

Agriculture Development Strategy (ADS)
2015 to 2035

Part: 1



Government of Nepal
Ministry of Agricultural Development

Singhdurbar, Kathmandu





KATHMANDU
NEPAL

The Prime Minister

Message

We have entered into a new era after the promulgation of the constitution. We have been successful in institutionalizing political rights through the constitution. The constitution has made all Nepalese sovereign. All types of discriminations and inequalities have been ended and equal rights, equal opportunities and equal respects have been accorded to all. As envisaged by the constitution, we have now entered into the phase of economic prosperity to reach the goal of social justice and socialism. In order to achieve prosperity with social justice, our fight should now be focused against underdevelopment, poverty and backwardness.

In Nepal, the economy is dominated by agriculture, employing two thirds of the population and providing one third of GDP. Although agriculture is one of the top priority sectors of the country for investment and capital formation, yet it is still in a low development stage. By realizing all these facts, the Government of Nepal developed the Agriculture Development Strategy (ADS) in 2015 AD. The ADS is expected to guide the agricultural sector of Nepal over the next 20 years. I hope over the course of this period, the structure of the agricultural sector in Nepal will improve significantly and the subsistence agriculture system will be transformed into the commercial and industrial system.

The Government is determined to graduate Nepal from a Least Developed Country to a Developing Country soon and to attain the category of middle-income countries within next 15 years and I hope, the ADS would be one of the corner stones to achieve this goal. In the coming days, the Government will move ahead towards self-reliance in essential goods and services while diversifying trade relations and transactions. In addition, the country will move towards building sustainable, independent, self-reliant and just economy moving on the path of self-reliance particularly on food, medicine and energy. The Government will gradually increase the investment in agriculture sector to achieve basic self-reliance within few years in major food items and will attain food security throughout the country. I expect, Agriculture will be developed as a dignified, safe, respected and attractive occupation through commercialization and modernization after the implementation of this strategy. Further, youths will be attracted to agriculture and millions of employment will be generated within the country.

Finally, I express my cordial thanks to all development partners, National Peasants Coalition, civil servants, private sector, civil society organizations, and farmers for their important support in ADS formulation and its implementation as well.

20 July 2016

K.P.Sharma Oli





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Message

After the promulgation of constitution a new era of national independence and dignity, democracy, durable peace, good governance, development and prosperity has begun in Nepal. The new constitution has not only ended the decade long conflict but also has ensured the federal democratic republican system and opened the door for development in the country. It has ensured the fundamental right of the people, proportionate representation of women, indigenous peoples, Janajatis, Madhesies and other communities in the state institutions. With the great sacrifice we have just settled the political conflict and have started the journey of economic prosperity. In the context of political Transformation, the feudalistic production system has almost ended and national economy has moved towards the socialistic economy through promotion of capitalistic economic system in the country. The nature has given huge resources to Nepal with wider potentiality of development. Agriculture, Energy and Tourism are the three most important sectors with immense potentiality of capital formation. Among these sectors, the Agriculture sector still remains the backbone of economy and sources of income of majority of people and powerful instrument to break the vicious circle of poverty. Therefore, to boost up the national economy, commercialization, mechanization, modernization and industrialization of agriculture sector is must.

Realizing all these facts, Government of Nepal has approved the Agriculture Development Strategy (ADS), a 20 year vision for the agriculture development in Nepal. The ADS will remain a major policy guideline that streamlines subsequent major strategies, policies, periodic plans, and programmes.

Agriculture Development Strategy (ADS) has clearly identified the gaps and suggest periodic action plans to bridge the gaps and shortcomings of previous plans and policies. Ensuring Food and Nutrition Security leading to food sovereignty, increasing competitiveness, commercialization, good governance and establishing farmer's commissions to ensure, protect and promote farmer rights are key features of ADS which are also reflected in the constitution of Nepal. ADS will be instrumental to address several cross cutting issues such as; land reform, farmer's rights, trade issues, gender equity and social inclusion and inclusive development which ultimately lead to achieve food sovereignty.

24th July 2016

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Message

Agriculture Development Strategy (ADS), a twenty-year vision for agriculture development in Nepal, is expected to accelerate agricultural growth through four strategic components related to commercialization, productivity, competitiveness and governance while promoting inclusiveness and sustainability. The ADS intends to develop private and cooperative sectors in this process and ensure connectivity to market infrastructure. The strategy has been formulated taking into account the need for economic transformation from the one primarily based on agriculture to one that derives most of its income from services and industry while also modernizing agriculture. This process will have profound implications for the Nepali population to shape their food production and distribution systems, development of rural areas including the rural non-farm sector, labor and land productivity, trade balance, employment and outmigration of the youth, role of women in agriculture, and management of natural resources in the context of increasingly more severe climate change events.

As ADS envisions a self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth and contributes to improved livelihoods and food and nutrition security leading to food sovereignty, the government will work together with other actors including the private, cooperative, and NGOs sectors along with leading farmers and farmer field schools involved in the generation and dissemination of technology in the implementation of ADS.

I am confident that ADS will strengthen linkages between agriculture and other sectors in the economy towards reduction of poverty particularly in rural areas, a more balanced rural economy, and employment generation. The ADS will ensure that the process of agricultural transformation is accelerated and molded according in the spirit of the Constitution and Sustainable Development Goals of the country.

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Preface

Singha Durbar
Kathmandu, Nepal

Agriculture has been playing vital role in Nepalese economy. Agriculture sector, contributing approximately more than one third of Gross Domestic Product (GDP) and employing nearly two-thirds of the country's population is central to the livelihood of every Nepalese people. The constitution of Nepal has guaranteed that each citizen shall have the right to food, right to be protected from a state of starvation resulting from lack of food stuffs and right to food sovereignty as provided according to the law. Since, there are about 21.6 % of populations living below the absolute poverty line in Nepal, the agriculture sector is crucial to increase income, alleviate poverty and uplift the living standard of the Nepalese people. Therefore, to boost up the national economy, to graduate the country in the league of developing nations by 2022 AD and to transform Nepal into a middle-income country by 2030 AD, commercialization, mechanization, modernization and industrialization of agriculture sector is must.

By realizing all these facts, Government of Nepal has approved the Agriculture Development Strategy (ADS), a 20 year vision for the agriculture development in Nepal on 26 July 2015. The objective of this strategy 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. It is a succeeding plan to Agriculture Perspective Plan (APP 1995/96-2014/15) of the government. "A self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth and contributes to improved livelihoods and food and nutrition security leading to food sovereignty" is the vision of ADS. The four components of ADS are Governance, Productivity, Profitable Commercialization and Competitiveness. The ADS will be implemented through three different types of programs: the Flagship Programs, the Core Programs, and Other Programs. Various indicators and targets to monitor progress towards the vision during implementation of the ADS are fixed. Some of which are self-sufficiency in food grains with 5% trade surplus, year-round irrigation coverage to 80 percent land, maintaining forest coverage at least 40 percent of land, agriculture trade surplus \$690 million, average annual growth of AGDP to reach 6 percent, farmers reached by agriculture programs 30 percent and rural poverty reduced to 10 percent and gradual improvement in the food and nutrition security of every people through the promotion of food based nutrition system in Nepal. ADS is a living strategy owned by the Government of Nepal and other leading stakeholders. Through regular monitoring and periodic review in every five years ADS will be regularly updated.

