and malnutrition.

7.17 Decentralized Science, Technology, and Education Program (DSTEP)

475. The Flagship Program DSTEP aims at decentralizing the extension and research system while fostering coordination of research, extension, and education in order to enhance responsiveness to farmers’ and agroenterprises’ needs.

476. The program will be implemented through a Program Manager selected through national competitive process. The DSTEP Manager will ensure coordination among NARC, DOA/DLS, and agricultural education institutions such as Agricultural Universities and Colleges and facilitate implementation of the activities related to the outputs of decentralized extension system, decentralized research system, and strengthened agricultural education system.

477. The decentralized extension system will include three main measures: (i) establishment of Community Agricultural Extension Service Centers (CAESC) in each VDC; (ii) strengthening capacity of existing and planned agricultural extension stations that will provide backstopping services to the CAESCs; and (iii) promoting a voucher system to empower farmers to access the

best available extension and extension service providers. These measures have been explained in section 5.3. The following section expands on the implementation aspects related to the CAESC.

478. The funds required for implementation of the DSTEP will be pooled into a fund, the DSTEP (Decentralized Science, Technology, and Education Fund) that will be replenished through contribution of GON and Development partners. The DSTEP Manager will be responsible for submitting program proposals and budget to the ATF for approval. Funds from the ATF will be channeled to the DSTEP and related implementation agencies such as NARC, DOA, DSL, Agriculture and Forestry University, and Agricultural Colleges.

7.17.1 Community Agricultural Extension Service Centers (CAESC)

479. Currently, the extension system under the management of the GON is organized through a network of Agricultural Service Centers (ASC) under the responsibility of DOA and Livestock Service Centers (LSC) under the responsibility of DLS. The network does not reach all the VDCs in the country. In total there are 378 ASC and 999 LSC. In Nepal there are 3754 VDC and 99 municipalities.

480. This limited number of service centers represents a constraint in reaching out the farmer population of Nepal. The limited number of service centers is aggravated by the limited resources available to carry out program and capacity building activities. As a result most of the VDC and farmers are not reached out by the national extension system. Furthermore, even when farmers are reached by the existing extension system, there is no guarantee that the local needs are adequately met by the existing system. The agroecological and socioeconomic diversity of Nepal is extraordinary and represents a challenge for any specific type of extension service provider to respond effectively to the needs of different types of farmers. Government extension service providers, NGOs providers, and private sector providers are able to meet the needs of only one part of farmers and agroenterprises in Nepal.

481. To remedy this situation, the ADS proposes a different approach and institutional framework. Building on the existing network of ASC and LSC, the ADS will support the creation of Community Agricultural Extension Service Centers (CAESC) that are fully owned and managed by the communities in each VDC and funded by the combination of resources from the VDC, cooperatives, private sector, and GON.

482. Each CAESC will be a society registered according to the Law; memberships is open to all farmers, agroenterprises, and agricultural extension service providers in the VDC, and their organizations; governance rules for the formation of a CAESC will be established by the DSTEP Program Manager to assure that representatives of different wards in each VDC and social and gender balance is assured in the Board of the CAESC.

483. As a Society, the CAESC will own and manage its own assets, hires its own staff, conduct meetings, formulate business plan, open a bank account, disburse funds, and audit accounts and review activities periodically. Governance rules will establish the composition of the board and the way board members are elected by the members of the Society. Membership fees will be decided by the General Assembly. The overall purpose of the Centers will be to facilitate extension services at the village level and to meet the demands and needs of the grassroots. The Centers will hire their own extension service providers (agricultural and livestock technicians or village extension workers) who will receive training and technical backstopping from the Government

service centers in the districts or in the departments' appropriate units. The Centers might also organize additional capacity building to be obtained from other providers such as Agricultural University, Agricultural Colleges, or vocational schools. The Center might initiate direct MOU or contracts with projects, NGOs, or private service providers as well.

484. The funding of the CAESC will come from different sources: (i) own funding of members; (ii) VDC budget; (iii) central government budget (as seed funding); (iv) projects; (v) service fees or other economic activities initiated by the centers themselves.

485. The Centers might initially use the premises of local cooperatives, of VDC facilities, or any other available facility belonging to the members in order to conduct meetings. As the center grow both in membership and finance, they might acquire their own facilities.

486. The contribution of the ADS to the CAESC consists of an initial seed funding that is intended to leverage local resources. For each amount provided by the ADS as seed funding (up to a limit of Rs 10 lakh) for the establishment of the CAESC, the center has to match with an equal amount and give a convincing plan that it will continue its operations in the future. This matched amount could be sources by own sources, VDC funding, or any other funding that the community center might be able to source.

487. The CAESC will be entirely managed by the community according to governance rules that are clearly established at the outset. The center will hire its own staff to provide extension services. The staff will be trained by the government staff either at the nearest ASC/LSC or at training centers of the DOA/DLS. The CAESC will be linked to the ASC/LSC so that activities in each district can be better coordinated.

488. The approach requires awareness campaign and capacity building to support the establishment of CAESC. Guidelines for the establishment of the CAESC will be formulated by the Program Manager of the DESTEP.

489. The outcome will be a network of extension service centers that have the chance of reaching all VDC in the country, are totally managed by the communities and therefore more likely to be responsive to the diverse needs of the farming population, and be responsible for raising funds and therefore more sustainable.

7.17.2 Decentralized Research System

490. The decentralized research system will require restructuring of NARC, establishment of new national research institutes (eg a National Horticultural Research Institute) and the establishment of research stations in all regions, including the far western region. NARC will act as the apex institution in national agriculture research system, a policy body to coordinate, facilitate, consolidate, monitor and evaluate research projects, fund research projects and promote research linkages at national and international levels. National research institutes and Regional Agricultural Research Stations (RARS) under NARC will act as the implementing bodies for carrying out research, training and managing human resources and institutions as indicated in the NARC proposed structure. The ADS will promote the establishment of National Agriculture Research Fund (NARF) integrated with NARC. The existing NARDEF will be merged with NARF. NARF will fund action research projects to be conducted by public, private, and NGO organizations to meet the demand of farmers and agroenterprises.

491. In addition to the existing National Agriculture Research Institute (NARI) and National Animal Science Research Institute (NASRI), ADS will help to establish the National Horticulture Research Institute (NHRI), the National Animal Health Research Institute (NAHRI) and the National Aquaculture and Fisheries Research Institute (NAFRI). ADS will also support the establishment of Agricultural Research Stations at different agroecological zones (high hills, mid hills, and terai) in the Far Western Region to complement the recent decision to transform the Agricultural Research Station in Doti into a Regional Agriculture Research Station (RARS) in Far Western Region. The ADS will support establishment of Agriculture Mechanization Centers in the terai (2), mid hills (1), and high hills (1) within existing research centers. The ADS will promote the consolidation of research stations and programs that are physically located in the proximity and perform similar research activities. It will reduce administrative cost and duplication of resources especially operational expenses. The ADS will help to establish functional linkages with educational institutions and with the extension service for the availability and sharing of their facilities including for educational purpose.

7.17.3 Integration with the Agricultural Education System

492. The integration with the agricultural education system will include support to the Agriculture and Forestry University, creation of a department of agribusiness in that university, capacity building of vocational schools and support to the establishment of regional agricultural colleges. Additional measures to ensure closer integration with research and extension include joint educational and research programs with NARC institutes, joint extension programs with departments and district officers, joint educational programs with CAESC, identification of innovative ways for the Agriculture and Forestry University and the Agricultural Colleges to partner with the private sector (example renting/leasing facilities, training to private/community organizations), and coordination with health and medical institute to mainstream food and nutrition security into the agricultural universities, colleges, and vocational schools.

493. Accelerated growth of agricultural sector depends on various factors, among which education plays a key role in improvement total factor productivity. Underinvestment in this sector will slow down the capacity of Nepal to meet the challenges of agricultural transformation. For too long the agricultural education in Nepal has been left languishing and underinvested. To ensure growth of the agricultural sector, this declining trend investment in agricultural education has to be reversed.

7.18 Value Chain Development Program (VADEP)

494. The Flagship Program VADEP aims at developing competitive and inclusive value chains of national importance. A market for the poor approach (M4P) will be applied to the prioritized value chains. Priority will be given to a very limited number of value chains (5 value chains) selected through a process that takes into account the following criteria: (i) Poverty reduction potential; (ii) Growth potential (or potential for increasing growth and access); (iii) Intervention potential; and (iv) Cross-cutting issues such as social inclusion and gender, environmental sustainability, matching with national and regional strategic priorities, balance of trade (import substitution and export), and geographical spread. The prioritized value chains (likely to include maize, dairy, vegetables, lentils, and tea) will be developed through comprehensive and integrated measures that result in strengthened value chain linkages, increased PPP investment and value added with sector impact.

495. Differently from other value chain interventions in Nepal, the VADEP will have the following innovative features: (i) will be looking at and developing all the stages of the value chain, from seeds to final products, from production to processing, from market infrastructure to access roads and connectivity, from postharvest technology to quality assurance and exports; (ii) will strengthen linkages among associations of farmers, traders, processors, input providers and other value chain actors in order to ensure effective investment; (iii) will aim at replication and linkages beyond the district and achieve national impact; and (iv) will work not only with one district or department but across districts and departments.

496. The Manager of VADEP will be recruited through national competitive process. S/he will coordinate with the CEOs of specific Value Chain Development Alliances (VCDAs) to implement the specific value chain programs. The VADEP Manager will be responsible for submitting program proposals and budget to the ATF for approval. Funds from the ATF will be channeled to the VCDA. The VADEP Manager will assure overall M&E of the program.

7.18.1 Value Chain Development Alliances (VCDA)

497. The Value Chain Development Alliances (VCDA) are societies registered according to the law, owned by key industry representatives including farmers and their associations, entrepreneurs, input providers, logistics operators, warehouse managers, cooperatives, and other value chain actors. The commonality of all the actors is that they are all engaged commercially on a specific value chain and are interested in promoting its commercial development while contributing to poverty reduction.

498. Each VCDA will have access to a Value Chain Development Fund (VCDF). The members of the VCDA will nominate a Board according to the law and the Board will select the CEO to manage the operations of the program. The Board will include 6 elected members and 5 non-elected members. The non-elected members will be nominated by GON and include representatives from MOAD, MOI, MFALD, FNCCI, and NRB. The Board will be chaired by one of the elected-members. The Management will prepare a business plan and an investment plan, to be approved by the Board. The operations of the VCDA will be audited according to the law. Moreover, they will also be audited according to regulations of the Development Partners supporting the VCDF.

7.19 Innovation and Agroentrepreneurship Program (INAGEP)

499. The Flagship Program INAGEP aims to foster agricultural innovation and agroentrepreneurship through the combination of tax incentives, agribusiness incubators, and matching grants. The main beneficiaries of this program will be private enterprises, cooperatives, and innovative entrepreneurs from targeted youth, women, and disadvantaged groups.

500. The program will be implemented through a Program Manager selected through a national competitive process. The INAGEP Manager will facilitate the growth of innovative small and medium agroenterprises improved tax incentives, establishment of agribusiness incubators, and matching grants.

501. The funds required for implementation of the INAGEP will be pooled into a fund, the INAGEF (Innovation and Agroentrepreneurship Fund) that will be replenished through contribution of GON and Development partners. The INAGEP Manager will be responsible for disbursements

of funds from the INAGEF to the agribusiness incubators and the matching grant fund managers. The INAGEF Manager will be responsible for submitting program proposals and budget to the ATF for approval. Funds from the ATF will be channeled to the INAGEF.

7.20 Leading Stakeholders: Farmers, Cooperatives, and Private Sector

502. In addition to the public sector, the leading stakeholders in the ADS will be the farmers, cooperatives, private agroenterprises, and their organizations (eg the Peasants' Coalition, the National Cooperatives Federation, the Seed Entrepreneurs Association, the Dairy Industry Association). There are similar organizations at the district level and in the case of farmers and cooperatives at the VDC level. Moreover, there are national and local commodity organizations or trade organizations. Farmers in the ADS include both commercial farmers and subsistence farmers; smallholders and marginal farmers. Agroenterprises include micro, small, and medium enterprises. Most farmers are women.

503. The ADS success depends on the participation and the ownership of farmer organizations, cooperative organizations, and private sector organizations. Differently from previous strategies for the agricultural sector, the ADS has involved farmer organizations in the formulation stage and will continue to involve them during implementation, monitoring, evaluation, and periodic reviews.

504. The leading ADS stakeholders have the rights to:

- Participate and influence the ADS policy and investment decisions
- Participate in the monitoring of the ADS
- Access to information related to ADS planning, implementation, and monitoring

505. At the same time, the leading ADS stakeholders have the duty to:

- Contribute to the solution of the problems encountered during formulation and implementation of the ADS
- Contribute to accelerating the process of decision making regarding the ADS

506. The rights of the leading stakeholders in the ADS are institutionalized as follows. Representatives of Farmer Organizations (FO), Cooperative organizations (COO), and Private Sector Agroenterprise Organizations (PSO) will be members of the ADS key decision and coordination bodies that oversee the formulation, planning, implementation, and monitoring of the ADS including:

- i. NADSCC and CADIC
- ii. NADSCC Subcommittees related to the ADS
- iii. Steering Committee of the ADS Implementation Support Unit
- iv. DADC and RADC
- v. NARC Board
- vi. Governing Body of the CAESC
- vii. Policy Review Panels organized to review the formulation of new policies under the proposed new Policy Analysis Division at MOAD
- viii. Steering Committee for the periodic 5-year Review, Evaluation, and Updating Committee of the ADS.
- ix. NeKSAP District Food Security Network

507. Given the majority of farmers in Nepal being women, the ADS would encourage farmer organizations, cooperative organizations, and private sector organizations to have women representatives participating in these coordination, monitoring, and decision bodies.

7.21 Civil Society Organizations

508. In addition to the public sector, private sector, cooperative sector, and farmer organizations, other civil society organizations will be key stakeholders in the ADS. Among these other key stakeholders it is worthwhile to mention:

- Service providers such as NGOs and professional organizations such as (...)
- Women organizations
- Dalit organizations
- Janajati organizations
- Consumers organizations
- Professional organizations (such as)
- Association of VDC...
- Media

509. In several cases, the ADS structure recognizes explicitly their role. For example, NGOs and INGOs coordination with the ADS is the main focus of the related NSC subcommittee. Implementation of several activities of the ADS including social mobilization of farmers, extension services, and awareness campaigns will be conducted through NGOs/INGOs. Extension services might also be provided by professional organizations such as the Agricultural Association, the Veterinary Association, the Agricultural Technicians Association, and the Paravet Association. Media will be regularly briefed by the spokesperson of ADS at the MOAD, particularly after the meetings of CADIC at the central level, and after meetings of RADS and DASC at the local level; the media will also be invited to access information through information desks and regular workshops and conferences.

8 MONITORING AND EVALUATION

8.1 Introduction

510. The ADS framework includes a Vision, Outcomes, Outputs, and Activities. Progress towards the vision can be monitored by considering the Vision targets and indicators presented in xx. Similarly, targets and indicators for the Outcomes are presented in xxx. A number of indicators for the Outputs will be presented in this chapters.

511. Monitoring and evaluation is one of the main outputs of the Governance component. A number of activities related to monitoring are described in the output 1.6 of the Governance component. A specific system for monitoring and evaluation at the central and district level will be formulated at the beginning of the ADS and monitoring capacity of central and district level institutions will be strengthened. The new ADS monitoring system will be linked to the existing monitoring mechanisms such as the Nepal Khadya Suraksha Anugaman Pranali (NeKSAP: Nepal Food Security Monitoring System), District Poverty Monitoring System (DPMAS), Poverty Monitoring System (PMAS) and other monitoring and evaluation mechanisms.

8.2 Monitoring and Evaluation of the ADS

512. The ADS needs to be monitored regularly, professionally, and in a participative manner. Monitoring division and units will be strengthened at the Ministry and department levels and will be provided support and capacity building by the ADS Implementation Support Unit.

513. In addition to project and program monitoring, the ADS will require regular policy monitoring to be carried out by a new Policy Analysis Division supported by the ADSISU. Monitoring of the ADS will go beyond inputs and output monitoring and include outcomes and impact monitoring according to the targets and design monitoring framework of the ADS programs. Monitoring reports will be publicly available both in Nepali and English and discussed regularly at national and local events.

8.3 Monitoring Vision, Outcomes, and Outputs

514. **Impacts** of the ADS are the targets for the Vision reported in Table 19, targets for the **outcomes** are reported in **Table 20**, and preliminary indicators for the **outputs** are provided in the following **Table 40** to **Table 43**.

Table 40 Output Indicators for Outcome 1 on Improved Governance

Output	Indicators
1.1 Credibility of policy commitment	<ul style="list-style-type: none"> • Quarterly press releases from GoN on ADS • Section on Policy Credibility in the Annual ADS M&E report • Regulation on tenure of key positions approved and enforced • Independent review of ADS every 5 years
1.2 Improved coordination among institutions involved in the ADS implementation	<ul style="list-style-type: none"> • Amendments of NSC and CADIC approved and enforced • Quarterly meetings of NSC, CADIC held and minutes available on ADS website

Output	Indicators
	<ul style="list-style-type: none"> Subcommittees of NSC established Subcommittees of NSC held meetings quarterly and minutes available on ADS website RADC and DADC meetings held quarterly Section on coordination in the Annual ADS M&E report CADIC Annual Report on ADS
1.3 Integrated planning	<ul style="list-style-type: none"> Regulation on NPC and multisector plans Report by NPC on consistency of periodic plans and budgets with ADS MDAC report covering ADS produced annually NDA report covering ADS produced annually
1.4 Effective implementation support	<ul style="list-style-type: none"> ADS implementation guidelines and implementation manual ADS implementation monitoring reports (biannual) Number of officials trained in policy analysis and policy monitoring Policy performance reports (annual) Draft Annual Report on ADS Policy workshops and presentation of ADS implementation Policy studies Briefings to NPC, CADIC, NSC, and NSC subcommittees
1.5 Mechanisms established for gender equality and social and geographic inclusion in the ADS	<ul style="list-style-type: none"> GEED staff trained on GESI GESI statistics consolidated by GEED staff GESI staff at district level GESI staff at other agencies involved in the ADS Reports on GESI-responsiveness of Extension and Research GESI strategy developed GESI section on the ADS annual report
1.6 Timely and effective monitoring and evaluation of the ADS	<ul style="list-style-type: none"> ADS monitoring system established ADS monitoring reports published quarterly NeKSAP is institutionalized into the government system and operational
1.7 Mechanisms established for participation of civil society in the planning, implementation, and monitoring of the ADS	<ul style="list-style-type: none"> ADS website ADS information desk at Planning Division of ADS ADS information desks at Departments, Regions and Districts Annual ADS conference
1.8 Enhanced capacity of key institutions involved in ADS coordination and implementation	<ul style="list-style-type: none"> Capacity needs assessment and capacity plan of key institutions Monitoring report on capacity building plan
1.9 Improved food and nutrition security of most disadvantaged groups and rights to food	<ul style="list-style-type: none"> Number of beneficiaries from disadvantaged groups Income of beneficiaries Nutritional outcomes (stunting, wasting, undernutrition)
1.10 Performance-based management system established	<ul style="list-style-type: none"> System established and piloted Performance improved

Table 41 Output Indicators for Outcome 2 on Higher Productivity

Output	Indicators
2.1 A decentralized extension system responsive to farmers and agroenterprises' needs	<ul style="list-style-type: none"> Establishment of CAESC Farmers reached by extension services Number of demonstrations Adoption of improved technologies Joint programs with Education and Research organizations
2.2 A decentralized research system responsive to farmers and agroenterprises' needs	<ul style="list-style-type: none"> Establishment of new NRI Establishment of Research Stations Generation of new technologies Joint programs with Extension and Education organizations

Output	Indicators
2.3 A strengthened agricultural education system	<ul style="list-style-type: none"> • Establishment of Department of Agribusiness • Improvement in Facilities of Agricultural and Forestry University • Establishment of New Regional Agricultural Colleges • Improved capacity of vocational school • Joint programs with Extension and Research organizations
2.4 A farming sector composed of adequately sized farms that use land efficiently and sustainably	<ul style="list-style-type: none"> • Land leasing regulations and practices expanded • Larger commercial farms managed by cooperative or agroenterprises • Completion of cadastral surveys • Land tenancy disputes reduced
2.5 Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	<ul style="list-style-type: none"> • Area under year round irrigation Increased • Increased cropping intensity • Increased water productivity • Increased cropping intensity
2.6 Timely access to quality agricultural inputs at affordable price.	<ul style="list-style-type: none"> • Vouchers policy to access agricultural inputs and extension established • Policy for gradual transformation of subsidy system into market based system
2.7 Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	<ul style="list-style-type: none"> • Seed replacement rate increased. • Public and private sector investment in seed sector increased
2.8 A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.	<ul style="list-style-type: none"> • Market system insures fertilizer supply on time • Quality of fertilizer available in the market • Efficiency of fertilizer use increased
2.9 A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	<ul style="list-style-type: none"> • Population of improved animal breeds increased
2.10 A range of mechanization options accessible to farmers through the private sector.	<ul style="list-style-type: none"> • Mechanization in agriculture • Labor productivity increased
2.11 Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	<ul style="list-style-type: none"> • Resilient crops varieties released • Number of farmers covered by agricultural insurance • Food reserves system in place • Farmer welfare fund operational • Improved early warning system • Crop and weather forecasting available to farmers on mobile
2.12 Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry practice (GVAHP) are established and adopted.	<ul style="list-style-type: none"> • GAP/GVAHP standards formulated • Adoption of good practices by farmers • Number of farmers and ha certified
2.13 Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	<ul style="list-style-type: none"> • Forestry NTFP output • Leasehold forestry output • Forestry timber output • Value of forestry products captured by women and disadvantaged groups • Employment created by forestry sector

Table 42 Output Indicators for Outcome 3 on Profitable Commercialization

Output	Indicators
3.1 Improved investment climate for agricultural commercialization	<ul style="list-style-type: none"> Private and cooperative investment in commercial agricultural production and agribusiness
3.2 Contractual arrangements for commercial agriculture	<ul style="list-style-type: none"> Number of ha or herds under contract farming
3.3 Tax policy that supports an efficient commercial agricultural sector	<ul style="list-style-type: none"> Consistent tax policy to promote investment in agribusiness and agriculture greed and implemented
3.4 A variety of competitive and demand-driven financial and agricultural insurance products.	<ul style="list-style-type: none"> Agricultural credit volume and outreach Number of financial products available to farmers Agriculture/livestock insurance coverage
3.5 Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	<ul style="list-style-type: none"> Value of the production and postproduction in each prioritized value chain Value added by stakeholder
3.6 Rural roads network expanded.	<ul style="list-style-type: none"> Section on agricultural roads under District Technical Office established Road length (km) constructed Quality of roads after 2, 4, 6 years of construction
3.7 Agricultural market information and ITC products for market intelligence.	<ul style="list-style-type: none"> Number of farmers with access to ICT market information products Number of farmers with access to ICT market intelligence products
3.8 Expanded rural electrification and renewable energies.	<ul style="list-style-type: none"> Section on Power development at MOAD established MW of renewable energy available to farmers

Table 43 Output Indicators for Outcome 4 on Increased Competitiveness

Output	Indicators
4.1 Market infrastructure developed	<ul style="list-style-type: none"> Total value of investment in market infrastructure Total value of produce going through major agricultural markets
4.2 Growth of innovative small and medium agribusiness enterprises	<ul style="list-style-type: none"> Number of agroenterprises developed by different groups Value of output of agroenterprises developed by different groups
4.3 Growth of food and agricultural products exports	<ul style="list-style-type: none"> Value of exports of food and agricultural exports Value of imports of food and agricultural exports
4.4 Enhanced food safety and quality	<ul style="list-style-type: none"> Percentage of exports that are certified Percentage of domestic production that is certified Occurrences of food safety incidents Rejections of exported products due to SPS compliance issues

8.3.1 Linking Monitoring to Good Performance

515. Monitoring in the ADS will not only identify progress towards the Vision and indicate possible problems, but it will also identify good performance and link performance to rewards. The monitoring system should at the minimum be able to trace indicators at the district level for agricultural production, agricultural income, disbursement, satisfaction of beneficiaries, progress in implementation, etc.

516. Based on observed indicators of good performance, a reward to the best 5 performing DADOs or DLSOs will be provided every year, provided that their performance is above the set minimum threshold (see section 5.2.10). An **ADS Good Performance Fund (AGOPEF)** will be established and managed by the the ADSISU initially on a pilot basis and be replicated and institutionalized in case of positive results.

9 ROADMAP

517. The ADS provides a strategy for the next 20 years agricultural transformation of Nepal. This is a long period during which inevitably great changes will occur. The ADS provides a framework for the development of the agricultural sector that will need to be improved and updated several times during this period.

518. As in most other journey, the first steps are the most important. To embark on the ADS road, several conditions have to be satisfied for the journey to be a successful one. These include:

- i. Government commitment
- ii. Policies and Regulations for ADS Implementation in place
- iii. Consensus of key stakeholders
- iv. Development partners support

519. Each of these conditions needs to be verified through observable indicators. The following section will explain the methods of verification of the initial necessary conditions for the ADS success.

9.1 Government Commitment

520. Government commitment to the ADS will be gauged by three main indicators, related to finance, legislation, and institutions. In particular:

- i. **Medium term budget commitment by central government and local government (DDC and VDC).** The commitment to the ADS is not only in terms of the resources, but also in terms of support to the ADS programs, so that sufficient planning horizon and security of program finance can be established to motivate stakeholders and promote private investment and development partners' commitment.
- ii. **Tenure of key positions.** Some of the key positions in the implementation of the ADS, including ADS Commissioners, National Program Managers, and senior civil servants involved in the ADS should secured sufficient length of tenure to carry out their functions properly. This might require policy or regulations to be formulated and enacted.
- iii. **Establishment of key units.** The National ADS Implementation Committee (NADSIC), the ADS Implementation Trust Fund (ATF), the Coordination sub-committees of NADSCC, and the ADS Implementation Support Unit (ADSISU) need to be established to ensure implementation of the ADS.

9.2 Policies and Regulations for ADS Implementation

521. ADS implementation requires formulation and approval of various policies and regulations. Some of these policies and regulations need to be enacted at the early stages for the ADS, particularly those related to the governance dimension (see Table 44).

Table 44 Examples of Policies and Regulations needed for Implementing the ADS

Governance	Productivity	Commercialization	Competitiveness
1. ADS Implementation Support Unit (ADSISU)	1. CAESC	1. Contract farming	1. Innovation Funds
2. Composition of NADSCC and Subcommittees	6. NARC restructuring	5. Value Chain Development Alliances	4. Quality and Safety regulations
3. Composition of CADIC, RADC, DADC	7. Dept Agribusiness Agricultural University and Ag Colleges	6. Crop and livestock Insurance regulations	5. Food safety law
4. ADS Information desks	8. Vouchers for extension and input	7. New Financial Products	...
5. Establishment of NADSIC	9. Land Leasing	...	
6. ADS Implementation Trust Fund (ATF)	...		
7. Tenure of key positions			
...			

9.3 Consensus of Key Stakeholders

522. As a key national strategy for the next 20 years, the implementation of the ADS cannot be just a technocratic or bureaucratic exercise. The strategy aims to accelerate inclusive and sustainable growth of the agricultural sector and to smooth the agricultural transition of Nepal. As such, its implementation cannot even be conceived without the presence of a substantial consensus among the key and leading stakeholders: the government, the farmers, the private sector, the cooperative sector, and the major political and social forces.

523. In a very diverse and increasingly open society like Nepal, there is a vigorous debate about different approaches to development planning, implementation, and resources allocation. Given the diversified nature of society and political opinions, the ADS will be constantly debated and at times its implementation might be slowed down by a wide divergence of opinions.

524. The condition to start implementation of the ADS however is not the utopist situation in which there will be full consensus about all the measures proposed in the action plan and roadmap. For the ADS to proceed, it is important to have maximum, even though not unanimous consensus about the approach, vision, and measures proposed for implementation.

525. In order to assure this consensus it is important to have a pledge by the leading stakeholders that indeed they are supporting the implementation of the ADS and commit to contribute to the solution of problems that inevitably will be encountered during implementation.

526. An **ADS signing ceremony** by the major political leaders will ensure that political commitment to the ADS will remain alive also during successive cabinets. Such an ADS signing

ceremony should be conducted before ADS is commenced and renewed periodically, particularly after every major evaluation of the ADS (at least every 5 years).

9.4 Development Partners Support

527. The ADS provides an overall strategy for improving coordination between GON and development partners in the field of agricultural development. A strong commitment to the ADS by the GON and leading stakeholders together with a well organized and reasonable strategic approach can provide reassurance among the donor community that investment in the agricultural sector might lead to the desired development outcomes. If that is the case, then a pledge of multiyear commitment to the ADS Implementation Trust Fund (ATF) might again contribute to improve funding and delivery mechanisms of the ADS.

9.5 Early Milestones of the ADS

- Before GON Approval
 - Finalize ADS document
 - Extension awareness campaign about the ADS at the central and local level
 - Pledged consensus of key stakeholders
 - Indicative support by development partners
- During First Year of Implementation
 - Commitment by GON to mid-term support of the ADS
 - Acts for NADSCC, NADSISU, ATF and Flagships
 - Establish ADSISU, ATF, NADSISU and Coordination Sub-Committees
 - Formulated Guidelines for ADS Implementation
 - Recruit Program Managers for ADS Flagships
 - Budget allocations to ATF by Donors
 - Commission studies: i) for establishing Farmers Commission, (ii) for evaluating proposal of Minimum Support Price and its Management system.

9.6 ADS as a Living Strategy

528. ADS is a living strategy owned by the GON and the ADS leading stakeholders. Through regular monitoring and periodic review and evaluation, the details of the ADS will continuously evolve and improve. An external 5-year review of the ADS will be commission and widely discussed by government and civil society.

9.7 Next Steps in the ADS TA

529. After submission of the draft Final Report, MOAD will organize a number of professional review of the document which will be given to the TA Team by June 15, 2013. These comments will allow the ADS TA Team to finalize the report by June 30, 2013.

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APPENDIX 2. CHALLENGES OF THE ADS

A2.1 Productivity – General

530. Assessment of the current status of the agriculture sector (in the main text of this report) shows different measures of productivity and indicated a low development stage. There is still a large potential gap that needs to be filled with improved technology and good practices both in farming and post-production activities. The key institutions involved in the generation, dissemination, and teaching of improved technologies are NARC for research, the technical departments (DOA, DLS, DOF, DOI) for dissemination of technologies to farmers and enterprises, and the university for teaching.

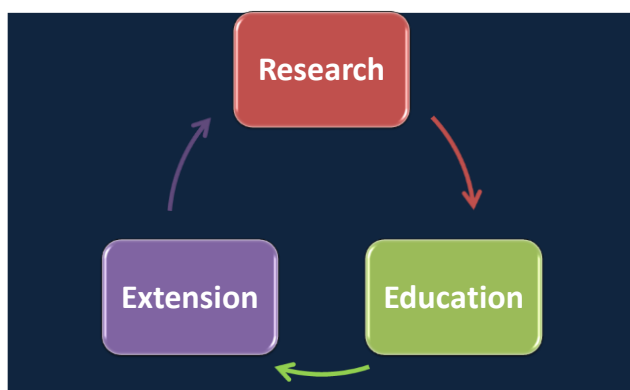


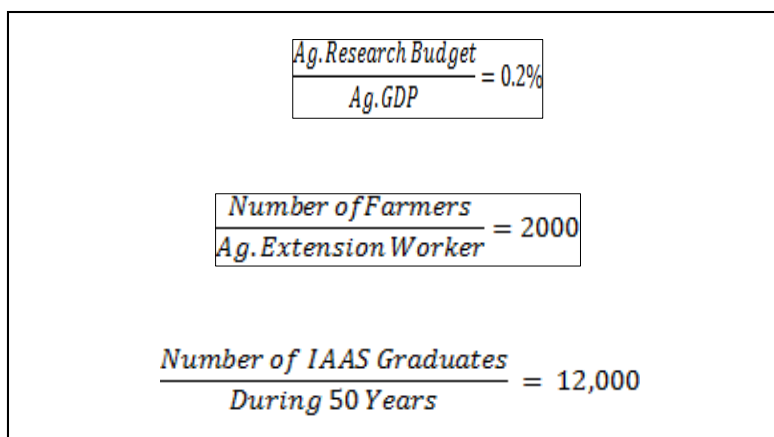
Figure 17 Research, Extension, Education Triangle

531. Currently these three institutions are separated rather than integrated. As a result, there are considerable communication problems in technology: researchers do not reach farmers, farmers or enterprises do not reach researchers.

532. Budgets for research and extension continue to be low and insufficient to carry out effective work. The number of staff members to reach the large number of farmers is inadequate; the current labor force in research and extension is too small and not sufficiently equipped or provided incentives to do their work effectively.

533. The devolution of institutions to the local level, consistently with the Local Self-Governance Act is still encountering several problems as the capacity of the local staff is low, the local bodies are not elected, and the responsibilities and authorities between local and central level are not yet clarified.

534. Three key problems seem to continue to be neglected, namely (i) the low research budget; (ii) the low number of extension workers; and (iii) the number of graduates of agricultural university (see Figure 18)



Source: Economic Survey, MOAC, IASS

Figure 18 Issues in Agricultural Research, Extension, and Education

A2.2 Productivity – Input Supply and Distribution

535. Many of the issues in input supply and distribution today are similar to the ones prevailing in 1995/96 and could be summarized as follows:

- **Access** (quantity, timeliness, quality, price). Inputs are often not accessible in the desired quantities, quality, price, and time.
- **Knowledge and Efficiency of Use** (eg. plant nutrient management). There are still large knowledge gaps about use of inputs. For example, inappropriate nutrients mix of fertilizer is applied and inappropriate use (dosage and timing of fertilizer application) reduces the efficiency of fertilizer by 20 to 50%.
- **Sustainability** (environment, dependency, health). Sloping land cultivation, over-exploitation of MAP at high altitude, soil degradation, overuse of chemicals, lack of treatment of effluent from intensive livestock farms, etc. are examples of un-sustainable practices. Dependency on foreign importation such as hybrid seeds, lack of testing for pesticide residues or heavy metals and other contaminant in food, compromise health and productivity of future generation.
- **Distribution** (pro or against private sector?). The absence of fair competition in the fertilizer distribution system seems to militate against promotion of private sector. On one hand, AIC is given monopoly of the distribution of subsidized fertilizer to cooperatives. On the other hand, illegal importation of fertilizer from India makes business difficult for legal private fertilizer importers.
- **Assured domestic supply** (buffer stock, contract/equity with manufacturers, domestic production, negotiate agreements with India/Bangladesh?). A number of options to assure fertilizer domestic supply have been proposed in the past but no systematic study and evaluation has been conducted to inform policy decision. In fact, even basic data on use and imports are missing.
- **Subsidies** (on prices, demonstrations, or improved use?). The debate on fertilizer (particularly for fertilize and irrigation) has been often politicized and unable to delineate and analyze clear policy options.