I would like to extend my sincere thanks to the Agriculture and Water Resource Committee of Legislature-Parliament, different Line Ministries of Government of Nepal, National Planning Commission, all the development partners lead by the Asian Development Bank, National Peasants' Coalition, Private Sector, Cooperative Sector, Civil Society, Intellectual Community, Nepalese farmers and all those who contributed directly or indirectly to develop the ADS. Finally, I am thankful to Joint Secretary Dr. Suroj Pokhrel, Dr. Rajendra Adhikari, Under Secretary Mr. Indra Hari Paudel, Agri-economist Mr. Sushil Khadka and all my friends working in the Ministry of Agricultural Development who have contributed tremendously in formulation, approval and implementation of the ADS.


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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
AHS	Annual Household Survey
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
APMDD	Agribusiness Promotion and Marketing Development Directorate
APP	Agriculture Perspective Plan
APP-IAP	APP Implementation Action Plan
APP-ISR	APP Implementation Status Review
APPMAU	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
BFIs	Banking and Financial Institutions
BIMST-EC	Bay of 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 Officer
CDR	Central Development Region
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
CME	Census of Manufacturing Establishments
CMIASP	Community-Managed Irrigated Agriculture Sector Project (ADB)
CNI	Confederation of Nepalese Industries
CPI	Consumer Price Index
DADC	District Agricultural Development Committee
DADOs	District Agriculture Development Offices/Officers
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	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
DOC	Department of Customs
DOF	Department of Forests
DOI	Department of Irrigation
DOLIDAR	Department of Local Infrastructure Development and Agricultural Roads
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
FAN	Floriculture Association of Nepal
FANUSEP	Food and Nutrition Security Program
FAO	Food and Agriculture Organization
FCO	Fertilizer Control Order, 1999
FECOFUN	Federation of Community Forestry User Groups Nepal
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
FTA	Free Trade Agreement
FU	Fertilizer Unit
FWDR	Far Western Development Region
FY	Fiscal Year
GAASC	Gokuleshwar Agriculture and Animal Science College
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 Organization
GON	Government of Nepal
GVP	Good Veterinary Practice
Ha	Hectare
HARP	Hill Agriculture Research Project
HBS	Household Budget Survey
HICAST	Himalayan college of Agriculture Sciences and Technology
HIMALI	High Mountain Agribusiness and Livelihood Improvement Project
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HLNFSSC	High Level Nutrition and Food Security Steering Committee
HLTF	High Level Task Force
HMGN	His Majesty Government of Nepal
HRD	Human Resources Development
HRM	Human Resources Management
HRP	Hill Research Programme
HVCA	Hazard, Vulnerability and Capacity Assessment
HVCS	High Value Commodities
IAPP	Interim Agriculture Perspective Plan
IAU	Independent Analytical Unit
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 Organization
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 Phyto-sanitary 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
M4P	Market for Poor

MDG(s)	Millennium Development Goal(s)
MFDB	Microfinance Development Bank
MFI	Micro Finance Institution
MFN	Most Favored Nation
MFSC	Ministry of Forest and Soil Conservation
MGSP	Mini-Grid Support Programme
MICS	Multiple Indicator Cluster Survey
MoAC	Ministry of Agriculture and Cooperatives (renamed May 2012)
MoAD	Ministry of Agricultural 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
MoLD	Ministry of Local Development
MoLRM	Ministry of Land Reform and Management
MOSPI	Ministry of Statistics and Programme Implementation
MoST	Ministry of Science and Technology
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
MPI	Multidimensional Poverty Index
MRL	Maximum Residue Limit
MSNP	Multi-sector Nutritional Plan
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
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	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
NSCA	National Sample Census of Agriculture
NTB	Non-tariff Barriers to Trade
NTFPs	Non Timber Forest Products
NTIS	Nepal Trade Integration Strategy
NWP	National Water Plan
NWRS	National Water Resources Strategy
O&M	Operation and Maintenance
OFMP	Operational Forest Management Plan
OFWM	On-farm Water Management
OHPI	Oxford poverty and Human development Initiative
OVOP	One Village One Product
PACT	Project for Agriculture Commercialization and Trade
PF	Private Forests
PIM	Participatory Irrigation Management
PICCD	Policy and International Cooperation Coordination Division
PPP	Public Private Partnership
PPP	Prioritized Productivity Package
PPS	Pocket Package Strategy
PRA	Participatory Risk Assessments
PRSP	Poverty Reduction Strategy Paper
PSC	Productive Sector Credit
PTA	Preferential Trade Agreement
RADC	Regional Agriculture Development Committee
RAP	Rural Access Programme
RARS	Regional Agricultural Research Station
RBB	Rastriya Banijya 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	Rupees (Nepali Currency)
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
SEAN	Seed Entrepreneurs' Association of Nepal
SFCL	Small Farmers Cooperative Limited
SFDB	Small Farmers Development Bank (Sana Kisan Bikas Bank)
SGD	Sustainable Development Goal

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
SSSC	SEAN Seed Service Center
STC	Salt Trading Corporation
STWs	Shallow Tube Wells
TA	Technical Assistance
TLDP	Third Livestock Development Project
TRIPs	Trade Related Intellectual Property Rights
TU	Tribhuvan University
TWT	Technical Working Team
TYAE	Three Years Average Ending
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
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 Region
WFP	World Food Programme
WTO	World Trade Organization
WUAs	Water User Associations
WUG	Water Users' Group

CURRENCY EQUIVALENTS

(as of 20 June 2013, Nepal Rastra Bank)