Table 45 Key Issues in Input Distribution at a Glance

Input	Issues
Seed	Low replacement for cereals; limited development of formal seed systems and distribution; most seed used are from informal channels with adverse effects on quality; demand for hybrids increasing but supply constrained and fully dependent on imports.
Fertilizer	AICL distributes subsidized fertilizer, about 120,000 tons. Alleged demand 500,000 tons; illegal imports not known, due to lack of survey data; imports quality allegedly low; sustainability of subsidy not clear; objectives of policy not clear; private sector development at risk.
Animal Breeds	Shortage of breeding animals (eg buffalo or exotic cattle for cross breeding dairy cows, goat, sheep); inbreeding of fish and yak.
Mechanization	Increasing need to improve productivity and address reduced labor in rural areas due to outmigration. Required farmer organizations to achieve economies of scale (eg tractors, ploughing machine, pumps, combine-harvester, processing)

A2.3 Productivity – Seeds

536. 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. The informal sector been dominating seed supply system but also seed replacement rate (SRR) has remained unacceptably low⁶⁸. Of the total requirements of the cereal crop seeds, contribution of the formal sector is less than 10 %. The share of the National Seed Company (NSC) to the total cereal crop seed supply is less than 2%. Existing seed replacement rate is very low for major cereal crops. Against the desirable seed replacement rate for self-pollinated and cross pollinated crops at 25% and 33% respectively, average SRR is 4.27% with 8% for wheat followed by 4.4% in rice, 3.8% in maize and 1.6% per pulses. While more than 90% of cereal seed requirements are currently met by the informal sector, this sector is severely constrained by the availability of good quality source seed. This is further aggravated by inadequate of cooperation between the formal and informal systems of seed production. There is inadequate supply of all types of seeds-breeder, foundation and certified seeds, due to the lack of basic facilities for seed multiplication and inadequate supervision, monitoring and technical backstopping.

537. 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

⁶⁸ Birendra Basnyat (2010). "Improving seed security through the expansion of seed multiplication farms in the public, private and cooperative sectors in Nepal". Economic Policy Network II, MOF/ADB, Kathmandu December 2010

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).

538. 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 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.

A2.4 Productivity – Fertilizer

539. 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. During deregulation the 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.

540. 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 subsidy⁶⁹ 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 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.

⁶⁹ 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.

541. The findings of a recent study⁷⁰ of fertilizer use and distribution undertaken with funding by USAID indicated the following:

- The quantity of nutrients being used in Nepal is aligned with the Agriculture Perspective Plan (APP) targets; however, there has been a limited increase in productivity. Based on the survey data gathered from farmers, cooperatives, and traders, the use of NPK (nitrogen, phosphorous, and potassium) in Nepal in 2011/12 is 422,547 MT. This figure is comparable to the 2009/10 national APP target for use of NPK which was 436,595 MT. However, the proper use of nutrients remains a considerable constraint to productivity in Nepal.
- The commonly referenced breakdown of formal and informal imports of fertilizer is 30:70 percent, formal to informal imports respectively. Based on the findings of this study, the ratio is approximately 14 percent formal to informal imports. The 2011/12 estimates based on the survey data are 795,295 MT of fertilizer used in the Hills and Terai; whereas, the official import data for fertilizer is 110,013 MT for 2010/11. Although there is a one year gap in this data, this would imply that 14 percent of the fertilizer used in Nepal is formally imported. The Agricultural Input Company Limited's (AICL's) goal is to import 200,000 MT in 2012. If this goal is fully realized, approximately 25 percent of the total quantity used in 2012 will be formally imported. There is a significant risk in relying on these high levels of fertilizer from the informal market in India, especially in light of India's recent discussions around tightening controls on subsidized fertilizer.
- Given the sizeable amount of fertilizer that enters Nepal through informal markets, quality is a concern. Quality fertilizer and proper use of fertilizer is essential for preventing soil degradation, and maximizing production. 86 percent of farmers recognize AICL fertilizer as good. However, the quality of fertilizer that farmers purchased from unregistered dealers and other informal sources was rated average quality or not considered satisfactory.
- Knowledge of and support for soil management and integrated plant nutrient systems are poor. For example the majority of famers in Nepal need to use lime, yet only an estimated 75 percent of farmers know about the importance Nepal Fertilizer Demand and Plant Nutrient Assessment of liming. Given the substantial amount of fertilizer being used in Nepal, significant gains in productivity could be made by adopting an effective soil management program. In areas where the Ph level is below 5, productivity losses could be as high as 50 percent. The GON should consider redirecting part of the resources currently used for fertilizer subsidies to soil testing, liming, and proper micronutrient blending to improve the productivity of cultivated land.
- Price was not a determining factor in fertilizer use. As the market is imperfect and supply is severally constrained, it is not surprising that price is not a determining factor in fertilizer use. In fact, household characteristics are more significant factors affecting fertilizer use than price. However, none of these factors that affect use appear significant enough to dramatically alter the demand of fertilizer in the short term.
- Based on these findings, the recommendations provided in this report focus on i) improvements in soil management to improve the effectiveness of the fertilizer being purchased and applied by farmers and ii) addressing the issue of informal supply, minimizing the use of poor quality fertilizer and decreasing the risk involved with relying on the informal supply of fertilizer from India by increasing the availability of formal/regulated fertilizer.

⁷⁰ NEAT 2012 Nepal Fertilizer Demand and Plant Nutrient Assessment, a Study commission by USAID on behalf of ADS and undertaken by NEPAL, ECONOMIC, AGRICULTURE, AND TRADE ACTIVITY (NEAT), Contract No. AID-367-TO-11-00001, November 2012

Considerable improvements in productivity would be obtained by addressing these two constraints.

A2.4.1 Soil Fertility

542. 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.

543. 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.

A2.5 Productivity – Irrigation

544. 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.

545. Irrigation and agricultural policy and implementation should not be in isolation – irrigation is an input to profitable agriculture, not an end in itself. Program experience⁷¹ 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

⁷¹ M. Michaud (2011). "Report on Lessons Learned EU Food Facility INGO Projects, EU Cooperation Office, Kathmandu 30 June 2011

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.

546. Over time farmers in both Hill areas and the Terai have developed simple irrigation systems based on diversion of water from seasonal or permanent streams and rivers. The systems were (and are) referred to as farmer-managed irrigation systems (FMIS). Because of problems with damage to temporary headworks by floods, the Government began a program of assisting selected FMIS to upgrade their primary infrastructure, often through constructing permanent diversions and upgrading primary canals. The schemes are then referred to as “agency assisted” with Agency referring to the Department of Irrigation (DOI). The total area of independent or agency assisted FMIS was estimated by DOI at 0.67 million ha in 2007. Most are relatively small, though some such as Rani, Jamara, Kulariya Irrigation System and Rajapur Irrigation Project exceed 10,000 ha.

547. By 2007, there were 32 schemes totaling 325,919 ha under agency management. Following a program of irrigation management transfer (IMT) over the last 30 years WUAs are responsible for managing lower level canals in all schemes.

548. Irrigation that is not conventional surface (gravity canal) or shallow or deep tubewell is referred to in Nepal as non-conventional irrigation (NCI). It includes a range of technologies such as drip and micro-spray and is often used to irrigate high value crops in the hills, and in winter and spring in the Terai. NCI has developed over the past 20 years, primarily due to the efforts of a number of international NGOs.

549. Nepal has immense ground water resources, estimated to exceed around 12 km³ annual recharge of which less than 1 km³ is currently exploited for irrigation or domestic and other uses. Total groundwater irrigation now extends to about 363,000 ha of which shallow tubewells (STWs) contribute 318,000 ha and deep tubewells 45,000 ha. Groundwater utilization statistics are inaccurate, as changes in command area since construction and (for example) the breakdown of DTWs are not recorded. Similarly, the area of surface irrigation is not known with any accuracy and attempts to assess area, even for a single district, have not been highly successful. A new approach to the collection and updating of irrigation statistics is required.

550. The APP in the irrigation sector built on existing plans to establish large irrigated areas mainly based on groundwater. The APP recommended rehabilitation of surface irrigation, on-farm-water-management, improvement of surface irrigation through irrigation management transfer along with development of new surface irrigation in hills and mountain and groundwater development in the Terai. It suggested development of monsoon and year round surface irrigation schemes in all ecological regions focusing on drip, sprinkler and rainwater harvesting tanks in mountain and hill areas. The management goal of the irrigation effort was to expand farmer ownership and operation. Virtually all schemes would be farmer-managed by the end of the period.

551. APP correctly identified that to be effective, proposals for irrigation development would need to be supported by the other key inputs, in particular fertilizer, and roads and power (the last of these particularly to support groundwater development in the Terai). In practice there have been significant deficiencies in these areas with the result that the productivity of irrigated staple crops has changed little since the time of the APP.

552. The APP 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. By 2010, the APP anticipated that there would be around 516,000 ha of groundwater 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 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. Reasons for the shortfall include (i) limited donor support (with only one new ADB project initiated in the 2000s for example), (ii) limited local budget with a sharp decline after 2001/02, (iii) the civil conflict which limited work as well as budget, (iv) the end of subsidies for groundwater development which undermined the key thrust of the APP irrigation policy, and (v) the restructuring of Agriculture Development Bank of Nepal (ADBN) which withdrew from supporting the irrigation sector in around 2003.

553. More remains to be done to fully develop the Terai's groundwater resources, to increase the proportion of year round irrigation in surface schemes, and to increase the production of high value crops. Key lessons to be taken forward to the ADS include:

- The links between irrigation and production inputs. In the absence of adequate supplies of fertilizer, seed, electricity and extension, productivity will remain poor.
- The need to focus on system and on-farm water management, to increase irrigation efficiency and allow more water to reach the tail of canals and systems.
- The need to focus on policy implementation as well as policy development.
- The need to focus on operation and maintenance as well as (and often in front of) new system development.

554. The irrigation sector has moved on since 1995 and new constraints and needs have emerged. Key aspects that the ADS will need to focus on which were not deeply considered under the APP include:

- How to include the poorest and marginal land farmers in the irrigation economy.
- How to extend year round irrigation to additional areas.
- How to provide effective extension services, particularly for higher value crops.
- How to strengthen the WUAs and expand their capacity to manage higher level canals and (in relevant cases) whole systems.
- How to make farmers more self-reliant and less dependent on government for O&M and system rehabilitation.
- How to make irrigated agriculture more commercial, particularly given the increasingly small and fragmented farm plots.

555. The major institutional gaps and deficiencies are assessed are indicated in :

Table 46 Major Institutional Gaps in Irrigation

Department of Irrigation	<ul style="list-style-type: none"> • Excessive focus on new construction • Lack of capacity for holistic irrigation and management • Weak water management in AMIS • Poor maintenance of main and branch canals • Weak statistical capability:
DGWRD	<ul style="list-style-type: none"> • Combination of regulation and construction in one agency
WEC/WECS	<ul style="list-style-type: none"> • WEC location under Ministry of Energy limits its ability to be an effective peak water agency • WECS has limited capacity
Directorate of Agriculture Extension	<ul style="list-style-type: none"> • Extension capacity limited, poor linkage to research and to irrigation • Technical knowledge and budget in relation to small irrigation system development limited
DOLIDAR/DTO	<ul style="list-style-type: none"> • DOLIDAR remains focused on road construction, though this is changing • DTOs have little expertise in irrigation system design

556. Moving from draft to final policies is a slow process in Nepal and there is a need to finalize existing draft policies as soon as possible, including integrated water resources management (WECS) and micro-irrigation and national irrigation policy (DOI). Major issues relate to implementation with little progress often made towards meeting policy objectives. Policy gaps include: (i) a framework for improved and participatory management of larger irrigation systems, (ii) a need to update the groundwater development program, in order to expedite development, and (iii) the optimal approach to government support or subsidies to all irrigation subsectors, but particularly including micro-irrigation and groundwater. It is also recommended that an irrigation act is promulgated.

557. The formation and operation of WUAs was a focus of the 2000 irrigation rules. A need is seen to revise the rules to allow or encourage competent WUAs to expand their activities into such aspects as domestic water supply, water mill operation, extension, input supply and marketing. These aspects could be incorporated in the proposed new irrigation act, or as in some countries, WUAs could be provided with their own act.

558. Major investment gaps are considered to be:

- Lack of sufficient budget for groundwater development
- Rehabilitation of most AMIS is required prior to IMT
- Appropriate FMIS need to have their intakes made permanent
- Inter-basin transfer systems need to be studied and where feasible, developed
- Study of multi-purpose dams

A2.6 Productivity – Research and Extension

559. 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.

560. 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.

561. 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.

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

563. 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.

564. **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.

565. 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.

566. **Coverage.** In 2003, the Government of Nepal reorganized the MOAD 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, physio-graphic situation, limited transport facilities and physical infrastructure.

567. **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 respectively⁷². 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 programmes to graduate groups and categorize them based on the year of establishment. Statistics may be available at the district level but need to be aggregate at the region or country level.

568. **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.

569. **Presence and delivery competence of public sector.** To operationalize Priority Productivity Package (PPP) programmes of the APP, the MOAD, 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 country⁷³. This also suggests that public extension services has been grossly inadequate from both quality and quantity dimensions.

570. **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

⁷² Agriculture Extension Directorate, Annual Programme and Statistics, (2009-10).

⁷³ APP Implementation Status Review, APPSP/MOAC, 2007

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.

571. **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.

572. **Linkages with education.** The research and extension system is poorly with the agricultural university system. The three organizations (NARC for research, DOA/DLS for extension, and IAAS for university) do not seem to have benefited from cross-fertilization of the agricultural knowledge triangle. There are no statements and provisions in the Tribhuvan University Act 2049 and the University Grant Act 2050 which result into the research, extension and education linkages. TU Act has no provision of membership of NARC or MOAD in any committees formed under the Act. Nor it envisages consulting line ministries regarding the production of their products neither in terms of quantity nor quality (knowledge and skills requirements/needs assessment).

A2.7 Competitiveness

573. 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 (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 47). **Most of the competitiveness indicators are ranked very low in international benchmarking.**

Table 47 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 2009⁷⁴

574. 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

⁷⁴ 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

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 48).

575. 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 48 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)
Cereals	112	4,195	(4,082)
MAPs	440	Not significant	440
Dairy products	Not significant	861	(861)

Source: CBS 2010

A2.7.1 Agriculture Trade Issues

576. **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 channels⁷⁵, 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

⁷⁵ 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

as evident from the consistently increasing share of imports of food items in the food consumption.

577. 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 resources⁷⁶.

578. 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**.⁷⁷ In addition, Nepal lacks an adequate legal and institutional system for the certification of products.

579. **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 Indian currency⁷⁸, 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 markets⁷⁹.

580. 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.

581. 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 market⁸⁰. Therefore, one of the issues of agriculture trade is how to use trade policy instruments in securing food security through self-reliant food economy.

⁷⁶ Khanal, D. R. and Kanel, N. R. (2005) *Macroeconomic Policy, Shocks and Poverty Reduction in Nepal*, Kathmandu: Institute for Policy Research and Development.

⁷⁷ ITC. Export Potential Assessment in Nepal. 2007.

⁷⁸ Ministry of Finance, Government of Nepal, Economic Survey (various issues) and Ministry of Finance, Government of India, Economic Survey (various issues)

⁷⁹ 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.

⁸⁰ 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

582. Ministry of Commerce and Supplies (MoCS), headed by the Minister is at the centre of trade policy formulation, implementation and negotiation. But, there is non-existent or limited coordination with or participation of other sectoral ministries, in particular MoAD, in trade policy formulation and implementation.

583. In the formulation of Trade Policy 2009 and Industrial Policy 2010, **the participation of MoAC was either nil or limited.** (Pant et. al 2011). Trade Policy 2009 establishes Board of Trade which is represented by six government ministries but it conspicuously omits MoAD, despite the fact that 11 out of 19 products identified for special focus and thrust areas are agriculture products. Similarly, Industrial Policy 2010 constitutes Industrial Promotion Board under the Chair of the Industry Minister for implementing the policy. The Board is represented by nine ministries, but MoAC is excluded.

584. **The salient feature of Trade policy promulgated in 2009 is that it has assigned a lead role to the private sector for export promotion, limiting the role of the state as a guide, facilitator and regulator.** Providing continuity to reduction of market distortions, deregulation and institutional development of previous trade policy, it concentrates on the “supply side” and its orientation is towards export “development” and not just “promotion”. It also identifies 11 agriculture products for export development. Other sectoral policies that affect agriculture trade such as Approach Paper to Three Year Plan 2010/11-2012/13, National Agriculture Policy 2004, Agri-Business Promotion Policy 2006, Industrial Policy 2010 also stand for market-oriented and competitive agricultural production and export promotion. In sum, the trade regime of Nepal is liberal, there is no quantitative restriction and import licensing, number of tariff slabs is low, tariffs are at moderate level, current account balance of payments are fully convertible, export and import procedures are simplified and reforms are underway for institutionalizing export incentives.

585. **Nepal is a signatory of some trade agreements:** Nepal-India trade treaty, South Asia Free Trade Agreement (SAFTA), Bay of Bengal Initiatives for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) and the WTO. As Nepal has provided very limited domestic supports and the bound rate of tariffs in WTO is about three times higher than applied tariffs, there are policy flexibilities in agriculture development.