Nepal Rupees – United States dollars

Rs. 95 = \$ 1.00

GLOSSARY OF TERMS

Term	Explanation
Self Reliance	A quality of people who are able to rely on their own resources; people who are resilient to economic, social and environmental shocks and changes.
Sustainability	Practices and consumption of resources that have capacity to endure without long-term negative social, economic, or environmental impacts.
Competitive	Successfully able to meet competition; through worker skills, farming practices, products and businesses that are efficient, profitable and of sufficient quality to gain a satisfactory share of the market in competition with products and services from elsewhere.
Commercialization	The transformation from subsistence production (production for own consumption), to production for sale of surplus products and services
Agribusiness	A general term for small, medium and large businesses and cooperatives involved in farming, processing and marketing of agricultural products, and businesses providing products and services specifically to the agriculture sector, such as farm machinery, fertilizer, agro-veterinary products and advisory services.
Agro-enterprise	Commercial farms, agricultural cooperatives, livestock herding group, or other organization, including for-profit businesses, non-profit entities, non-government and government agencies that carry out commercial agricultural activities.
Inclusive	Pluralistic; “inclusive development” includes women, youth, disadvantaged groups, minority ethnic groups, <i>janajati</i> , people in remote areas, not just the mainstream or majority.
Food poverty	Poverty related to food; inability to obtain sufficient food or adequate nutrition seasonally, chronically, and within geographic, demographic or social groups. Usually measured with reference to the monetary equivalent of a basket of foods needed to provide a certain number of calories and other nutrients.
Farmers’ Right	Rights of farmers in politics and governance; ADS provides support for farmers to participate and express their opinions in key committees of the ADS related to planning, formulation, implementation, monitoring and evaluation; the ADS institutionalizes these rights by making the farmers’ representatives members of the committees at central level, regional, district, and in the community service centers at the VDC level. Farmer organizations in some nations have lobbied to achieve legislative support for “ <i>the right to farm</i> ”, relating to land use management, commercial law, and the freedom to choose farming as a livelihood or business.
Voucher	A bond or allowance which is worth a certain monetary value and which may be spent only for specific reasons or on specific goods. At present government provides services (e.g. training and advice) and goods (e.g. seeds and fertilizers) to farmers via programs where the government agency decides where and who will receive the value of the services and goods. A government voucher scheme for farmers would give the farmer the power to choose where and when to redeem the voucher for its value of goods and services that are provided by government approved providers.





SUMMARY

1. The *Final Report of the Agriculture Development Strategy 2015-2035* (henceforth ADS) is prepared by the Ministry of Agricultural Development in consultation with National Peasants' Coalition. This ADS Final Report was prepared under the Technical Assistance (TA) 7762 NEP, funded by Government of Nepal (GON) with support from 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 Australian Agency for International Development (AusAID), and the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women).

2. After finalizing the Agriculture Development Strategy (ADS) from the ministry side, the Agriculture and Water Resource Committee of Legislature-Parliament (AWRC-LP) and National Planning Commission (NPC) showed interest and ownership on the long term strategy. AWRC-LP provided the suggestions and feed-back (attached as Appendix 6) to the Ministry of Agricultural Development (MOAD) after holding series of discussions and consultations with the concerned stakeholders including NPC, Chief Secretary and different line Ministries (Agricultural Development, Irrigation, Energy, Supply, Industry, Cooperative and Poverty Alleviation, Physical Infrastructure and Transport, Urban Development, Finance, Land Reform and Management, and Education) to ensure widespread commitment for effective implementation of the Strategy. Similarly, AWRC-LP held meetings with development partners to ensure commitment for resources and implementation support. Further, it sought suggestions from experts and representative of farmers, value chain actors to add different perspectives in the strategy. The National Planning Commission also provided the suggestions (attached as Appendix 7) on the Agriculture Development Strategy (ADS). All those suggestions have been taken into account and will be the part of the ADS. Appreciating the comprehensiveness of the suggestions and dynamic nature of the strategy, the suggestions are broadly categorized as policy, programmatic and institutional. The institutional suggestions have all been incorporated in the ADS. Policy level suggestions made by the Committee have been largely addressed. Further, concerned Ministries and other implementing agencies will address the policy related suggestions while formulating specific Policies and Acts. The programme level suggestions and suggestions from the NPC will be addressed in periodic and annual work plan and budget of the government ministries and other implementing agencies. Based on the suggestions of AWRC-LP, Ministry of Agricultural Development will report quarterly to the committee about ADS implementation status, developing different indicators in consultation with the NPC.

3. The objective of this Final Report is to formulate a 20-year strategic plan *including a 10-year Action Plan and Roadmap* based on the assessment of the current and past performance of the agriculture sector.

ASSESSMENT OF THE AGRICULTURE SECTOR

4. **Current Situation of the Agriculture Sector in Nepal.** Nepal's agricultural status is in a low development stage. Though majority of the population is engaged in agriculture, productivity and competitiveness of the sector are low; and adoption of improved technology is limited. 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 have shown encouraging signs, 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.

5. **Past Situation.** When the long-term agricultural strategic plan known as the Agriculture Perspective Plan (APP) was launched in 1995-96, Nepal's agriculture 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, there is significant improvement in living standards and that the agriculture sector overall is performing better today than in the past. There are improvements in productivity, infrastructure, food security, and poverty reduction. However, some indicators such as food and agricultural trade deficit and land per capita have shown regress.

6. **Inability to achieve the anticipated growth.** In spite of progress compared to the past, agriculture sector in Nepal is still in a low development stage. Though Nepal has improved in agriculture sector, 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's agricultural growth has been not only slow (about 3.2% during 1995/96-2015/16), but also highly variable with a coefficient of variation as much as 50.1%. Nepal's youth and some of its most productive labor force have looked for job elsewhere. About 513 thousand migrants have left Nepal in 2014/15 and there has been a growing trend for the past 15 years. The migrants have sent home huge amount of remittances, estimated at about \$ 6.1 billion per year (representing 30.9 % of GDP in 2014/15), but most of these resources have gone into consumption and loan repayment rather than capital formation and investment.

7. **Factors for Weak Growth Performance.** A number of factors explain the weak growth performance of agriculture sector over the past two decades. During this period, the 12-year conflict that concluded in 2006 had adverse effects on the agriculture sector. Hundreds of thousands of rural households left the land behind and moved to the cities—mostly to the Kathmandu Valley; others moved abroad. These movements of rural population resulted in a situation of labor and investment scarcity in rural areas. Rapidly growing urbanization implied that large tracts of peri-urban fertile agricultural land have been converted to residential uses. Political instability resulted into government instability and in the absence of commitment from leadership to implement policies, plans, and programmes. Many policies are made for agricultural development, but they remained only in papers. In many cases, they lacked the supporting legislation and resources for implementation. Plans have been formulated, but sometimes the formulation was poor, the targets ambitious, and the institutional capacity for implementation inadequate. Furthermore, both public and private investment were limited. During the 20 years of the APP investment in agriculture by government and development partners as proportion of the agri-GDP declined during the first decade till 2005 and has increased in the following decade, but not much private investment has taken place. Similarly, human resources capacity was limited. Incentives for civil servants have been few and skilled professionals and labor have often looked for better opportunities abroad.

8. 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 narrow view of technology excessively focused on a green revolution perspective that is not appropriate for large parts of Nepali agro-ecology. 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 agriculture sector—farmers, private sector, cooperatives—were not actively

involved in its formulation and implementation. Land issues were left unresolved. 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, addressing land issues, effective support to decentralized research and extension, and promoting commercialization and competitiveness.

ADS AND THE PROCESS OF AGRICULTURAL TRANSFORMATION

9. The ADS is expected to guide the agriculture sector of Nepal over the next 20 years. Over the course of this period, the structure of the agriculture sector in Nepal will change considerably and agribusiness and non-farm rural activities will grow in comparison 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.

10. In this context, it is worth emphasizing that the ADS considers the agriculture 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 and extension).