586. Despite policy various initiatives, **the trade performance of Nepal in recent past has been miserable.** Though the rate of growth of exports has revived during 2005-08 period, the growth of imports has outpaced the growth of exports. In addition, export growth rates could not catch up with the GDP growth rates and the export/GDP ratio declined and coverage of imports by exports also fell. As a result, trade deficits increased to the tune of 20.82 percent of GDP during in 2005-08. Nepal experienced a structural change in its export and import structures between the mid-1990s and the current decade. The share of agriculture and food items in trade increased whereas the share of manufacturing goods declined. The structural change has been more pronounced in export than in imports. Export performance in agriculture is better than overall export performance. The growth rate of agriculture exports remained at double-digit level and surpassed overall export growth rates as well as import growth rates of agricultural products. The share of agriculture exports in agricultural gross domestic product (GDP) reached 4.45 percent in 2009/10 and the share of agricultural imports in gross domestic consumption was 4.18 per cent.

587. **Nepal exports agriculture goods in primary forms and without any substantial value addition.** Top ten agricultural export products at HS-6 digit level include lentils, vegetable, cardamom, tea, non-alcoholic beverage, betel nuts, ginger, plant roots, juice and pasta. The major destination markets are India, Bangladesh, China, USA, EU and UAE. The export structure of agriculture products indicates that there is limited industrial forward and backward linkage with export sectors, including low utilization of local materials and inputs. Nepal is having comparative advantages in export markets in resource- and labor-intensive low technology agriculture products such as dried vegetables, coffee, tea, vegetable and roots, ginger, cardamom etc. However, for vegetable fat, animal feed, sugar and confectionery, molasses the growth rate is negative and there is high risk of eroding comparative advantage in future in these products. Looking at the global market structure, Nepal is competing with low/medium level income countries, such as Bangladesh, India, Pakistan, China, Vietnam and Thailand in the export markets.

588. Both amount of foreign investment and number of entities with **foreign investment in agriculture sector is low.** However, the last three years has witnessed revival of foreign investment in agriculture sector, though the share of this sector in total FDI is minuscule. The available information also shows that most of the foreign investors are engaged in production, basic processing and retailing rather than generating values in international upstream stages.

589. **The major binding competitiveness-related supply-side constraints** are inadequate infrastructure for efficient production and transportation of goods; lack of human capital endowed with education and skills to process exportables; limited access to credit due to conventional/conservative banking practices that rely more on collateral than on the feasibility of business ventures; limited use of technology in the production processes which impedes the prospects of what is known as “moving up the value-chain ladder”; and virtual absence of trade facilitation measures which causes delays in the shipment of goods. Being a landlocked country and inadequate domestic transport network, the cost of transit and transport is high. The tariff faced by Nepalese agriculture products is about 5 times higher than the tariffs for non-agriculture products. In addition to high tariffs in export markets, human, health, environment and technical standards and requirements for agricultural products have become more frequent and stringent in export markets. Nepal-India trade treaty which provides *reciprocal duty free market access* on selected agriculture and primary products has resulted in displacement of agricultural products in domestic market as evident from the increasing trend of the share of imports of food items in the food consumption.

590. Despite low average tariff rates on imports and no direct distortion practices in export trades, the existing tariff system provides negative protection in some of the agriculture products since there is no sufficient domestic support in agriculture to counteract distortion of cascading tariff structure. It has also discouraged forward and backward linkage industries that use domestic resources. Given the differences in inflation rates in Nepal and India and resulting over-valuation of Nepalese currency vis-a-vis Indian currency, 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.

591. Nepal faces severe supply-side constraints on all major fronts, which means that it would not be in a position to fully utilize whatever limited market access opportunity is granted under bilateral, regional and multilateral trading regimes if supply-side bottlenecks are not addressed. In order to remedy this persistent problem of transit, **the transit treaty with India needs to be**

reviewed with a view to reduce cost and improve efficiency. In addition, it needs to be supported by a regional transit arrangement within South Asia. A key priority in Nepal's effort to expand agriculture exports should be to improve the quality of its products by developing its standards in harmony with the standards developed by the international standards bodies. Nepal may conclude mutual recognition agreement at the bilateral level, in particular with India. The Nepal-India trade agreement also needs to be renegotiated to exclude at least major agriculture products such as paddy, wheat, maize, millets, oilseeds and their products from duty free market lists. Similarly, Nepal needs to review in a step by step manner the pegged exchange rate system with India.

A2.8 Commercialization and Agribusiness

592. 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.

593. 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.

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

595. There is insufficient institutional capacity in MOAD 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.

596. Tax policy does not seem to be biased against farmers and agroenterprises; however agribusiness entrepreneurs often complain that they lose competitiveness due to duties and taxes levied on agricultural technology inputs, equipment and machinery for production and processing.

597. 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.

598. 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 and a supporting system of implementation of good practices, such as Good Agricultural Practices (GAP), good manufacturing practices (GMP), good hygiene and handling practices (GHHP), and good veterinary practices (GVP).

599. 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.

A2.8.1 Value Chain Development

600. A review⁸¹ of Agriculture Value Chains were undertaken to support formulation of the ADS. The review included examination of 35 Value Chain studies, field visits to meet with stakeholders, interviews with key informants and participation in relevant ADS assessment workshops. The main findings of the review are:

Key Issues - Value Chain studies:

- a. A myriad of common bottlenecks inhibit development of almost all of the Value Chains examined across all three steps of the Value Chain – production, marketing and the ‘bit in the middle’ (that links production with markets).
- b. Major areas that require attention include market information, quality inputs, credit, production and harvesting technology, regulation and certification, infrastructure, research, extension services and marketing skills.
- c. There is a dearth of information linking implementation of the Value Chain methodology to actual results achieved.
- d. Most recommendations in the studies are vague and general in nature and are not readily actionable.
- e. There seems to be a pronounced bias for studying and supporting a few favoured products or commodities, namely, Tea, Cardamom and Ginger.
- f. Most studies and initiatives have a bias towards production. Less attention is paid to improving quality and on marketing issues.
- g. There is a pronounced focus on working with farmers to “push’ products than on working with traders or businesses to ‘pull” products into markets.
- h. There seems to be an inordinate amount of faith placed in contract farming.

Key Issues – Stakeholder Consultations

⁸¹ The detailed findings are presented in the Consultant Report on Value Chains.

601. A field assessment covering the Eastern Development Region validated most of the issues discussed in the Value Chain studies. Additional issues emerging from the field visits are:

- a. There is a pronounced ‘recipient fatigue’ among targeted beneficiaries and intermediaries from endless discussions and analyses. Farmers and entrepreneurs are keen to see visible results and are tired of workshops, meetings and value chain studies.
- b. Donors and supporters ‘cherry pick’ areas of support. A “whole chain’ approach required for Value Chain development is largely missing in most of the cases.
- c. Most analyses and initiatives see support for Cooperatives as an important strategy for increasing farmer bargaining power. There are good examples of cooperatives integrating into agri-business value chains (for example, in Orthodox Tea, Dairy). Cooperative governance is an issue that requires more attention.
- d. Organics is an increasingly popular theme. However, all elements required for this to work effectively are not yet in place. A cluster approach is required for organics to be successful.
- e. The concept of regional specialisation is taking hold through ideas such as One Village One Product (OVOP) and district level agriculture planning processes. This can lead to economies of scale and provide a platform for focused chain upgrading support. However, availability of resources is a big challenge.
- f. The India market represents a big opportunity as well as daunting challenges. Bilateral trade issues (SPS, standards) need to be settled to ensure continuing market access and predictability of India’s actions. There are also major concerns regarding the subsidies in Indian agriculture which render Nepali agro products uncompetitive.
- g. Bangladesh represents another huge potential opportunity for Nepali farmers and producers. Macro-level trade and transit (via India) issues are a matter of concern and hinder market access.
- h. There are reports of changes in cropping patterns (for example, Ginger and Cardamom cultivation moving to higher altitudes) and it is claimed this is due to climate change effects. This issue needs detailed examination to inform smallholder mitigation and adaptation strategies.
- i. Commercial farmers and entrepreneurs face difficulty in accessing credit. There is a clear need to think beyond micro-credit when addressing needs of commercial farmers and agribusinesses
- j. There are several encouraging instances of new investments in agribusinesses (for example, in Ginger and Orthodox tea processing). There is demand for technical assistance packages to nurture and protect these investments.

A2.9 Infrastructure

602. There has been considerable progress in three types of infrastructure (roads, energy, and communication) over the APP period. Rural roads and energy targets of the APP have been largely achieved.

603. 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.

604. Rural infrastructure delivery in Nepal, in general, has over the years been a highly influenced by national and local politics and associated governance issues. This has had very detrimental effect in the quantity and quality of delivery. The following factors have broadly contributed to the lack of performance in achieving infrastructure targets for a range of infrastructures, including rural roads, power and communications as a whole:

605. **Poor investment environment**, particularly for the power sector, has meant lack of mobilization of the high amount of investment that needs to go into developing hydropower schemes. Poor investment environment has resulted from policies where the licenses holders are not compelled to invest, unstable political situation and political pressure to potential investors to allocate funds on areas (such as schools for the communities) outside the scope of the investors.

606. **High fiduciary risks** combined with widespread corruption both in the government and private sector has significantly raised the cost of infrastructure development making the investments for quality infrastructure unattractive. This has impacted the delivery of all weather (black topped) road sections, investment for power production as well as making the mobile communications affordable to the rural poor.

607. **Limited human resources** to undertake large scale infrastructure development schemes have also impeded the growth of the infrastructure sector. Nepal has, over the years, seen mass migration of both the skilled and unskilled workforce to developed countries. Many engineers, essential resources to implement the schemes, and the youth force which provide the unskilled labour requirements, have left the country over the past ten years due to low growth in the infrastructure sectors. In the absence of required quantity and quality of human resources, the infrastructure development has become more expensive as well as limited in scope.

608. **The infrastructure developed** lacks close linkages with agriculture sector. Most of the investments made on infrastructure are largely based on the population size and political influence (related to the population size). The areas with potential agricultural development are still ignored in the planning process and more so in the allocation of the annual budget.

609. **Poor implementation and monitoring** of the infrastructure programmes are negating the impact and quality of the infrastructure built. Policies and guidelines are not followed, and the responsible agencies are not monitoring the performance of the infrastructure outputs against agreed policy outcome indicators, if any.

610. In order to develop a required level of infrastructure base for the growth of the agriculture sector, it is essential that the government prepares an investment friendly environment for the private sector and for international investors to invest, particularly in the power and telecommunications infrastructures.

611. The rural road sector suffers from increased fiduciary risks at the local (i.e. DDC and VDC) level where the guidelines for development of rural roads in a systematic manner following agreed District Transport Master Plan and Rural Roads standards are not followed.

A2.10 Finance, Insurance, Taxes

A2.10.1 Credit

612. The need for viable rural financial services remains a constraint to rural commercial development. ADBN has moved away from agricultural financing (Figure 19), 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)⁸² 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 a credit environment with improved supervision and regulation. The institutions are moving toward eventual privatization.⁸³

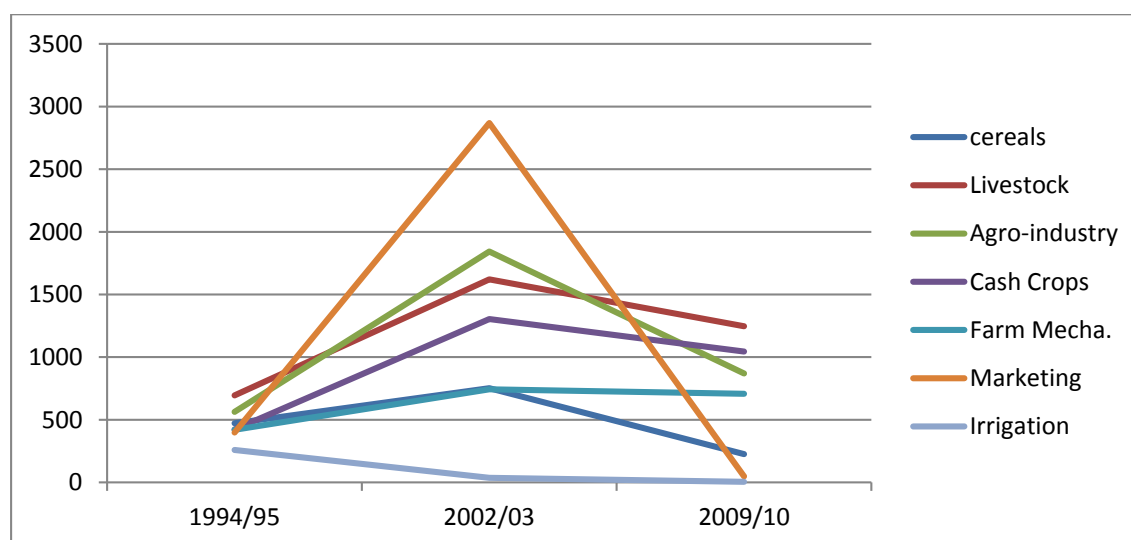


Figure 19: ADBN: Top 7 purposes of agricultural loans (Rs Millions)

Source: Agriculture Development Bank Nepal, 2011

⁸² Sub-program 2, Project Number: 36169-02 was approved May 2010.

⁸³ ADB (2009). “Country Assistance Program Evaluation: Nepal—Delivering Assistance in a Challenging Environment”. Manila. 2009

A2.10.2 Insurance

613. Nepal faces a series of key institutional, financial, technical, and operational challenges in developing crop and livestock insurance products and services which are suited to the needs of the country's small and marginal farmers, and in scaling-up the demand for and supply of crop and livestock insurance.

Institutional challenges include the following:

- a) The supply of agricultural livestock insurance products and demand for insurance is very low. Commercial insurers are not offering such products. Credit Guarantee Corporation is offering such facilities but after more than 25 years operation is still in an infant situation. In the case of livestock, current uptake amounts to less than 20,000 heads of cattle or buffalo each year representing less than 0.3 percent of the national herd.
- b) In the agricultural insurance legislation, there is a lack of clarity over the legal status of the guarantee protection cum insurance products which are being implemented by a range of public-sector organizations, the cooperatives, and MFIs.
- c) Existing Insurance Act does not recognize, and thus does not supervise, the insurance products and services offered by the cooperatives and MFIs to Nepali small and marginal farmers. This in turn acts as a major barrier to collaboration between cooperatives/MFIs and private commercial insurers in their efforts to identify ways of:
 - Strengthening and standardizing agricultural insurance product design and rating so that these conform to the technical and legal requirements of the insurance industry.
 - Developing an integrated risk financing strategy for crops and livestock whereby the cooperatives might operate as the primary insurer, the insurance companies might provide excess of loss insurance and government might also participate as a catastrophe reinsurer.
 - Collaborating in the marketing of agricultural insurance products, thereby reducing the costs to both parties and other operational areas that are purely technical side underwriting, policy wordings, delivery channels, claim process, claim settlement norms.

Institutional challenges include the following:

- a) Low capital base of commercial insurers is a serious obstacle for developing of agricultural and livestock insurance. Commercial insurers are also concerned about their ability to access international agricultural reinsurance capacity.
- b) Cooperative agricultural insurers have limited financial capacity and none of their programs are currently reinsured. The cooperative and MFI insurers usually have limited financial reserves and none of the agricultural credit-guarantee or insurance programs are protected by reinsurance. The lack of access to formal risk transfer and reinsurance mechanisms leaves the individual cooperative or MFI insurers very exposed to catastrophe losses. Many of these programs have failed because of their inability to put in place a proper catastrophe reinsurance program.

Technical challenges include the following:

- a) Insurers have had little or no exposure to international practice and procedure in agricultural and livestock insurance. They lack knowledge and awareness in design,

- rating, method of processing, identifying risk, identifying needs, coverage of risks and their modalities and benefit packages, claim handling, service providing. Cooperatives and MFIs also have very limited experience with agricultural insurance.
- b) The range of crop and livestock insurance products currently available through the cooperative and microfinance sectors is narrow and needs to be strengthened and brought into line with international standards. There is also a need to develop new crop and livestock insurance products which are tailored to the needs of Nepali farmers in each of the main agro-climatic regions.
 - c) Insurance data and proper information lack is another set of issues in this sector. Data and information are critical to the design and rating of any crop and livestock insurance program in Nepal. Availability of quality, long term time series data on crop production and yield is a challenge faced in developing adapted crop insurance products. For livestock the regional mortality statistics are of limited use for the design and rating of livestock insurance policies.

Operational challenges include the following:

- a) Commercial insurers have low level of operating branches in rural areas. The players have regional branch offices in the major cities, but few have retail sales outlets in individual districts and villages. Commercial insurers do not have a rural distribution network through which to market crop and livestock insurance products and services to Nepal's predominantly small farmers.
- b) High administration costs of agricultural insurance for small farmers.

A2.10.3 Taxes

614. The trends in revenue and expenditure during the APP period shows that government expenditure increased to 22.1 percent of GDP in FY 2009/10, while government revenue increased to 15.3 percent of GDP during the same period resulting to budget deficit of 3.5 percent of GDP. The share of foreign grant is 3.3 percent of GDP, while combined loan (foreign and internal) constitutes 3.4 percent of GDP in FY 2009/10.

615. The land revenue, one of the main revenue sources during 70s, was collected by the Central Government till FY 2001/02 and, thereafter, local bodies were authorized to mobilize land revenue as of LSGA 1999. The available data reveal that contribution of land tax to total revenue declined drastically from 11.8 percent in FY 1974/75 to a negligible level of 0.01 percent in FY 2000/01. The conspicuous decline in the share of land tax is attributed to the lack of voluntary compliance, for land tax is paid and arrears cleared only during the sale and purchase of land. There is no stringent regulation applicable to deal with delinquency in payment of land tax.

616. The Village Development Committees (VDCs) have extremely limited capacity for revenue mobilization. Of total resource mobilization, the share of internal income is inordinately low confined to 16 percent of total revenue, while external income comprising transfer grants from central government and District Development Committees (DDCs) and other sources constitutes as high as 84 percent as of FY 2005/06. This is indicative of alarmingly increasing dependency of VDCs on Central Government for resource mobilization, which is attributed to inability of VDCs to mobilize internal revenues as envisaged in the LSGA 1999. The revenue mobilization through internal sources in DDCs is confined to 20 percent of total revenue, while contribution of central government is 41 percent and that of income obtained through revenue

sharing is 39 percent during FY 2005/06. The Municipalities are relatively rich and internal revenue is as high as 70 percent of total revenue, while grants from Central Government and Town Development Fund (TDF) equals to 25 percent and resource mobilization from miscellaneous items including loan comprise 5 percent of total revenue. Although status of resource mobilization is comparatively better in Municipalities as compared to VDCs and DDCs, Municipalities suffers from inadequate resources to match growing development activities within the area.

617. There is no tax on income from agriculture. In addition, a number of agricultural commodities are exempted from VAT and so is the case with Customs Duties and Excise Duties. The local bodies are unable to effectively implement prevailing Acts and Regulations and collect revenues from all sources as envisaged in the LSGA 1999 primarily due to administrative inefficiency and indifferent attitude of local political leaders that they might get defeated during the election if all revenue assignments are implemented at the local levels. The tax effort ratio (revenue/GDP) has gradually increased from 9.2 percent in FY 1990/91 to 15.3 percent in FY 2009/10 and it was encouraging even during the APP period from 1995 to FY 2009/10 (table 6). However, the performance is relatively low compared with SAARC countries.

618. All major policy documents including APP (1995), National Agriculture Policy (2004), current 3-Year Interim Development Plan (TYIDP, 2010-2012), Budget Speech for FY 2011-12, and the programs and proposals for agriculture development visualized by major political parties in their election manifestos clearly refer to their passive role on taxing agriculture. Therefore, taxing agriculture in Nepal is a sensitive issue that requires developing consensus among major political forces to drive for modernization and commercialization of agriculture especially high value crops (cash crops) and promoting agribusiness. This will provide an opportunity for mobilizing revenue from agriculture sector. With due consideration to this fact Federation of Nepalese Chambers of Commerce and Industries (FNCCI), apex body of private sector, has given due emphasis on promoting agro-enterprise and developing agribusiness (FNCCI, 2011).

619. The major political parties are campaigning for introducing scientific land reforms system by lowering down land ceiling and thereby distributing surplus land to landless people and eliminating absolute poverty (Manifesto of Political Parties, 2006). However, there is no certainty whether small size of holdings would help raising production as well productivity of agriculture sector comprising both food and cash crops.

620. Agricultural taxation in Nepal should be formulated taking into account India's agricultural policy to provide subsidies on: (a) fertilizer, (b) interest on loan to small farmers, (c) use of irrigation and electricity facilities and (d) petroleum products and examine its impact on Nepalese agriculture.

A2.11 Subsidies

621. Subsidies are ingrained in the being of the average Nepali farmer. Of all the suggestions and recommendations made to the irrigation team during fieldwork, requests for subsidies were the most common, followed by requests for protection from unfair competition from subsidized Indian production. At the same time, in most irrigation systems visited in all regions of Nepal, there was a strong indication of a need for government support, ie, that they could manage their systems but would first need major government input. There is of course a risk that despite substantial investment in upgrading, the performance of the Water User Associations (WUA)

would not greatly improve – ie, that despite claims of self-reliance following upgrading, in practice WUAs will be tempted to continue to defer maintenance.

622. One of the key tasks of the ADS in the irrigation sector is thus seen as being to attempt to design a program that will assist WUAs become more effective and autonomous over the 20-year ADS period. It is envisaged that within the period, the average WUA will be collecting sufficient service fees to fully pay for regular and exceptional maintenance, and will be managing water allocation in its system effectively.

623. Government has or is using subsidization as a strategy to address issues including: (i) supply of fertilizer; (ii) technology, seeds, irrigation; (iii) transport to remote areas. However, use of subsidy has not been consistent, nor has it always been effective in delivering policy goals, nor clear benefits to the agricultural sector and farmers.

624. India's subsidization of agriculture is often mentioned as limiting Nepalese agriculture's competitiveness, but this mostly applies to profitability in lower value crops especially cereals, rather than higher value agricultural industries such as vegetables, cardamom, and tea which have other competitive advantages. India's subsidies are used to justify subsidy for fertilizer in Nepal. The current Nepal fertilizer subsidy has not resulted in adequate supply and distribution of fertilizer to the agricultural sector and the strategy and implementation should be revised to include the role of private sector. Consideration will need to be given to the subsidy level, its affordability, and the price impact on supply and demand.

625. Subsidy on agricultural technology inputs for least developed countries is not subject to restriction under WTO and regional trade agreements, so is not an issue for trade. Technology and inputs adoption and use have responded to subsidy, for example (i) subsidy for establishment of STW irrigation, and (ii) subsidized seeds, micro-irrigation and greenhouse costs for farmers to diversify into high value crops. However, other non-subsidy approaches have been successful, for example the livestock credit scheme which has assisted many women into goat farming as a means of generating capital. Affordable and accessible financial credit is equally applicable as a means to achieve adoption of other technologies and diversification. Achieving goals of rural credit policy may reduce justification for subsidy, except as a targeted means for inclusive development of the very poor and disadvantaged groups.

A2.12 Land Use Management

A2.12.1 Land Use Planning

626. Nepal does not have a planning and zoning legislation with the consequence that land can be used for any purpose without limitation. In 2004 the Lands Act was amended to provide for the formulation of a land use classification system and the consequential prohibition to change land uses without a special permit⁸⁴. The land use classification was to have been declared by the GON on the basis of a policy to be formulated by the Land Use Council⁸⁵ and to be implemented

⁸⁴ Lands Act, Art. 51E

⁸⁵ Lands Act, Art. 51F. The Lands Use Council is composed of the Vice-Chairperson, NPC as Chairperson and have as its members the Secretary, Ministry of Defense, the Secretary, Ministry of Forests and Soil Conservation, the Secretary, Ministry of Agriculture and Cooperatives, the Secretary, Ministry of Physical Planning and Works; 3 persons nominated by the GON from amongst the land-use related experts and have the Secretary, Ministry of Land Reforms and Management as Member/Secretary

by the MLRM. To-date, the land use classification has not yet been adopted but the Consultant has been advised that a draft Land Use Policy is currently under consideration at the MLRM. In the absence of a land use classification system there is a widely reported increase of instances where agricultural land is transformed to residential use (the so-called land plotting and land grabbing practices) reducing thereby the quantum of available productive agricultural lands as well as creating unplanned urban enclaves in rural areas.

A2.12.2 Land Ceilings

627. The Lands Act advocates a social justice approach to land holdings rather than an economic profitability one and does so by regulating the transfer of lands from the large landowners, i.e. those who hold land in excess of the permitted ceiling (see Table 49), to the landless ones through the stipulation of land holding ceilings which inevitably leads to smaller and dispersed land holdings. In practice, the land reform designed by the Lands Act, and in particular its fifth amendment which further reduced land holdings ceilings, has only been partially implemented as ways were found to circumvent the Act imposed land ceilings. Reportedly, there are still large landholdings in place where landless tenants are employed as laborers in various forms of tenancy.

Table 49 Land Owning and Tilling Ceilings

	Land ownership ceiling	Additional land for residential premises	Land Tilling Ceiling
Terai	10 Bigaha*	1 Bigaha	4 Bigaha
Kathmandu Valley	25 Ropani**	5 Ropani	10 Ropani
All hilly regions except Kathmandu Valley	70 Ropani	5 Ropani	20 Ropani

Notes:

* 1 Bigaha = 6,772.63 m²

** 1 Ropani = 508.72 m². There are 13.31 Ropani in a Bigaha.

628. It should be noted that pursuant to Article 12 of the Lands Act under certain conditions agro-businesses and cooperatives may be exempt from the land holdings ceiling⁸⁶. Furthermore, in order to encourage consolidation of dispersed lands the 2010-2011 budgetary laws provide for a reduction in land registration fees for exchange of lands for consolidation of lands used for agricultural purposes, for the purchase of land for growing tea, cardamom and fruits and for cooperatives engaged in farming who register their lands in the name of an industry⁸⁷.

629. The traditional and statutory Partitioning (inheritance) Rules⁸⁸ call for the transfer of property to spouses and children without having the option to transfer the property to selected heirs. Consequently, the size of land holdings are ever decreasing as the land passes down the generations, adding to the difficulty of making a living off the land. Especially in those cases where the land is the only property of the deceased there are also no practical options of exchanges between land and other assets to preserve

⁸⁶ Lands Act, Art. 12. The exemption is provided by order of the GON for the specific enterprise or cooperative (as well as for certain other activities/entities), for a specified activity and it details the size of land that may be held by the enterprise or cooperative. The exemption remains in force as long as the activity is undertaken.

⁸⁷ Fiscal Act 2068 (2010-2011), Annex IV.

⁸⁸ Muluki Ain (General Law), Chapter 13

630. The land holding ceiling imposed by the Lands Act as well as the Rules of Portioning (see previous paragraph) reduce the size of the land ownership more and more making it more difficult to make a living of the land unless one can drastically improve the productivity. One could conceive two possible options to address the productivity per unit and per person while retaining small landholdings, either by the formation of land sharing cooperatives or by contract farming arrangements⁸⁹.

631. The Lands Act provided certain tenancy protection to those tenants that tilled land owned by others prior to 1964. Such rights were however no further attainable after 1964. However the landless farm laborers are at present perhaps worse off than before the enactment of the Lands Act as in anticipation of possible reinstatement of protected tenancy rights landowners prefer to leave their land untilled than to create tenancy rights for their laborers.

A2.12.3 Farm Size

632. 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 families⁹⁰, 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 50 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

633. 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

⁸⁹ See discussion on contract farming in paragraphs 79-82.

⁹⁰ 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.

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.

634. 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 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.

635. 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 oriented 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.

A2.13 Food and Nutrition Security⁹¹

636. Table 51 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.

637. 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.

⁹¹ An effort by GON and FAO to formulate a Food and Nutrition Security Action Plan is under way. The formulation team will work closely with the ADS TA Team and the outputs of the two teams will be coordinated in order to ensure consistency of the Food and Nutrition Security Action Plan with the ADS. More in depth analysis of food and nutrition security analysis will therefore be undertaken by the Food and Nutrition Security Action Plan team.

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.

638. 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.

639. 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)**. 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 was planned be part of the ADS, however it has not been finalized by the date of this Report.

Table 51 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 	<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

	<ul style="list-style-type: none"> • 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"> • 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.

640. **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.⁹² The ADS will need to consider strategies to reduce the vulnerability of the poor to soaring and volatile food prices.

641. **Food Availability and Food Security.** Despite cereal production growth being less than population growth, the small amount of cereals imported (about 5% of total production) has been assured through imports from India, even during the period of export controls 2008-2011. There are two important trend assumptions in using cereals as an indicator of food security: (i) continuing population growth; and (ii) consumption of rice per capita. Over the next decade, Nepal's population growth rate is expected to start to decline. In fact this might already been happening as the preliminary Census of Population 2010 data shows that population growth has reduced to 1.4.

642. If Nepal follows trends in other Asian countries, more wheat products will replace rice in the diet. The deficit that may increase is for animal feeds (maize and soybean, etc.) as demand for meat and other livestock products increases. At least for maize, there is considerable potential to improve based on higher yields from improved varieties achieved by a growing number of farmers.

643. **Monitoring and Evaluation of Food and Nutrition Security.** There are a number of systems in Nepal that are involved in food and nutrition security monitoring and evaluation. A background paper prepared by WFP⁹³ provides an extensive discussion of the main systems

⁹² United Nations World Food Programme WFP, 2008.

⁹³ WFP Monitoring and Evaluation for Food and Nutrition Security. Assessment, Vision, Options, and Strategy Background Papers for the Preparation of the ADS, 2013.

features and limitations. Food and nutrition security is a cross sectoral issue and its monitoring requires a multi-sectoral approach. Such approach needs to be guided by coherent principles to ensure that the different efforts implemented are linked together to achieving an efficient and effective implementation of food and nutrition security monitoring system. The system is to be guided by a clear and strong statement of what a comprehensive food and nutrition security monitoring should consist of, and how it should be used. Food and nutrition security is a cross-sectoral issue, which does not fall under the mandate of a single ministry and requires a leadership with a solid inter-ministerial coordination capacity. Ensuring the functional linkages among existing systems between different levels, central and local levels as well as policy and technical levels, is another area of further enhancement.

A2.14 Institutional Issues

644. **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.

645. **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, MOAD, MOI, ...) than at district level. Even within the same agency, there are difficulties in 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.

646. **Capacity and Human Resources.** Limited 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 farmers⁹⁴. 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.

⁹⁴ 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%).

647. **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

648. **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.

649. **Decentralization** under the Local Self Governance Act 1999 prioritizes development through periodic district development plans, providing a local planning base for ADS. Programs with budgets and staffing for agriculture and livestock services have been devolved to district development committees. Initiatives have promoted service provision through private and NGO agents in partnership with the Ministry of Agricultural Development(MOAD). However, there are issues with limited capacity, institutional coordination and local administration of taxation and revenues. For example, the local bodies are unable to effectively implement or regulate Acts and regulations such (Tax, Land, local transport fees) and collect revenues from all sources as envisaged in the LSGA 1999 primarily due to administrative inefficiency and indifference of local political leaders who feel they will lose support if they support enforcement.

650. **Cooperatives.** There a tension between policy promoting cooperatives and also commercialization. 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 regarding accounting, employment and contracts, while cooperative responsibility is limited.

A2.15 Climate Change

651. A few new environmental challenges and opportunities have emerged in recent years which were not prominent and identified at the time of APP preparation. Those are the threats from climate change; climate induced natural disasters such as erosion, landslide, flood, drought, cold waves and heat waves; opportunity for carbon finance and the needs of preparedness for disaster risk management such as early warning and insurance. Similarly, arsenic problem in underground water in the Terai was mainly identified in the early 2000s. The importance and usefulness of Geographic Information and Remote Sensing Technology in planning for agriculture development was not realized.

652. 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 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).

653. 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).

654. 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 identified in forest and biodiversity sector.

655. 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.

656. 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.

657. Many vector born and water-borne 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.

A2.15.1 Carbon Financing

658. The policy and strategy documents to date, including in agriculture, forestry, and water resources, have not yet given enough attention to the rapidly developing global market and financing opportunities for reducing carbon emission and sequestration, and other services provided by the environment, termed "payments for ecosystem services". These emerging opportunities have implications to develop supporting legislation, institutions, taxation and capital markets (stock exchange), trade, as well as forest and water policy.

659. Nepal is party to various international discussions and (possible future) agreements on climate change and greenhouse gas (GHG) emissions. Nepal has a GHG inventory, official communications as party to the UNFCCC⁹⁵ 1992, and the recent National Plan of Action on Climate Change (MOFSC 2010) and Climate Change Policy 2011. Nepal has established an initial capacity to develop and accredit projects that meet international regulatory requirements for carbon trading. For example the REDD cell in MOFSC. There are also recently in Nepal accredited forest enterprises (community forestry groups) that receive carbon trade revenue. REDD approach entails the idea that a developing country which is experiencing deforestation (loss of area of forest e.g. through conversion to agriculture or through logging) may, on a voluntary basis, receive compensation if it reduces its national deforestation rate, in proportion to the amount of carbon emissions that are thus reduced.

660. MOSFC has published a Forest Carbon Measurement Guideline (2011)⁹⁶. Amongst initiatives, there is a pilot project "Design and setting up of a governance and payment system for Nepal's Community Forest Management under Reducing Emissions from Deforestation and Degradation (REDD)" project, funded by NORAD and implemented by Asia Network for Sustainable Agriculture and Bioresource (ANSAB), International Centre for Integrated Mountain Development (ICIMOD) and Federation of Community Forestry Users, Nepal (FECOFUN).

661. Hydropower projects also can also qualify for REDD, and other schemes accepted under the Clean Development Mechanism.

A2.16 Social and Geographic Inclusion

662. 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.

⁹⁵ United Nations Framework Commission on Climate Change

⁹⁶ http://www.forestrynepal.org/images/publications/Carbon_measurement_Guideline_Nepali.pdf

663. **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 depends 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.

664. **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, SADP⁹⁷) and empowerment of women (Woman organizing for change in agriculture and NRM, Wocan⁹⁸) are few examples on which further analysis in later stages of the TA will built up its strategic recommendations.

665. **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.⁹⁹ 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.

666. **Political Economy of Agricultural Policy Reforms:** Experience shows that influential rich farmers and politicians may work together towards creating barriers that impede public investment in agriculture which specifically benefit the smallholders (Birner and Resnick, 2010)¹⁰⁰. 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.

667. **Gender and Social Inclusion of Women.** A number of policies have acknowledged the important of women's contribution in agricultural development and economic transformation. The major flaw however is the translation of general statements into action. There is a large mismatch between vision, plans, and action. In a nutshell¹⁰¹, the programs are not adequately linked and the budget hardly touches upon the issues related with persistent structural hindrances to engender the development sectors in Nepal. The budget is silent over how to enhance women's strategic positions through recognizing women as independent and autonomous farmers, ensuring women's access to means of production, enhancing their leadership competence and creating acceptance, and improving women's position in different structures of the government, non-government and private sectors. For

⁹⁷ <http://sadpnepal.org/about/>

⁹⁸ <http://www.wocan.org>

⁹⁹ 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.