11. 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

12. 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 agriculture sector that drives economic growth and contributes to improved livelihoods and food and nutrition security leading to food sovereignty." 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	Existing Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)
Self-reliant	Self-sufficiency in foodgrains	16.0 % trade deficit in foodgrains	0% trade deficit	0-5% trade surplus	0-5% trade surplus
Sustainable	Year-round irrigation	25.2% coverage	35%	60%	80%
	Soil organic matter	1.96%	3.00%	3.92%	4%

Vision Component	Indicators	Existing Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)
	Degraded land ha	3.72 million ha	2.88 m ha	2.56 million ha	1.6 million ha
	Forest cover	44.7%	44.7%	44.7%	44.7%
	Agricultural land productivity (AGDP/ha)	\$ 3,278	\$4,184	\$ 5,339	\$8,697
	Agribusiness as % GDP	8%	9%	11%	16%
Competitive	Agricultural trade balance	Trade deficit \$ 1,123 million	Trade deficit \$ 1,073 million)	Trade deficit \$ 882 million	Trade surplus \$ 508 million
	Agricultural Exports	\$ 255 million	\$ 456 million	\$ 814million	\$ 2,598 million
Inclusive	% of farm land owned by women or joint ownership	16 %	20%	30%	50%
	% of farmers reached by ag programs	18.2%	22%	26%	32%
Growth	Average annual growth of AGDP	2.23% (*)	4%	5%	6%
Livelihood	AGDP/ Agricultural labor	\$ 835	\$ 1,029	\$ 1,268	\$ 1,926
	Poverty in Rural Areas	24.3 %	19%	15%	9%
Food and Nutrition Security	Food Poverty(^)	27.6%	19%	13%	6%
	Nutrition	37.4 % stunting; 30.1 % underweight; 11.3 % wasting; 18.1 % 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

(*): Three Year Average Ending (TYAE) 2015/16;

(^): Data from Household Budget Survey 2014/15, NLSS and Annual Household Survey correlated with agri-GDP

Note: Assessments are based on 1995/96-2015/16 data covering the APP period

STRATEGIC FRAMEWORK

13. In order to achieve its vision the ADS will accelerate agriculture 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 (e.g. agricultural roads, collection centers, packing houses, market centers), information infrastructure and ICT, and power infrastructure (e.g.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 competitiveness, higher and more equitable income of rural households, and strengthened farmers' rights. Figure 1 provides an illustration of the strategic framework of the ADS.



Figure 1: Strategic Framework of the Agriculture Development Strategy

COMPONENT OF THE ADS FRAMEWORK

14. **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.

15. In spite of frequent pronouncements in support of the agriculture 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, programme, 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 agriculture 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. The ADS Coordination Section (Implementation Support Unit) under the Policy and International Cooperation Coordination Division (PICCD) of Ministry of Agricultural Development 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.

16. 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 in ensuring 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 Multi-sector Nutrition Plan (MSNP) and Food and Nutrition Security Plan of Action (FNSP). The ADS vision is aligned with the Multi-Sectoral Nutritional Plan (MSNP) and the Food and Nutrition Security Plan of Action (FNSP). FNSP, as approved by MOAD in early 2016, is an integral part of ADS to implement Food and Nutrition Security programs which complement MSNP too.

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

18. **Higher Productivity.** Improved productivity of land and labor is 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.

19. 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.

20. 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 government's existing human resources and the transformation of their role from delivery of extension services to overall facilitator of agricultural extension services. This change in role will be accompanied by a greater emphasis on the delivery at the VDC level, where 3,157 Community Agricultural Extension Service Centers (CAESC) will be established.

21. 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, and 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. Increase in land productivity 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.

22. Productivity enhancement depends on timely availability of quality inputs. The ADS recognizes that in the long term productivity and competitiveness of the agriculture 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.

23. **Profitable Commercialization.** The outcome of profitable commercialization in the ADS is part of the overall process of transforming the agriculture 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.

24. 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.

25. 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).

26. **Increased Competitiveness.** Accelerated agricultural growth is the best way to come 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.

27. To achieve this vision, the energy and inventiveness of the private sector is essential. Access to communication 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.

28. 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 the goal of 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 reduces the perceived exposure to investing in high-risk high-potential projects.

29. **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 3,157 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 agriculture 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 ownership in the ADS.

30. Furthermore, the ADS promotes the formulation of legislation related to food rights and food sovereignty consistently with the principles of the Constitution of Nepal. Specific initiatives will be formulated to deepen the understanding of farmers' rights, promoting these rights, monitoring them, and protecting them as part of the activities under the Governance component of the ADS.

31. The ADS also ensures the establishment of a high level fully authorized and permanent type of Farmers' Commission to help advance farmers' right. The specific TOR, composition, and regulation of the Farmers' Commission will be formulated in the early stages of ADS implementation.

32. **Commercial farmers, Subsistence farmers, and the Landless.** The ADS recognizes the need of adapting approaches to different agro-ecological 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.

33. 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 agriculture sector in Nepal will increase but commercial agriculture 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.

34. 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 export. Subsistence farmers are also directly affected by most ADS measures. The direct effect is very strong in the 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

35. 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

36. The ADS includes 4 outcomes, 35 outputs, and 232 activities. **Table 2 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 2.** 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 2: 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 farmers and value chain actors in the planning, implementation, and monitoring of the ADS (e.g. Farmers' Commission)	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 2013-2025 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	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	CORE

Outcome	No	Output	Program
		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	CORE
	3.2	Contractual arrangements for commercial agriculture	CORE
	3.3	Tax policy that supports an efficient commercial agriculture 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 agro-enterprises	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)
	4.3	Growth of food and agricultural products exports	CORE
	4.4	Enhanced food safety and quality	CORE

THE HOW OF THE ADS

37. 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 agriculture 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.

38. 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.

39. In the traditional way of implementing agricultural programs in Nepal, the key stakeholders of the agriculture sector— farmers, cooperatives, and private agroenterprises—

have often been left in the backstage of development, with the front stage taken by government agencies.

40. 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

41. 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 institutions, farmers and value chain actors, 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. Ministry of Agricultural Development, National Planning Commission and other Government Agencies
2. Farmer Organizations
3. Cooperative Organizations
4. Private Sector Organizations

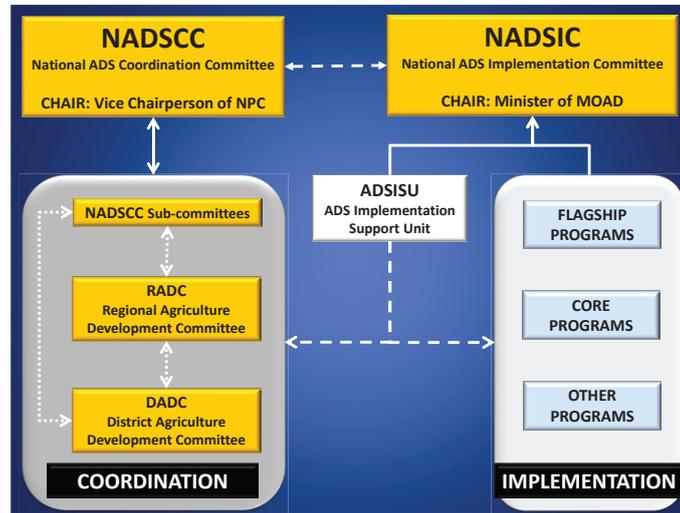


Figure 2: The ADS Implementation and Coordination Mechanisms

Note: As per the federal states, the roles of RADC and DADC would change

THE NATIONAL ADS IMPLEMENTATION COMMITTEE (NADSIC)