¹⁰⁰ Birner, R. and D. Resnick (2010): The Political Economy of Policies for Smallholder Agriculture, in: *World Development*, Vol. 38 (10): 1442-1452.

¹⁰¹ See Ghale, Yamuna. (2008) *Feminization of Agriculture Sector in Nepal*.

http://www.nepalnews.com/archive/2008/others/guestcolumn/oct/guest_column_08.php, accessed on 10-11-2010

example, the scientific land reform and management does not speak about ensuring equitable access of women on land, standardization of education system does not provision any incentives for female students, and lack of recognition of women leasehold farmer, tenant, haliya¹⁰² has structurally blocked them to stand as a rights holders, organize themselves, claim their rights and enjoy dignified life. Therefore, dealing with engendered agriculture sector development should be a priority of the government, civil society, development actors and private sectors. Women's access to credit can be guaranteed only when they have not only access but direct control over land and other productive resources.

A2.17 Legal Issues

A2.17.1 Food Safety and Quality (FSQ)

668. 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 agribusiness¹⁰³. 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.

A2.17.2 Commerce and Trade

669. **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 MOCS¹⁰⁴.

670. **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 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.

671. 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.

¹⁰² An agricultural bonded laborer who works on another person's land. The literal meaning of Haliya is 'one who ploughs'. Haliyas can be found throughout Nepal. But the Haliya system in the far western hilly part of Nepal is considered a bonded labor system.

¹⁰³ A consultancy to the Department of Technology and Food Quality at the MOAC is working on a redraft of the Food Act.

¹⁰⁴ See Revised Legislative Action Plan of March 2011

A2.17.3 Natural Resources

672. **Water Resources:** The Water Resource Act (WRA) of 1992 is not demand driven or otherwise based on IWRM principles¹⁰⁵ 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.

673. 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 represented¹⁰⁶.

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

675. 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.

676. 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.

677. **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.

A2.17.4 Public Enterprise Reform

¹⁰⁵ 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).

¹⁰⁶ 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.

678. 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.

A2.17.5 Government Institutions and Planning

679. The Consultant has identified 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.

680. 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 MOAD 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.

681. 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 (MOAD, MOI and MOLD) involved in the agricultural sector.

APPENDIX 3. PRIORITIZATION OF VALUE CHAINS IN ADS

682. The prioritization of value chains was based on a set of criteria that were relevant to the ADS, and based on a review of various methods which have been used in Nepal and elsewhere¹⁰⁷. ADS stakeholders contributed to identifying value chain selection criteria, and subsequently they participated in regional and central meetings to prioritize commodities and their value chains. Stakeholders included MOAD, farmer organizations, commodity associations, academics, donor representatives and NGOs.

683. Production of 43 major agricultural commodities account for greater than 95% of AGDP and 60% of agricultural exports¹⁰⁸. Rice is the most important (19% of AGDP), but 70% is for subsistence. Vegetables are second most important (13.2% of AGP), followed by dairy (12.6% of AGDP). The other most statistically significant in the top 10 are maize, buffalo meat, wheat, fruit, goat meat, and ginger. Lentil is the most important export (29.6% of agricultural exports), next cardamom (7%), wheat (6.7%), tea is fourth (and has a high value-adding component), and vegetables are fifth. Commodities with high commercialization rate include milk, tea, vegetables meat, fish, flowers and others of small scale. There is some specialization in terms of regional importance. The eastern region has more potential as regards the production of high value commodities than the others regions, especially for tea, cardamom, and coffee; the tarai in all regions is the key producer of staple food grains (rice, wheat, maize, pulses and oilseeds); and maize, dairy and vegetables in the western regions.

Criteria Used in Value Chain Selection for the ADS

684. Criteria with a focus poverty reduction, growth, intervention potential and cross-cutting issues, a system was deemed appropriate for the ADS. The selection criteria are organised into four broad categories, each of which consists of a number of criteria:

- Poverty reduction potential: criteria here mainly seek to analyse whether sectors are relevant to the ADS target groups – i.e. whether interventions in that sector will possibly affect a large number of people. In order to do so, it is important also to understand how the poor participate in these sectors – as producers, as consumers or workers.
- Growth potential (or potential for increasing growth and access): criteria here assess the potential of sectors to generate growth in employment and income, as well as increasing the poor's access to essential services. To a large degree, this involves looking at some market trends within a specific sector, as well as gaining a first understanding of opportunities and constraints – i.e. in what ways improving the market system might enhance growth and access.
- Intervention potential: here we assess the feasibility for systemic change given the available GON resources, priorities, availability of partners etc.
- Cross-cutting issues: Under this category a number of criteria can be placed such as social inclusion and gender, environmental sustainability, matching with national and regional strategic priorities, balance of trade (import substitution and export), and geographical spread.

685. These criteria are outlined below. Collectively, they represent a comprehensive picture of what is likely to bring successful outcomes from value chain development. Individually, each criterion offers a different strand of programme performance. It should be noted that the various

¹⁰⁷ These include criteria used by DFID, Danida, SNV, IFAD, USAID, UNIDO

¹⁰⁸ Central Bureau of Statistics 2011

overall and sub-criteria are given a weight, and in the analysis four systems were applied to the various commodities/products (Table 52 Overall Category Criteria and Sub-criteria Employed Table 52).

Table 52 Overall Category Criteria and Sub-criteria Employed

Overall criteria category (weight)	Sub-criteria (weight)
Poverty reduction potential (18)	<ul style="list-style-type: none"> • Significant number of households involved in sector (6) • Poverty incidence of target group in the sector (6) • Impact on disadvantaged areas (6)
Growth potential (12)	<ul style="list-style-type: none"> • Growth potential in next 5-10 years (6) • Potential for target group growth (income/employment) (6)
Intervention potential/feasibility (15)	<ul style="list-style-type: none"> • Measurability of impact (3) • Availability of scale agents with high leverage potential (3) • Potential for crowding in (concentration) of market players (3) • Current status of required infrastructure (road, storage, etc.) (3) • Feasibility with given resources and capacities (3)
Other cross-cutting priorities (18)	<ul style="list-style-type: none"> • Consistency with government priorities (3) • Impact on balance of trade (3) • Opportunities for inclusive development (3) • Explicit opportunities for addressing gender inequity (3) • Opportunities for positive impact on the environment (3) • Geographical spread of sub-sector regionally/nationally (3)
Total (63)	Total (63)

Source: Based on DFID NMDP (2010) methodology

Agriculture Value Chain Selection

686. Previous ADS reports have discussed in some considerable detail the following: (i) agriculture value chains selection criteria used in the analysis, (ii) mapping and description of agriculture value chains, where a total of 48 value chains across the four major sectors - crop (32 commodities/products), livestock (11), fisheries (2), and forestry (NTFP/MAP - 3) were assessed and prioritised, (iii) subsequently a short list of 15 value chains were defined with the assistance of a wide and diverse range of key stakeholders involved in the agriculture sector. The selection criteria were applied to the 48 commodities/ products suggested by stakeholders. Each participant Value Chain Selection workshops rated (scored and weighted) each commodity. A total of four ranking scenarios were used to rank the top 15 commodities.

Table 53: Top 15 Value Chains Ranking

Commodity/Product	Rank
Maize	1
Dairy	2
Vegetable	3
Tea	4
Lentil	5
Rice	6
Goat	7
Poultry	8
Potato	9
Wheat	10

Ginger	11
Cardamom	12
Oilseeds	13
Coffee	14
Lowland Fish	15

Source: stakeholder workshops reported in *Agriculture Value Chain Development - Policy Options Report* (July 2012)

687. It is important to note that commodities such as rice, goat and potatoes often mentioned by ADS reviewers were selected into the top 15, but did not make the top five. Rice, for example has a large number of participants but has lower growth potential than the top five. Goats can be a pro-poor strategy, but also dairy, which has a much higher potential for growth, employment, nutrition and trade impacts. In certain areas, potatoes may be higher ranked than maize, but not at the overall national level. The top five ranked value chains are estimated to benefit the direct participants in the chain (including farmers, farmer groups, cooperatives, private entities, processors, market traders). It is estimated that a minimum of 60,000 stakeholders in the dairy sub-sector would benefit, as compared to 90,000 for lentil, 200,000 for maize, 8,000 for tea, and 95,000 for vegetable. In all it is expected that a minimum of 0.5 million people/entities will directly benefit, including smallholder farmers and small agribusinesses, including women community, farmers and agribusiness communities in remote locations.

688. This listing does not include value chains important as niche commodities (honey, mushroom, flowers, etc.) and those produced in the more deprived, isolated mountain areas, namely essential oils, wool, MAPs, temperate fruits (apples etc.), and others, on the grounds of their relative impact on the overall rural communities livelihoods across Nepal, but these will be addressed as special support to these areas/commodities through specialised programs within the ADS.

689. The value chains selection also considers the feasibility of addressing the constraints and facing the chain participants, and opportunities for improvement in production, processing, postharvest, marketing, and policy and institutions, contributing towards improved value additions and strengthen market based business linkages in attaining improved productivity, commercialization, competitiveness and governance, with inclusive, sustainable, private/cooperative sector development, and connectivity.

APPENDIX 4. COST OF ACTIVITIES IN THE ADS ACTION PLAN

Logframe Reference			Description	Responsible Institution		Resources					Comments	
Outcome	Output	Action				Lead	Contributor	Item	Quantity	Costs USD		
				Source						Activity Cost		Sub-total
				Govt, Donor	Private, Community							
1			Improved Governance					422,630,000	920,000		423,550,000	
	1.1		Credibility of policy commitment and farmers' rights	MOAD							3,600,000	
		1.1.1	Conduct awareness campaigns on ADS	MOAD policy division	MOAD policy division	campaign	750	375,000		375,000		10 annual campaigns in 75 districts
		1.1.2	Ensure ADS monitoring covers issues of policy consistency and program continuity	CADIC, NSC	ADS Support Unit	program funds	10	200,000		200,000		annual results monitoring
		1.1.3	Formulate and enact regulations to facilitate longer tenure for key ADS positions	MOAD policy division	NPC	Official person month	5	25,000		25,000		regulations
		1.1.4	ADS 5-yearly review	NPC	ADS Support Unit	program funds	2	200,000		200,000		5 yr review
		1.1.5	Promote policy and legislation changes to ensure implementation of the ADS	NADSIC		program funds	10	1,600,000		1,600,000		10 year cost
		1.1.6	Identify mechanisms to promote farmers' right	MOAD policy division	Farmer Organization	program funds	6	1,080,000	120,000	1,200,000		6 studies; 10% contribution from FO
	1.2		Improved coordination in ADS implementation	NPC	MOAD						8,010,000	
		1.2.1	Formulate amendments of the regulations for the establishment of NADSCC and CADIC	NPC	MOAD	Official person month	2	10,000		10,000		regulations
		1.2.2	Strengthen the capacity of NADSCC	NPC	MOAD	program funds	10	500,000		500,000		10 yr operating costs
		1.2.3	Establish subcommittees of NADSCC and ensure they meet regularly	NPC	MOAD	program funds	60	3,000,000		3,000,000		6 subcommittees, 10 yrs

Logframe Reference			Description	Responsible Institution		Resources					Comments	
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Costs USD				
								Source		Activity Cost		Sub-total
								Govt, Donor	Private, Community			
		1.2.4		NPC	MOAD	program funds	10	500,000		500,000		10yr CADIC operation
		1.2.5		NPC	MOAD	program funds	800	4,000,000		4,000,000		5 RADC and 75 DADC, 10 yr operations
		1.2.6		NPC	MOAD					-		Costed under ADS Implementation Support Unit
		1.2.7		NPC	MOAD					-		Costed under ADS Implementation Support Unit
	1.3		Integrated planning	NPC	MOAD					-	1,100,000	
		1.3.1		NPC	MOAD	Official person month	10	50,000		50,000		Regulation, annual
		1.3.2		NPC	MOAD	Official person month	10	50,000		50,000		Regulation, annual
		1.3.3		NPC	MOAD	program funds	20	1,000,000		1,000,000		Committee operations
	1.4		Effective implementation support	NPC	MOAD						7,040,000	
		1.4.1		NPC	MOAD	TA project	1	7,040,000		7,040,000		
	1.5		Mechanisms established for gender equality and social and geographic inclusion	MOAD	MOCPR						21,500,000	
		1.5.1		MOAD		Full-time staff yrs	20	1,000,000		1,000,000		2 staff, 10 yrs
		1.5.2		MOAD		program funds	10	500,000		500,000		10 yr funding

Logframe Reference			Description	Responsible Institution		Resources					Comments	
Outcome	Output	Action				Lead	Contributor	Item	Quantity	Costs USD		
				Source						Activity Cost		Sub-total
				Govt, Donor	Private, Community							
		1.5.3	Establishment and strengthening of GESI staff at central department and at district level agencies	MOAD		Full-time staff yrs	80	2,400,000		2,400,000		75 district and 5 department staff; 10 yrs
		1.5.4	Enhancement of qualitative and quantitative aspects of participation of men and women farmers	MOAD		program funds	10	1,000,000		1,000,000		10 yr funding
		1.5.5	Making the agricultural extension service GESI responsive in all districts	MOAD		program funds	750	15,000,000		15,000,000		75 districts; 10 yrs
		1.5.6	Improvement in access of farmers	Farmer s' Coalition	MOAD	TA project	1	500,000		500,000		Implemented by Farmer Coalition
		1.5.7	Promotion of GESI responsiveness in agricultural research	MOAD	NARC	program funds	10	1,000,000		1,000,000		10 yr funding
		1.5.8	Develop a GESI strategy	MOAD	UN Women	TA project	1	100,000		100,000		
	1.6		Timely and effective monitoring and evaluation	MOAD							17,850,000	
		1.6.1	Strengthen the capacity of Monitoring and Evaluation units of central and district level	MOAD		program funds	80	4,000,000		4,000,000		75 districts and 5 departments; 10 yrs
		1.6.2	Establish an appropriate methodology and system to carry out systematic ADS monitoring and evaluation	MOAD		TA project	1	500,000		500,000		
		1.6.3	Pilot a system to link monitoring to good governance	MOAD	AISU	program funds	1	1,000,000		1,000,000		Reward with \$5000 each of 20 best performing district offices every year
		1.6.4	Monitoring and Evaluation of Food and Nutrition Security (institutionalization of NEKSAP)	MOAD	WFP/EU	program funds	10	750,000		750,000		10 yr funding; \$75,000/yr
		1.6.5	Conduct Agricultural and Livestock Census	Central Bureau of Statistics	Statistics Division, MOAD	program funds	1	10,000,000		10,000,000		

Logframe Reference			Description	Responsible Institution		Resources					Comments	
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Costs USD				Sub-total
								Source		Activity Cost		
				Govt, Donor	Private, Community	Activity Cost	Sub-total					
		1.6.6	Conduct joint M&E missions including GON and development partners	NPC	DDC/ VDC and DPs	program funds	20	800,000	800,000	1,600,000		twice per year, 10 years, 5 GON, 10 DP staff, plus 2 FO, 2 FNCCI
	1.7		Mechanisms established for participation of civil society	NPC	Farmer Organization, MOAD						17,500,000	
		1.7.1	Establish and maintain an ADS website both in Nepali and English	MOAD		program funds	10	250,000		250,000		10yr funding
		1.7.2	Establish an ADS Information Desk under the Planning Division	MOAD		program funds	10	750,000		750,000		10yr funding
		1.7.3	Establish similar ADS information desks at regions and districts	MOAD		program funds	750	15,000,000		15,000,000		10yr funding
		1.7.4	Periodic presentation of ADS Monitoring and Evaluation Report to civil society	MOAD		program funds	750	1,500,000		1,500,000		10yr funding
	1.8		Enhanced capacity of key institutions involved in ADS coordination and implementation	NPC	MOAD, all other partners						15,750,000	
		1.8.1	Capacity needs assessment	NPC	MOAD, all other partners	TA project		250,000		250,000		included in TA project
		1.8.2	Formulate a plan of capacity building of key institutions	NPC	MOAD, all other partners	TA project		250,000		250,000		included in TA project
		1.8.3	Implementation and monitoring of capacity building	NPC	MOAD, all other partners	program funds	10	10,000,000		10,000,000		10-year funding
		1.8.3.1	Conduct capacity building for GON institutions	NPC	MOAD, all other partners	program funds				-		
		1.8.3.2	Conduct capacity building for Farmers' Coalition, Private Sector Organizations, and National Cooperative Federation	NPC	MOAD, all other partners	program funds				-		
		1.8.4	Evaluate organizational reform of MOAD and related departments	MOAD		TA project		250,000		250,000		
		1.8.5	Establish Policy Analysis Division at MOAD	MOAD		program funds	10	5,000,000		5,000,000		10 year funding