42. A National ADS Implementation Committee (NADSIC) will be established, which will be chaired by Minister for Agricultural Development, with Vice Chair of NPC as co-chair, Member of NPC (Agriculture Sector), Vice Chancellor the Agriculture and Forestry University, Secretaries from the Ministries of Finance, Irrigation, Forestry, Federal Affairs and Local Development, Cooperatives and Poverty Alleviation, Land Reform and Management, Education, Presidents of FNCCI and CNI, representative of National Peasant's 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. Ensure the implementation of ADS by promoting policy, administrative and legislative changes in responsible institutions.
- ii. Ensure resource mobilization both from internal (public and private) and external sources.
- iii. Provide guidance to the line ministries and the stakeholders to facilitate ADS programs and projects implementation from the grassroots to the national level.
- iv. To act as the Project Steering Committee for the TA which supports ADS implementation,
- v. Together with NADSCC and the NPC, organize periodic assessment of the ADS and recommend adjustments.
- vi. Adjust ADS Programs, and institutional structure as per the upcoming federal structure.

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

43. 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 (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 (FNCCI), Agro-enterprise Center (AEC), Confederation of Nepalese Industries (CNI), agribusiness associations, associations of small and medium enterprises), cooperative sector (e.g. National Federation of Cooperatives), and farmer organizations (e.g. National 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 - Agriculture and Forestry University, 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)

44. Central Agriculture Development Implementation Committee (CADIC) chaired by Secretary of MOAD will periodically convene agencies involved in the implementation of agricultural programmes 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 Committee (DDC) Chairman. All these mechanisms need to be strengthened and revitalized with support of the ADS Agricultural Support Unit and coordination with the NADSCC.

45. 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)

46. 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, (ADS Coordination Section under the Policy and International Cooperation Coordination Division) endowed with policy, legal and analytical capacity will greatly contribute to bridging the gap between policy and implementation and enhancing the capacity of the ADS implementation agencies.

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47. 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 the development of a system and database for ADS monitoring;
 - iv. Support formulation and amendment of policies and regulations needed for implementing 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 programmes through advisory services to the Programme 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 (e.g. minimum price schemes for rice and wheat).

ADS IMPLEMENTATION TRUST FUND (ATF)

48. All current modalities of financing the sector will remain the same. The only additional modality will be a multi donor ADS Trust Fund (ATF) to be established with a flexible implementation modality agreeable to both GoN and development partners. However, the implementation of the ATF will be led by the Ministry of Agricultural Development. Resources in the ATF may be used for (a) any TA which supports the ADSISU (b) non-government and government entities for implementation of the Flagship programs of 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 (e.g. biannual) ADS implementation and strategic direction review.

ADS PROGRAMS

49. 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. Moreover, the Ministry of Agricultural Development will lead the implementation of

Flagship programs too. 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

50. The ADS envisages some prioritized national programs around which could be mobilized sufficient consensus, resources, and effective management. These prioritized national 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)

51. FANUSEP aims at improving food and nutrition security of the most disadvantaged groups. 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 Action Plan (FNSP), 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 FNSP. 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.

52. The commonality of the subprograms of FANUSEP is to target the poor, the disadvantaged groups and the geographically disadvantaged areas (e.g. 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, and the Food and Nutrition Security Plan of Action (FNSP), which is also approved.

DECENTRALIZED SCIENCE, TECHNOLOGY, AND EDUCATION PROGRAM (DSTEP)

53. DSTEP 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.

54. The program will be implemented through a Program Manager, deputed by the Ministry of Agricultural Development. The DSTEP 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 strengthen agricultural education system.

55. 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.

56. The decentralized research system will require decentralization of NARC, establishment of new national research institutes (e.g. 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.

57. The integration with the agricultural education system will include support to the Agriculture and Forestry Universities, creation of a Department of Agribusiness and a Department of Technology Dissemination in the Agriculture and Forestry University, capacity building of vocational schools and support to the establishment of regional agricultural colleges.

58. The funds required for implementation of the DSTEP will be pooled into a fund, the DSTEF (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 DSTEF to the related implementation agencies such as NARC, DOA, DLS, Agriculture University, and Agriculture Colleges.

VALUE CHAIN DEVELOPMENT PROGRAM (VADEP)

59. VADEP aims at developing prioritized value chains (initially only 5 such value chains have been proposed-maize, dairy, vegetables, lentils, and tea, and the value-chain coverage would expand to other products from the list of 15 items) through comprehensive and integrated measures along the value chain that results in strengthened value chain linkages, increased public private partnership (PPP) investment and value added with sector impact, and benefits to the poor. 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 to 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.

60. The Manager of VADEP will be deputed by the Ministry of Agricultural Development. 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 (e.g. through the support of the Investment Board) to the VCDAs and will assure overall monitoring and evaluation of the program.

61. The Value Chain Development Alliances (VCDA) are societies 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.

62. 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 Ministry will select the CEO to manage the operations of the program for a specific value chain. The Board of each VCDA will include 6 elected members and 7 non-elected members. The non-elected members will be nominated by GoN and include representatives from MoAD, MoI, MoFALD, MoF, NPC, FNCCI, and Nepal Rastra Bank. The Board will be chaired by one of the members nominated by GoN. 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)

63. 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 youth, women, and disadvantaged groups.

64. The program will be implemented through a Program Manager deputed by the Ministry of Agricultural Development. The INAGEP Manager will facilitate the growth of innovative small and medium agroenterprises through improved tax incentives, establishment of agribusiness incubators, and matching grants.

65. 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

66. In addition to the government agencies responsible for coordination and implementation of the ADS, the leading stakeholders in the ADS will be farmers, cooperatives, private agroenterprises, and their organizations (e.g. the National 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 a number of 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, medium, and large enterprises.

67. 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 agriculture sector, the ADS has involved farmer organizations in the formulation stage and will continue to involve them during implementation, monitoring, evaluation, and periodic reviews.

68. 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

69. 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 accelerate the decision making process regarding the ADS
70. 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. NADSC, and CADIC
 - ii. NADSCC Subcommittees related to the ADS
 - iii. DADC and RADC
 - iv. NARC Board
 - v. Governing Body of the CAESC
 - vi. Policy Review Panels organized to review the formulation of new policies under the PICCD at MOAD
 - vii. Steering Committee for the periodic 5-year Review, Evaluation, and Updating Committee of the ADS.
 - viii. NeKSAP District Food Security Network

COST OF THE ADS

71. The initial evaluation of the ADS program cost over a period of 10 years is presented in Table 3.

Table 3: Total (10-year) Cost of the ADS and Yearly Average

Cost	US million	Rs billion	Rs billion/year	Percent
Total	\$5,282	501.8	50.2	100
Govt/Donors	\$4,683	444.9	44.5	89
Private/Community	\$600	57.0	5.7	11

72. The Flagship Programs will represent about 37% of the total program cost. Among the Core programs, the main costs are irrigation (19%), fertilizer (8%), and forestry (8%). It should be noted that the ADS is promoting a voucher system for inputs (including fertilizer, seeds, and breeds) 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 programme, the system might be expanded and may progressively replace the direct subsidies such as fertilizer and seed subsidies.