Logframe Reference			Description	Responsible Institution		Resources					Comments	
Outcome	Output	Action				Lead	Contributor	Item	Quantity	Costs USD		
				Source						Activity Cost		Sub-total
				Govt, Donor	Private, Community							
	1.9		Improved food and nutrition security of most disadvantaged groups and rights to food	MOAD, FANUSEP Manager						322,700,000		
		1.9.1	Design a targeted national food and nutrition security program	FANUSEP Manager	TA Project	1	600,000		600,000			
		1.9.2	Implement a targeted food and nutrition security program	FANUSEP Manager	program funds	1	156,000,000		156,000,000			
		1.9.3	Implement NAFS Program	MOAD	program funds	1	66,000,000		66,000,000			
		1.9.4	Implement FNS Project	MOAD	program funds	1	90,000,000		90,000,000			
		1.9.5	Coordinate with ongoing food and nutrition security projects	FANUSEP Manager	program funds	10	1,000,000		1,000,000		10 years project management	
		1.9.6	Review of NAFSP, FNSP, and other food and nutrition security projects	FANUSEP Manager	TA Project	1	600,000		600,000			
		1.9.7	Strengthen the capacity of the central and district food security coordination mechanisms	FANUSEP Manager	program funds	1	8,000,000		8,000,000		10 years, central and 70 districts	
		1.9.8	Promote formulation of Rights to Food and Food Sovereignty Legislation and monitor their implementation	FANUSEP Manager	program funds	1	500,000		500,000		5 year program	
	1.10		Performance-based management system with rewards to the performers established	MOAD					-	8,500,000		
		1.10.1	Establish guidelines and standard operating procedures	MOAD	TA Project	1	500,000		500,000			
		1.10.2	Conduct a pilot program on performance-based management system	MOAD	Pilot project		7,500,000		7,500,000		pilot in 15 districts	
		1.10.3	Evaluate the pilot and make recommendations	MOAD	TA Project		500,000		500,000			

Logframe Reference		Description		Responsible Institution		Resources						
Outcome	Output	Action					Costs USD					
			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments	
2			Higher productivity					1,585,820,000	137,825,000		1,723,645,000	
	2.1		A decentralized extension system responsive to farmers and agroenterprises' needs	DESTEP Manager	DOA, DOLS, CAESC						347,760,000	
		2.1.1	Establish Community Agricultural Extension Service Centers	DESTEP Manager	DOA, DOLS, CAESC							
		2.1.1.1	Formulate general guidelines for CAESC	DESTEP Manager	DOA, DOLS, CAESC	TA int'l person month	3	60,000	-	60,000		
		2.1.1.2	Awareness campaign about the initiative	DESTEP Manager	DOA, DOLS, CAESC	campaign	4,000	2,000,000		2,000,000		Campaigns in 4000 VDC
		2.1.1.3	Capacity building to support establishment of the CAESC	DESTEP Manager	DOA, DOLS, CAESC	training course	160	320,000		320,000		Each training course is 25 persons; 1 person per VDC; 4000 VDC
		2.1.1.4	Seed money for establishment of CAESC	DESTEP Manager	DOA, DOLS, CAESC	match grant	4,000	20,000,000	20,000,000	40,000,000		\$10,000 per CAESC 50:50 financing
		2.1.1.5	Training of CAESC extension technician	DESTEP Manager	DOA, DOLS, CAESC	training course	640	1,280,000		1,280,000		4 trainings each VDC, 25 person/course 4000 VDC
		2.1.1.6	Technical backstopping of CAESC	DESTEP Manager	DOA, DOLS, CAESC	technician visit	160,000	16,000,000		16,000,000		4 visits/yr, 4000 VDC
		2.1.1.7	External monitoring of CAESC	DESTEP Manager	DOA, DOLS, CAESC	technician visit	160,000	16,000,000		16,000,000		5 visits/yr, 4000 VDC
		2.1.2	Strengthen capacity of agriculture and livestock service centers and sub-centers	DESTEP Manager	DOA, DOLS, CAESC					-		

Logframe Reference		Description		Responsible Institution		Resources						
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Costs USD			Comments	
								Govt, Donor	Private, Community	Activity Cost		Sub-total
		2.1.2.1	Training, workshops, study tours for technicians	DESTEP Manager	DOA, DOLS, CAESC	training course	10,000	20,000,000		20,000,000		5000 JTA, 50 training courses, 25 person/course
		2.1.2.2	Resources for farm demonstrations and farmer training	DESTEP Manager	DOA, DOLS, CAESC	farm demo	160,000	160,000,000		160,000,000		4 farm demo/yr/VDC
		2.1.2.3	Improve infrastructure and equipment at agriculture and livestock centers and sub-centers	DESTEP Manager	DOA, DOLS, CAESC	Infrastructure & equipment	1,400	48,000,000		48,000,000		1,400 centers/sub-centers A \$20,000 each, \$20 million for MOAD and Departments over 10 years
		2.1.3	Establish voucher system for extension and advisory services	DESTEP Manager	DOA, DOLS, CAESC					-		
		2.1.3.1	Design, implement and evaluate a pilot voucher scheme	DESTEP Manager	DOA, DOLS, CAESC	TA project	1	500,000		500,000		
		2.1.3.2	Provide budget for 50,000 vouchers in the pilot scheme	DESTEP Manager	DOA, DOLS, CAESC	Vouchers	50,000	2,500,000		2,500,000		50,000 farmer vouchers, \$50 each
		2.1.4	Introduce farmer marketing schools	DESTEP Manager	DOA, DOLS, CAESC					-		1 FMS per 4000 VDC
		2.1.4.1	Establish program capacity and training of trainers	DESTEP Manager	DOA, DOLS, CAESC	TA project	1	500,000		500,000		5 persons trained per district
		2.1.4.2	Implement FMS in those VDC prioritized for value chain development	DESTEP Manager	DOA, DOLS, CAESC	FMS, FFS	1,000	5,000,000		5,000,000		Field school is 10 persons, meets 10 x yr
		2.1.5	Promote ICT in agricultural extension	DESTEP Manager	DOA, DOLS, CAESC					-		
		2.1.5.1	Provide PCs or tablet with internet for each CAESC	DESTEP Manager	DOA, DOLS, CAESC	PCs with internet	4,000	2,000,000		2,000,000		

Logframe Reference		Description		Responsible Institution		Resources						
Outcome	Output	Action					Costs USD					
			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments	
		2.1.5.2	Mobile-based applications	DESTEP Manager	DOA, DOLS, CAESC	PP program 50:50	10	250,000	250,000	500,000		\$50,000 cost for each application, 50% finance by govt
		2.1.6	Link farmer groups and organizations to banks and finance institutions	DESTEP Manager	DOA, DOLS, CAESC	program	75	1,500,000		1,500,000		20 farmers in each group, 100 groups per district in each program
		2.1.7	Train field personnel to be sensitized to GESI and nutrition	DESTEP Manager	DOA, DOLS, CAESC					-		
		2.1.7.1	Training in GESI and nutrition	DESTEP Manager	DOA, DOLS, CAESC	training course	800	1,600,000		1,600,000		5 persons trained per VDC, 25 per course
		2.1.7.2	Increase the representation of women in JTAs	DESTEP Manager	DOA, DOLS, CAESC	JT salary	60,000	30,000,000		30,000,000		500 additional women JT, 10 years salary
	2.2		Decentralized research system responsive to farmers and agroenterprises' needs	DESTEP Manager						-	52,620,000	
		2.2.1	Restructure NARC as apex of NARS, with NRI and RARS implementing research, training under NARC	DESTEP Manager	NARC	Director person month	6	30,000		30,000		
		2.2.1.1	Establish NARF, merge with NARDEF, integrate with NARC	DESTEP Manager	NARC	Fund start-up	1	50,000,000		50,000,000		start up fund as grant
		2.2.1.2	Finalize NARC Vision 2011-30 consistent with ADS	DESTEP Manager	NARC	TA national person month	3	30,000		30,000		
		2.2.1.3	Establish NRI for Horticulture, Animal Health, and Aquaculture and Fisheries	DESTEP Manager	NARC	Buildings & operation	3	750,000		750,000		2,500,000 per NRI
		2.2.1.4	Establish RARS in high hills, mid hills, terai of FWDR	DESTEP Manager	NARC	Buildings & operation	3	750,000		750,000		
		2.2.1.5	Establish Agricultural Mechanization Centers in terai (2), mid hills (1), and high hills (1) within existing research centers	DESTEP Manager	NARC	Buildings & operation	4	1,000,000		1,000,000		

Logframe Reference		Description		Responsible Institution		Resources						
Outcome	Output	Action					Costs USD					
			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments	
		2.2.1.6	Consolidate and restructure RARS and programs to avoid duplication	DESTEP Manager	NARC	Director person month	6	30,000		30,000		
		2.2.2	Strengthen linkages within the research-educational-extension triangle	DESTEP Manager	NARC, Edu. Inst.	Director person month	6	30,000		30,000		
	2.3		A strengthened agricultural education system	DESTEP Manager	University					-	50,300,000	
		2.3.1	Improve facilities and capacity of Agricultural University	DESTEP Manager	University	Buildings & operation	1	-		-		
		2.3.2	Establish new Departments in Agriculture and Forestry University	DESTEP Manager	University			-		-		administration and facilities included
		2.3.2.1	Establish Agribusiness Department	DESTEP Manager	University	program funds	10	5,000,000		5,000,000		10 year funding
		2.3.2.2	Establish Technology Dissemination Department	DESTEP Manager	University	program funds	10	12,500,000		12,500,000		10 year funding
		2.3.3	Support for joint educational and research programs	DESTEP Manager	University	program funds	50	1,000,000		1,000,000		
		2.3.4	Establish Agricultural University partner operations with private sector	DESTEP Manager	University	PP program 50:50	50	1,250,000	1,250,000	2,500,000		5 programs per yr over 10 yrs
		2.3.5	Establish new agricultural/veterinary science colleges in other regions	DESTEP Manager	University	Buildings & operation	5	1,250,000		1,250,000		
		2.3.6	Strengthen capacity of CTEVT	DESTEP Manager	University	TOT	100	50,000		50,000		Centers for technical education and vocational training
		2.3.7	Strengthen capacity of professional staff from government, educational system, and private sector through overseas degrees and training.	DESTEP Manager	University	Scholarship	10	18,000,000		18,000,000		30 short term training and 15 long-term training (Master degree/PhD) per year

Logframe Reference		Description		Responsible Institution		Resources						
Outcome	Output	Action				Costs USD						
			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments	
		2.3.8	Mainstream food and nutrition security into existing agricultural education system	DESTEP Manager	Universities, colleges, vocational schools	program funds	10	10,000,000		10,000,000		10 year funding
	2.4		A farming sector composed of adequately sized farms that use land efficiently and sustainably	MLRM	NPC, MLJ, MOAD					-	32,525,000	
		2.4.1	Decide and adopt a policy statement to review or implement existing legislation and policies pertaining to land reform	MLRM	NPC, MLJ, MOAD	Official person month	1	5,000		5,000		
		2.4.2	Issue a Government Order under the Lands Act to consolidate functions under a Land Management Office	MLRM	NPC, MLJ, MOAD	admin national	1	100,000		100,000		
		2.4.3	Establish land tribunals to settle tenancy and dual ownership cases	MLRM	MLJ	admin District	75	1,500,000		1,500,000		in each district
		2.4.4	Set and enforce targets for reduction of land holdings to the permitted ceiling	MLRM	MLJ	admin District	75	1,500,000		1,500,000		in each district
		2.4.5	Introduce regulation, incentives and disincentives to promote owner-operated farms, farming cooperatives and agribusiness farms.	MLRM	MOF, MLJ	Official person month	24	120,000		120,000		
		2.4.6	Pilot a "land bank" scheme	MLRM	MOF, MLJ	pilot scheme	1	1,000,000		1,000,000		
		2.4.7	Reduce land fragmentation	MLRM	MOF, MLJ							
		2.4.4.1	Legal measures	MLRM	MOF, MLJ	Official person month	12	60,000		60,000		
		2.4.4.2	Financial and tax incentives	MLRM	MOF, MLJ	incentive package	1	1,000,000		1,000,000		
		2.4.8	Enact contract farming act to promote agri-business operations	MLRM	MOF, MLJ	Official person month	12	60,000		60,000		

Logframe Reference		Description		Responsible Institution		Resources						
Outcome	Output	Action					Costs USD					
			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments	
		2.4.9	Enact a Land Lease Act (could be part of Contract Farming Act) allowing long-term leasing at fair terms without acquisition of tenancy rights	MLRM	MOF, MLJ	Official person month	12	60,000		60,000		
		2.4.10	Implement land zoning policy	MLRM	MOF, MLJ	Official person month	24	120,000		120,000		
		2.4.11	Identify degraded land for rehabilitation	MLRM	MOFSC, MOAD	TA project and program funds	10	25,000,000		25,000,000		Geographic information system (GIS)
		2.4.12	Raise awareness of women's rights to land	MLRM	MOAD	campaign	4,000	2,000,000		2,000,000		1 campaign in each VDC
	2.5		Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	MOI	MOAD, WUA					-	675,200,000	
		2.5.1	Expand irrigation area by most feasible means	MOI	MOAD							
		2.5.1.1	Complete already commenced surface schemes	MOI	MOAD	funds per ha	80,000	320,000,000		320,000,000		\$4000/ha estimated
		2.5.1.2	Pilot construction of medium pond/ recharge basins	MOI	GRWRDB, MOAD, farmers	pilot scheme	1	1,000,000		1,000,000		
		2.5.1.3	Repair damaged surface schemes	MOI	farmers	project complex	34,000	34,000,000		34,000,000		\$1,000/ha
		2.5.1.4	Repair damaged tubewells	MOI	farmers	project small	34,000	3,400,000		3,400,000		\$100/ha
		2.5.1.5	Construct new tubewells	MOI	farmers	project complex	75,000	18,750,000	18,750,000	37,500,000		\$500/ha cost shared by farmers
		2.5.1.6	Develop non-conventional irrigation	MOI	farmers, private sector	pilot scheme	10	5,000,000	5,000,000	10,000,000		10 district pilots each 500 ha
		2.5.2	Increase effective area of existing schemes	MOI	WUA	works & training	170,000	34,000,000	34,000,000	68,000,000		\$400/ha cost shared by farmers
		2.5.3	Increase irrigation intensity	MOI	MOFSC, MOEnergy					-		

Logframe Reference		Description		Responsible Institution		Resources						
Outcome	Output	Action					Costs USD					
			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments	
		2.5.3.1	Improve catchment management	MOI	MOFSC	reforestation pilot schemes	10	8,000,000	2,000,000	10,000,000		20% community contribution
		2.5.3.2	Construct inter-basin transfers	MOI	MOEnergy	works	7	28,000,000		28,000,000		Each scheme estimated cost \$4 million
		2.5.4	Improve irrigation system and on-farm water management	MOI								
		2.5.4.1	Reform and strengthen Irrigation Management Division to become the Department of Irrigation Development	MOI		admin national	1	100,000		100,000		
		2.5.4.2	Provide adequate budget from government or ISF collection	MOI	MOF	annual operating budget	50,000	25,000,000	25,000,000	50,000,000		5,000 schemes, 10 yrs budget of \$1,000 per yr, 50% cost share
		2.5.4.3	Build capacity of WUA and farmers	MOI		on-farm training course	15,000	15,000,000		15,000,000		15,000 WUA; \$1,000 per training course
		2.5.5	Implement irrigation management system transfer	MOI	WUA	admin national	32	3,200,000		3,200,000		32 schemes
		2.5.6	Establish funding for O&M, strengthen ISF	MOI	WUA	admin costs	15,000	15,000,000		15,000,000		Cost for WUA administrative reform
		2.5.7	Implement integrated water resource management	MOI	MOLRM	project	5	5,000,000		5,000,000		
		2.5.8	Build capacity of women farmers	MOI	MOAD	FFS	15,000	75,000,000		75,000,000		10 women per 1 farmer field school per WUA
	2.6		Timely access to quality agricultural inputs at affordable price.							-	600,000	
		2.6.1	Formulate consistent policy	MOAD	NPC, MOF, MOSC	admin national	1	100,000		100,000		
		2.6.2	Establish a voucher system for inputs	MOAD	MOF	TA project	1	500,000		500,000		

Logframe Reference		Description		Responsible Institution		Resources						
Outcome	Output	Action					Costs USD					
			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments	
	2.7		Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	MOAD	private sector					-	12,900,000	
		2.7.1	Enhance capacity of seed research stations	MOAD	private sector, university	research station	10	2,500,000		2,500,000		
		2.7.2	Promote private, cooperative, community based seed production	MOAD	private, cooperative	PP program 50:50	750	3,750,000	3,750,000	7,500,000		10 programs per district, \$10,000 each, 50% cost share
		2.7.3	Enforce quality assurance systems	MOAD	private	TA project	1	500,000		500,000		
		2.7.4	Promote production of hybrids	MOAD	private	PP program 50:50	15	375,000	375,000	750,000		Production in 3 zones of 5 regions; 50% cost share
		2.7.5	Establish an information system on seed demand and supply	MOAD	private	program funds	10	200,000	200,000	400,000		10 years; 50% cost share
		2.7.6	Implement Biodiversity Policy	MOAD	MOEnv	TA project	1	500,000		500,000		
		2.7.7	Pilot voucher system for seeds	MOAD	MOF	budget	30,000	750,000		750,000		Pilot 400 farmers per 75 districts, \$25 voucher/person
	2.8		A pragmatic solution to fertilizer supply that is acceptable in the short-term, clearly indicates a strategy for the medium and long term, and aims at improving productivity.							-	450,250,000	
		2.8.1	Maintain fertilizer subsidy	MOAD	MOF	budget	10	400,000,000		400,000,000		subsidy based on 2012 govt budget; 10 yrs
		2.8.2	Complimentary measures for efficient fertilizer use	MOAD	private					-		