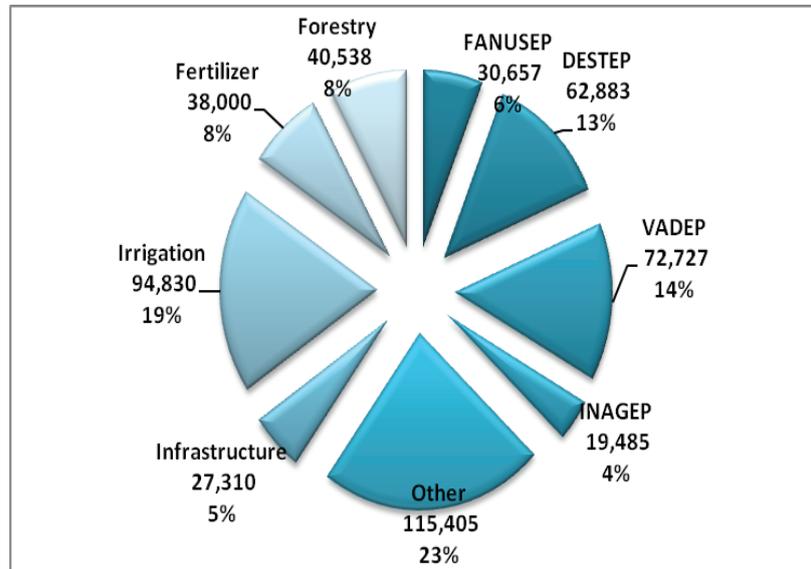


Figure 3: Composition of ADS Costs

ROADMAP OF THE ADS

73. 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

74. 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 (see table below)
- 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 4: 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 Agriculture and Forestry 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			
8. Farmers' Commission			

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 (multiparty ADS signing ceremony)
 - Indicative support by development partners
- During First Year of Implementation
 - Regulations standards and guidelines for NADSCC, NADSISU, ATF and Flagships as appropriate
 - Establish ADS Institutions
 - Formulate Guidelines for ADS Implementation
 - Recruit Program Managers for ADS Flagships
 - Budget allocations to ATF by Donors
 - Establish Farmers' Commission
 - Update relevant data and statistics

MONITORING AND EVALUATION OF THE ADS

75. The ADS needs to be monitored regularly, professionally, and in a participative manner. Monitoring Division and Sections will be strengthened at the Ministry 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 and 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.

76. **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. However, the ADS will be reviewed and revised in line with the Constitution. This Constitution by creating the Federal, Provincial and Local States has classified the foods, agriculture and natural resources development works as falling either separately under a specific state jurisdiction, or as in the Concurrent list; and also has set out a number of rights and directives about food, health and social protection. Thus, a further refinement of the ADS is envisioned to address the above policy, legal, institutional and social issues as well as the craft of agricultural development and progress.

1 INTRODUCTION

77. The *Final Report of the Agriculture Development Strategy 2015-35* (henceforth ADS) is prepared by the Ministry of Agricultural Development in consultation with National Peasants' Coalition. This ADS Final Report was prepared under the Technical Assistance (TA) 7762 NEP funded by Government of Nepal (GON) with support from 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 Australian Agency for International Development (AusAID), and the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women).

78. After finalizing the Agriculture Development Strategy (ADS) from the Ministry's side, the Agriculture and Water Resource Committee of Legislature-Parliament (AWRC-LP) and National Planning Commission (NPC) showed ownership and interest on the long term strategy. AWRC-LP has provided the suggestions and feed-back (attached as Appendix 6) to the Ministry of Agricultural Development (MoAD) after holding series of discussions and consultations with the concerned stakeholders including NPC, Chief Secretary and different line ministries (Agricultural Development, Irrigation, Energy, Supply, Industry, Cooperative and Poverty Alleviation, Physical Infrastructure and Transport, Urban Development, Finance, Land Reform and Management, and Education) to ensure widespread commitment for effective implementation of the Strategy. Similarly, AWRC-LP held meetings with development partners to ensure commitment for resources and implementation support. Further, it sought suggestions from experts and representative of farmers, value chain actors to add different perspectives in the strategy. The National Planning Commission also provided the suggestions (attached as Appendix 7) on Agriculture Development Strategy (ADS). All these suggestions have been taken into account and will be the part of the ADS. Appreciating the comprehensiveness of the suggestions and dynamic nature of the strategy, the suggestions are broadly categorized as policy, programmatic and institutional. The institutional suggestions have all been incorporated in this Report. Policy level suggestions made by the committee have been largely addressed. Further, concerned ministries and other implementing agencies will address the policy related suggestions while formulating specific policies and acts. The program level suggestions and suggestions from the NPC will be addressed in periodic and annual work plan and budget of the government ministries and other implementing agencies. Based on the suggestions of AWRC-LP, Ministry of Agricultural Development will report quarterly to the Committee about ADS implementation status, developing different indicators in consultation with NPC. The Final TA Report is the *seventh* main deliverable of the ADS Preparation Team, after the *Inception Report*¹, the *Assessment Report*², the *Vision Report*³, the *Policy Options Report*⁴, the *Action Plan and Roadmap Report*⁵, and the

¹ADB 7762-NEP (2011) Inception Report. Technical Assistance for the Preparation of the Agriculture Development Strategy, Asian Development Bank, September 2011

²ADB 7762-NEP (2012) Assessment Report. Technical Assistance for the Preparation of the Agriculture Development Strategy, Asian Development Bank, April 2012

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

⁴ADB 7762-NEP (2013) Policy Options Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, February 2013

⁵ADB 7762-NEP (2013) Action Plan and Roadmap Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, April 2013

Draft Final Report⁶. The *Assessment Report* presented the current situation of the Agriculture Sector, identified issues and constraints, and discussed the policy context. The *Vision Report* presented the stakeholders' view of the Agriculture Sector over the next 20 years, taking into consideration likely trends of factors exogenous to the agriculture 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 ADS Final Report

79. The objective of this Report is to formulate a 20-year agriculture strategic plan including a 10-year Action Plan and Roadmap and a rationale based on the assessment of the current and past performance of the agriculture sector.

1.2 Methodology

80. This *Final Report* builds upon all the previous outputs and reports of the TA. In addition to the six reports already submitted, this Final Report benefits from numerous consultations undertaken with stakeholders at the central and local level.

81. The formulation of the 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 in irrigation, 3 social, 3 trade, 3 women, 3 research and extension, and 3 academia)
- k. Experts assessment
- l. Submission to Ministry of Agricultural Development
- m. Formation of ADS Advisory Committee and Technical Committee in the Ministry
- n. Wide dissemination of the report through website and national papers
- o. Peer review by the experts
- p. Consensus with National Peasant's Coalition
- q. Final Regional consultations (2) and National workshop (1)

⁶ADB 7762-NEP (2013) Draft Final Report. Technical Assistance for the Preparation of the Agricultural Development Strategy, Asian Development Bank, June 2013

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

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- r. Suggestions from AWRC-LP and NPC incorporated
 - s. Submission to the Cabinet for approval
 - t. Approval by the Economic and Infrastructure Committee of the Cabinet as mandated by the cabinet incorporating the suggestions that came during the meeting.

1.3 Organization of the Report

82. The report is organized into 10 chapters and 7 appendices as follows:

Chapter 1	Introduction
Chapter 2	Assessment of the Agriculture 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	Food and Nutrition Security
Chapter 9	Monitoring and Evaluation
Chapter 10	Roadmap
Appendix 1	References
Appendix 2	Challenges of the ADS
Appendix 3	Methodology for Targets and Indicators
Appendix 4	Cost of Activities in the ADS Action Plan
Appendix 5	List of Participants and Contributors in ADS Preparation
Appendix 6	Suggestion report from Agriculture and Water Resource Committee of Legislature Parliament (AWRC-LP)
Appendix 7	Suggestion Report from National Planning Commission

(Note: Appendix 2-7 are part of ADS Part-2)



2 ASSESSMENT OF THE AGRICULTURE SECTOR⁸

83. For the purpose of the ADS, the agriculture sector goes beyond the domain of only one central agency such as the Ministry of Agricultural Development (MoAD). The ADS refers to the broader agriculture sector that:

- a) Includes crops, livestock, forestry, and fisheries
- b) Includes irrigation, 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 Agriculture Sector over the APP Period

84. Since the Agriculture Perspective Plan (APP) started in year 1995/96, the agriculture 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 coverage 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 5 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 agriculture sector in Nepal.

Table 5: Key Indicators Related to Agriculture Sector

Indicator	1995/96	2010/2011	2015/16
Agricultural GDP	\$3.4 billion	\$5.2 billion	\$ 8.4 billion
Productivity of Agricultural Labor (\$/person)	\$466/person	\$794/person	\$ 835/person
Agricultural Land per Household (ha/hh)	1.1	0.7	0.6
Percentage of holdings operating less than 0.5 ha	40.1%	51.6%	51.1%
Productivity of Agricultural Land (\$/ha)	\$1,118/ha	\$1,804/ha	\$ 3,278/ha
Agricultural Land Use (cereal as percentage of cropped area)	80%	80%	80%
Seed turnover	8%	8%	13.2% (a)
Employment in Agriculture	66%	60%	54% (b)
Agricultural Exports	\$32million	\$248 million	\$255 million (\$255 million)(c)
Agricultural Imports	\$157 million	\$621 million	\$1,378 million

⁸ This Chapter is based on the ADS Assessment Report.

			(\$1,279 million)(c)
Poverty (2010/11)	42%	25%	21.6%
Percentage of households reporting inadequacy of food consumption	50.9%	15.7%	15.1% (d)
Stunting of Children (less than 5 years)	60%	42%	37%
Irrigation cover (% of cultivated area)	39.6%	54%	54.2%
Infrastructure (Rural Road Network km and Strategic Road Network km)	SRN = km 10,000	RRN = 40,000 km SRN = 10,835 km	RRN = 60,000 km SRN = 15,000 km
ICT reach	Less than 10% connected	46% connected	79% connected (e)

Sources: Calculations by the authors based on data from CBS (2011), NSCA (1981/82), NSCA (2001/02), NSCA (2011/2012), MICS (2014), Economic Survey (2011), Economic Survey (2016), NLSS I (1995/96), NLSS II (2003/04), NLSSIII(2010/11), MoPIT (2016), DOI (2016), Approach Paper 14th Plan (2016), NeKSAP Food Security Bulletin Volume 40 to 47, TEPC, MOAD, and DOLIDAR, DOR Statistics of Strategic Road Network 2013/14

- (a) Seed turnover calculated solely from rice, wheat, maize, lentil and mustard (SQCC, 2014 database)
 (b) Linear projection from Population Census (1971- 2011).
 (c) Figures in the parenthesis are three years average ending in 2014/15
 (d) Average incidence of food inadequacy in the country during 2014 and 2015 (NeKSAP bulletins).
 (e) Average of telephone density and internet penetration.

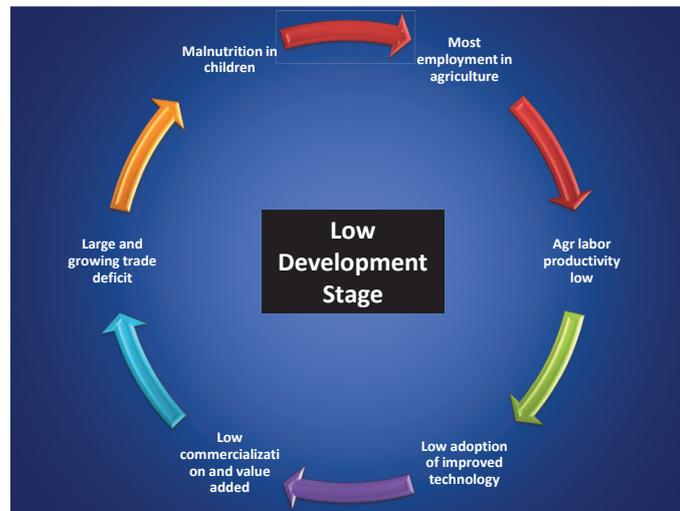


Figure 4: Low Development Stage of Nepal's Agriculture Sector

2.2 Agriculture Sector Growth

85. Growth of agricultural GDP since the beginning of the APP (1995/96) has been slow (about 3.2%), highly variable from year to year, and with a slight downward trend due to weaker growth in 2014/15 and 2015/16 (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 1.8 percent during 1991-2011, 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.

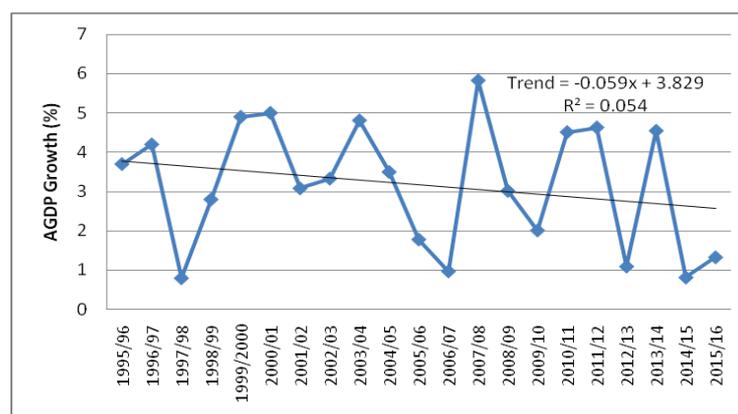


Figure 5: Growth of Agricultural GDP

Source: MOF National Accounts Estimate 2016 (at constant prices)