Logframe Reference		Description	Responsible Institution		Resources							
Outcome	Output	Action			Costs USD							
			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments	
		2.8.2.1	Demonstration and awareness campaign			farm demo	4,000	3,000,000	1,000,000	4,000,000		25% private sector contribution
		2.8.2.2	Promote organic and biofertilizer			FFS	4,000	3,000,000	1,000,000	4,000,000		25% private sector contribution
		2.8.2.3	Conduct feasibility studies on fertiliser production and procurement	MOAD	MOCS	TA project	2	1,000,000		1,000,000		
		2.8.2.4	Establish a fertilizer buffer stock	MOAD	MOCS	PP program 50:50	75	18,750,000	18,750,000	37,500,000		50% private sector contribution
		2.8.2.5	Establish a database and monitoring system on fertilizer	MOAD	MOCS	program funds	75	1,125,000	375,000	1,500,000		25% private sector contribution
		2.8.2.6	Voucher system for fertilizer	MOAD	MOF	voucher pilot fert subsidy	30,000	750,000		750,000		Pilot 400 farmers per 75 districts, \$25 voucher/person
		2.8.2.7	Enforce quality assurance systems	MOAD	private	program	75	1,500,000		1,500,000		
	2.9		A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	MOAD	private, cooperative					-	8,350,000	
		2.9.1	Develop livestock breeding policy	MOAD		admin national	1	100,000		100,000		
		2.9.2	Capacity building for improved breeds production	MOAD	private	programs	5	1,875,000	625,000	2,500,000		75% govt, 25% private contribution
		2.9.3	Establish a voucher system for animal breeds	MOAD	MOF	voucher pilot animal breeds	30,000	750,000		750,000		Pilot 400 farmers per 75 districts, \$25 voucher/person
		2.9.4	PPP program for availability of liquid nitrogen	MOAD		PP program 50:50	1	2,500,000	2,500,000	5,000,000		
	2.10		A range of mechanization options accessible to farmers through the private sector.	MOAD	MOF, MOCS, private sector					-	13,540,000	

Logframe Reference		Description		Responsible Institution		Resources						
Outcome	Output	Action					Costs USD					
			Lead	Contributor	Item	Quantity	Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments	
		2.10.1	Information dissemination	MOAD	private	campaign	4,000	1,000,000	1,000,000	2,000,000		50% private sector contribution
		2.10.2	Improve customer access to finance	MOAD	NRB, private sector	Official person month	2	10,000		10,000		
		2.10.3	Capacity building for service and maintenance providers	MOAD	private	programs	75	750,000	750,000	1,500,000		10 service providers per district; 50% private sector contribution
		2.10.4	Enable the business environment for leasing agricultural equipment	MOAD	NRB, MOSC, private sector	Official person month	6	30,000		30,000		
		2.10.5	Revise regulation and taxes to support mechanization	MOAD	MOF, NRB	tax incentives package	4	4,000,000		4,000,000		4 measures; cost is revenue forgone
		2.10.6	Pilot a voucher scheme	MOAD	MOF, MOT	voucher pilot mechanization	30,000	6,000,000		6,000,000		Pilot 400 farmers per 75 districts, \$200 voucher/person
	2.11		Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	MOAD	MOEnv					-	36,000,000	
		2.11.1	Research on stress tolerant varieties and breeds	MOAD		program funds	200	4,000,000		4,000,000		
		2.11.2	Early warning system	MOEnv	MOAD	project	1	1,000,000		1,000,000		
		2.11.3	Climate information and weather indexation systems	MOAD	Dept Meteorology	project	1	5,000,000		5,000,000		
		2.11.4	Pilot a Farmers Welfare Fund	MOAD	MOF, MPRC	pilot funds	1	1,000,000		1,000,000		
		2.11.5	Promote agricultural insurance							-		details in 'Commercialization'

Logframe Reference		Action	Description	Responsible Institution		Resources					Comments	
Outcome	Output			Lead	Contributor	Item	Quantity	Source		Activity Cost		Sub-total
						Costs USD						
						Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments		
		2.11.6	Strengthen food reserve system	MOAD	MOF, MPRC	project	1	5,000,000		5,000,000		
		2.11.7	Strengthen the seed and feed/fodder reserve system	MOAD	FO	program funds	10	5,000,000		5,000,000		
		2.11.8	Improve capacity of extension staff and farmers in climate smart agricultural practices	MOAD		program funds	10	5,000,000		5,000,000		
		2.11.9	Establish a fund for preparedness and response	MOAD	MOF	Fund grant	1	10,000,000		10,000,000		
	2.12		Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established and adopted.	MOAD	private					-	5,500,000	
		2.12.1	Formulate standards	MOAD		TA project	1	500,000		500,000		
		2.12.2	Extension programs with private sector	MOAD	private	project	1	3,750,000	1,250,000	5,000,000		25% private sector contribution
	2.13		Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.	MOFSC	MOAD, MOEnv, private sector					-	38,100,000	
		2.13.1	Strengthen enabling policy environment	MOFSC		TA project	1	500,000		500,000		
		2.13.2	Develop and integrate land use models with forestry	MOFSC		project	1	5,000,000		5,000,000		national project
		2.13.3	Forestry enterprises and marketing development	MOFSC	private	TA project	1	500,000		500,000		

Logframe Reference		Action	Description	Responsible Institution		Resources						
Outcome	Output			Lead	Contributor	Item	Quantity	Source		Activity Cost	Sub-total	Comments
						Costs USD						
								Govt, Donor	Private, Community	Activity Cost	Sub-total	Comments
		2.13.4	Enhance forestry GESI	MOFSC		program	750	15,000,000		15,000,000		10 programs per district, \$20,000 each
		2.13.5	Biodiversity conservation and climate change adaptation	MOFSC		program	750	15,000,000		15,000,000		10 programs per district, \$20,000 each
		2.13.6	Develop institutional and human resources	MOFSC		admin national	1	100,000		100,000		
		2.13.7	Research and extension for sustainable forestry	MOFSC		program funds	75	1,500,000		1,500,000		district programs
		2.13.8	Develop a forestry investment strategy and plan	MOFSC		TA project	1	250,000		250,000		
		2.13.9	Develop a joint platform for policy	MOFSC		TA project	1	250,000		250,000		

Logframe Reference			Description	Responsible Institution		Resources					Comments	
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Costs USD				
								Govt, Donor	Private, Community	Activity Cost		Sub-total
3			Profitable commercialization					613,141,250	378,451,250		991,592,500	
	3.1		Improved investment climate for agricultural commercialization	MOAD	MOF						1,920,000	
		3.1.1	Promote formation of broad-based commercial agriculture organizations			pilot scheme	15	1,125,000	375,000	1,500,000		\$100,000 each; cost sharing 75%:25%
		3.1.2	Increase participation of agribusiness, cooperatives and industry bodies			program	10	200,000		200,000		
		3.1.3	Promulgate appropriate regulations			program	3	60,000		60,000		
		3.1.4	Level the competitive environment between private sector and state enterprises			Official person month	12	60,000		60,000		
		3.1.5	Reform land use policy to stimulate commercial agriculture	MOAD	MOLRM					-		costs under Output 2.4 Land
		3.1.6	Provide information to assist commercial farming decisions	MOAD		admin national	1	100,000		100,000		
	3.2		Contract arrangements for commercial agriculture	MOAD	MOSC, MOLRM					-	8,060,000	
		3.2.1	Strengthen contractual arrangement mechanisms	MOAD	MOSC	Official person month	12	60,000		60,000		
		3.2.2	Capacity building in commercial agriculture	MOAD	private sector, farmer organizations	training courses at VDC	4,000	8,000,000		8,000,000		5 farmer groups per VDC, 5 groups per training
	3.3		Tax policy that supports an efficient commercial agricultural sector	MOF	MOAD, NRB	Official person month	12	60,000		60,000	60,000	
	3.4		A variety of competitive and demand-driven financial and agricultural insurance products.	NRB	MOAD, MOF, Insurance Board, Banks						3,132,500	

		3.4.1	Promote development of agricultural finance and insurance providers	NRB	MOAD, MOF, Insurance Board, Banks							
		3.4.1.1	Provide long-term finance through leasing			Official person month	12	60,000		60,000		
		3.4.1.2	Implement policy to divest government shareholding and management influence in financial institutions			Official person month	12	60,000		60,000		
		3.4.1.3	Promote financial institution viability			Official person month	12	60,000		60,000		
		3.4.1.4	Facilitate development of a range of financial products for agriculture			PP program 50:50	10	250,000	250,000	500,000		
		3.4.1.5	Provide incentives for agricultural finance			incentives package	1	1,000,000		1,000,000		Incentives equivalent to \$5 per loan (>0.5% of average loan amount); loan amount not costed
		3.4.1.6	Provide training in financial management for farmers									Cost included in 3.2.2 above
		3.4.2	Promote development of agricultural insurance	Insurance Board	MOAD, MOF, Banks							
		3.4.2.1	Support the insurance industry in implementing the Agricultural Insurance Directive			Official person month	10	20,000	20,000	40,000		
		3.4.2.2	Promotion campaign to farmers			campaign	1,000	125,000	375,000	500,000		25% govt: 75% insurer contribution
		3.4.2.3	Pilot a local-level weather indexing scheme			TA project	1	450,000	50,000	500,000		10% insurer and farmer contribution
		3.4.2.4	Strengthen technical capacity of MOAD for regional and local level crop forecasting									cost included in TA project above
		3.4.2.5	Pilot scheme for 50% premium subsidy			pilot scheme	5,500	206,250	206,250	412,500		Premium 5% of insured value (\$500 nominal insured value); 3 yrs pilot

	3.5			Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	VADEP Program Manager	VCDAs						765,550,000	
		3.5.1		Establish 5 prioritized National Value Chain Programs	VADEP Program Manager	VCDAs	TA project	1	500,000	50,000	550,000		10% private sector contribution
		3.5.2		Support to better expedite value chain development	VADEP Program Manager	VCDAs	Project	1	13,500,000	1,500,000	15,000,000		10% private sector contribution
		3.5.3	3.5.3.1	Enhance the development of the DAIRY value chain	VADEP Program Manager	VCDAs	Project complex	1	4,500,000	500,000	5,000,000		10% private sector contribution
			3.5.3.2	Value chain development fund	VADEP Program Manager	VCDAs	fund, matching investment	1	45,000,000	30,000,000	75,000,000		40% private sector contribution; includes cost for irrigation, other infrastructure
		3.5.4	3.5.4.1	Enhance development of the LENTIL value chain	VADEP Program Manager	VCDAs	Project complex	1	4,500,000	500,000	5,000,000		10% private sector contribution
			3.5.4.2	Value chain development fund	VADEP Program Manager	VCDAs	fund, matching investment	1	72,000,000	48,000,000	120,000,000		40% private sector contribution; includes cost for irrigation, other infrastructure
		3.5.5	3.5.5.1	Enhance development of the MAIZE value chain	VADEP Program Manager	VCDAs	Project complex	1	4,500,000	500,000	5,000,000		10% private sector contribution
			3.5.5.2	Value chain development fund	VADEP Program Manager	VCDAs	fund, matching investment	1	78,000,000	52,000,000	130,000,000		40% private sector contribution; includes cost for irrigation, other infrastructure
		3.5.6	3.5.6.1	Enhance development of the TEA value chain	VADEP Program Manager	VCDAs	Project complex	1	4,500,000	500,000	5,000,000		10% private sector contribution

		3.5.6.2	Value chain development fund	VADEP Program Manager	VCDAs	fund, matching investment	1	210,000,000	140,000,000	350,000,000		40% private sector contribution; includes cost for irrigation, other infrastructure
		3.5.7	3.5.7.1	Enhance development of the VEGETABLES value chain	VADEP Program Manager	VCDAs	Project complex	1	4,500,000	500,000	5,000,000	10% private sector contribution
			3.5.7.2	Value chain development fund	VADEP Program Manager	VCDAs	fund, matching investment	1	30,000,000	20,000,000	50,000,000	40% private sector contribution; includes cost for irrigation, other infrastructure
	3.6			Rural roads network expanded	MOAD	DOLIDAR, community, private					132,770,000	50km/district, initial project
		3.6.1		Update policy for rural roads to explicitly target agricultural roads.			Official person month	4	20,000		20,000	
		3.6.2		Establish a new section for agricultural roads in District Technical Office			admin district	75	1,500,000		1,500,000	
		3.6.3		Provide separate funding for development and maintenance of agricultural roads.			matching grant fund	1	65,625,000	65,625,000	131,250,000	\$35,000/km; 50% cost sharing
	3.7			Agricultural market information and ITC products for market intelligence.	MOAD	private sector, coop					5,000,000	
		3.7.1		Promote development of a suite of products for market information and market intelligence			matching grant fund	1	2,500,000	2,500,000	5,000,000	50% contributions
	3.8			Expanded rural electrification and renewable energies	MOAD	NEA, private, community					75,100,000	
		3.8.1		Establish a separate liaison section especially for power development in MOAD			admin national	1	100,000		100,000	
		3.8.2		Establish a fund to support PPP for power development with farming community			matching grant fund	1	60,000,000	15,000,000	75,000,000	CBRE applies 80% govt, 20% community contribution

Logframe Reference			Description	Responsible Institution		Resources					Comments	
Outcome	Output	Action				Lead	Contributor	Item	Quantity	Costs USD		
				Source						Activity Cost		Sub-total
				Govt, Donor	Private, Community							
4								291,605,000	80,375,000		371,980,000	
	4.1		Market infrastructure developed	MOAD	DOLIDAR						79,600,000	
		4.1.1	Promote development of market infrastructure	MOAD	DOLIDAR, private sector	fund, matching investment	750	37,500,000	37,500,000	75,000,000		50% govt contribution; 10 units of infrastructure per district; Compliments Value Chain fund.
		4.1.2	Implement PPP financing support mechanisms	MOAD	MOF	program funds	20	100,000		100,000		
		4.1.3	Capacity building programs for market infrastructure management	MOAD	DOLIDAR, private sector	training course	750	1,125,000	375,000	1,500,000		75% govt contribution; 75 districts, 10 years
		4.1.4	Identify strategic locations for market development and undertake feasibility studies.	MOAD	DOLIDAR private sector	program funds	10	2,000,000		2,000,000		75 districts, 10 years
		4.1.5	Develop rules and regulations and SOP for improved market management.	MOAD	private sector	program funds	10	1,000,000		1,000,000		
	4.2		Growth of innovative small and medium agribusiness enterprises	INAGEP Program Manager							205,100,000	
		4.2.1	Adopt tax incentives to stimulate investment in agro-based enterprises			Official person month	20	100,000		100,000		Tax revenue forgone not costed
		4.2.2	Promote establishment of Agribusiness Incubators			pilot scheme	5	10,000,000		10,000,000		compliments value chain activity
		4.2.3	Establish matching grants to promote agro-enterprise innovation									

Logframe Reference			Description	Responsible Institution		Resources					Comments		
Outcome	Output	Action				Lead	Contributor	Item	Quantity	Costs USD			
				Source						Activity Cost		Sub-total	
				Govt, Donor	Private, Community								
		4.2.3.1	Innovation Fund for Agro-enterprises and Coops			program fund	1	52,500,000	17,500,000	70,000,000		75% govt contribution	
		4.2.3.2	Agro-Entrepreneurship Programs for (i) youth, (ii) women, (iii) disadvantaged groups, (iv) disadvantaged regions			program fund	4	100,000,000	25,000,000	125,000,000		80% govt contribution	
	4.3		Growth of food and agricultural products exports								5,280,000		
		4.3.1	Strengthen capacity to promote exports and negotiate more favorable trade agreements	MOAD	MOSC, Investment Board								
		4.3.1.1	Legislative Measures	MOAD	TEPC	Official person month	12	60,000		60,000			
		4.3.1.2	Promote foreign investment	MOAD	Investment Board	Official person month	24	120,000		120,000			
		4.3.1.3	Institutional Measures	MOAD	DFTQC	amin national	1	100,000		100,000			
		4.3.1.4	International Measures	MOAD	MOSC	program fund	1	5,000,000		5,000,000			\$50,000 for 10yrs
	4.4		Enhanced food quality and safety	MOAD							82,000,000		
		4.4.1	Adopt and implement internationally compatible food quality and safety standards	MOAD									
		4.4.1.1	Legislative Measures for a modern Food Act	MOAD		program funds	1	250,000		250,000			
		4.4.1.2	Formulation and promulgation of food safety and quality standards	MOAD	private sector, consumer groups	program funds	1	250,000		250,000			
		4.4.1.3	Adopt legislation on accreditation of standards certification bodies	MOAD		program funds	1	250,000		250,000			

Logframe Reference			Description	Responsible Institution		Resources					Comments
Outcome	Output	Action		Lead	Contributor	Item	Quantity	Costs USD			
								Source		Activity Cost	
				Govt, Donor	Private, Community						
		4.4.1.4	Adopt legislation on accreditation of national laboratories for FSQ certification	MOAD		program funds	1	250,000		250,000	
		4.4.1.5	Strengthen and upgrade laboratories to international accreditation	MOAD		program funds	10	25,000,000		25,000,000	
		4.4.1.6	Institutional measures to strengthen capacity and clarify roles (short term)	MOAD		program funds	5	2,500,000		2,500,000	
		4.4.1.7	Form Food Agency with authority under Food Act (medium term)	MOAD		program funds	5	7,500,000		7,500,000	
		4.4.1.8	Establish capacity for pest risk assessment, SPS management and surveillance	MOAD		program funds	10	15,000,000		15,000,000	
		4.4.1.9	Adopt <i>One Health Approach</i> and strengthen animal health surveillance, diagnostic, and reponse capacity	MOAD		program funds	10	30,000,000		30,000,000	
		4.4.1.10	Coordination and reporting to subcommittee on FNS and Food Safety of the NADSCC	MOAD		program funds	10	1,000,000		1,000,000	