86. Most of the immediate neighbors of Nepal had considerably faster GDP growth than Nepal (except Pakistan) over the period 1995 to 2014 (see Table 6). The difference in average growth of agricultural GDP however is less marked: Nepal's growth of agriculture was slower than most neighbors (same as India). More worrying however seems to be the lack of integration between agriculture and non-agriculture sector 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 stage 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 6: Performance Indicator of Nepal and Neighboring Countries

Country	Average GDP% over 1995-2014	Average Agricultural GDP% over 1995-2014	GDP/cap (\$) in 2014	GDP/cap (\$) in PPP in 2014	Arable Land/capita (ha) In 2013	Cereal yield (kg per ha) In 2014	Ag GDP/arable land (\$/ha) in 20014
Bangladesh	5.5	3.9	1,087	3,330	0.049	4,406	3,457
China	9.6	3.9	7,590	13,170	0.078	5,886	8,982
India	7.0	3.2	1,582	5,630	0.123	2,981	2,143
Pakistan	3.9	3.4	1,317	5,090	0.168	2,747	1,909
Nepal	4.2	3.22	702	2,410	0.076	2,748	2,817

Source: World Development Indicators at <http://data.worldbank.org/data-catalog/world/> (accessed on: 30 June 2016)

2.3 Labor Productivity

87. Most agriculture in Nepal is at a low development stage. Agriculture absorbs the majority of the labor force (58 % self-employed in agriculture, 3% earning wages from agriculture⁹), but this labor force is characterized by low productivity compared to the rest of the economy. The estimate of labor productivity in agriculture in Nepal (\$ 835/unit of agricultural labor) is about one fourth of the productivity in the rest of the economy (Table 7). 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) to seek employment abroad. The departure of migrant labour has reached the number of almost 513,000 in 2014/15. This group is the source of a large volume of remittances, officially estimated over \$ 6.1 billion in 2014/15, but these are not usually invested in rural areas.

Table 7: 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)
835	3,670	3,278

Source: Calculation based on data from MOF Economic Survey 2016, & CBS NSCA 2011/12

88. 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 \$ 3,280, the average farm size is only about 0.6 per household on average and more than 50% of households have farm size less than 0.5 ha (Table 8). For those households with a farm size less than 0.5 ha, the average farm size is 0.24 ha and therefore often insufficient to generate income above the poverty level.

Table 8: Agricultural Land Indicators

Selected Variables	1995/96	2003/04	2010/11	2011/12	2015/16(a)
Average size of agriculture land (in hectares)	1.1	0.8	0.7	0.66	0.62
Holdings operating less than 0.5 hectare (% of total holdings)	40.1	44.8	51.6	53.5	51.1

Note: (a) Linear equation estimate based on CBS NSCA 1981-2011

Source: NLSS-III 2011, and CBS NSCA 2011/12, Government of Nepal, National Planning Commission Secretariat, Central Bureau of Statistics

89. Low labor productivity is the major feature 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 9). For example, Nepal's overall land productivity, as measured by agricultural GDP per ha of arable land was \$674 higher than in India. Arable land per capita in Nepal however is considerably lower than in India (about one-half). 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.

⁹ CBS Annual Household Survey 2013/14

Table 9: Productivity: Country Comparisons

Country	Arable Land/capita (ha) in 2014	Cereal yield (kg per ha) in 2014	Ag GDP per ha of arable land in 2014 (\$/ha)
Bangladesh	0.049	4,406	3,457
China	0.078	5,886	8,982
India	0.123	2,981	2,143
Pakistan	0.168	2,747	1,909
Nepal	0.076	2,748	2,817

Source: World Bank 2014 Indicators Database, accessed July 2016 .

2.4 Productivity Gaps and Limited Commercial Production

90. Several factors are responsible for low productivity 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, and finance), and limited investment in the sector.

91. Nepal has an estimated 25.1 % of commercialized agricultural entities and 74.9% 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 are high for milk (60%) buffalo meat (80%) and goat meat (85%) 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 compared to the rest of the economy. Thus stimulating the process of commercial transformation has been included in past and current policy.

92. **Productivity gaps** for a number of selected products are indicated in Table 10. The table shows that potential for improvement is huge in several subsectors of agriculture.

93. 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 10: Productivity Gaps for Selected Agricultural Commodities

Product	Units	2013/14	2014/15	2015/16	Average for three years	Potential Production
Fish	t/ha/year	3.9	4.4	4.6	4.3	10
Timber	m ³ /year	0.3	0.3	0.3	0.3	13.4
Paddy	t/ha/year	3.4	3.4	3.2	3.3	10-12
Vegetables	Mt/ha/year	14.7	14.8	13.4	14.3	17
Buffalo-Milk	Liters/Lactation	867.7	867.7	868.5	868.0	2000

Sources: For fish, MOAD Year Books 2013, 2014 & 2015 , ¹⁰DOFD, 2010; for timber, ¹¹MPFS, MFSC,1988, DFRS, 1999; for paddy, ¹²MOAC 2010, MOAD Year Books 2013, 2014 & 2015 & Dir. Crop Dev. DOA; for vegetables, MOAC 2010, MOAD Year Books 2013, 2014 & 2015 & Dir. Veg. Dev. Dir.DOA; for buffalo-milk, MOAD Year Books 2013, 2014 & 2015 , ¹³DLS 2010.

94. 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 rate in cereals, limited availability of quality and affordable seeds, and insufficient fertilizer availability limit both the cereal and horticultural productivity improvement. In the case of timber, forest technologies are not site-specific, they are too general and inadequate (See Ebregt et al 2007 and MOSFSC, 2008¹⁴). Driving factors for the bridging of the gaps include reliable and stable access to information (e.g. demonstrations and extension advice), markets (e.g. competitive providers supplying quality inputs at affordable prices), credit to overcome cash constraints, and insurance mechanisms to reduce risk.

95. The use of chemical NPK fertilizer (nitrogen, phosphorous, and potassium) in Nepal in the year 2011/12 was 422,547 mt of which only about 25% is imported and officially declared to customs¹⁵. In year 2015/16, the import of NPK fertilizer was 331,746 mt. This amount is sold on a subsidized rate by the State only through agricultural cooperatives. However, price does not substantially affect farmers' demand. 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 the yield substantially.

96. Seed replacement rate (SRR) has remained very low¹⁶. Against the desirable seed replacement rate for crops of 25% to 30%, average SRR is 13.2% for wheat followed by 14.5% in rice, 12.5% in maize and 4.5% in pulses in year 2014/15. Of the total requirements of the cereal crop seeds, contribution of the formal sector is less than 15% and quality is a constraint to productivity.

2.5 Agricultural Trade Deficit

97. 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 \$ 1,123 million during 1994/95-2014/15(see Figure 6). Nepal imports primary and industrial raw materials (due to declining domestic raw material production), and processed agriculture products (due to limited

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

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

¹²MOAC 2010. Statistical Information on Nepalese Agriculture.

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

¹⁴MOFSC, 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

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

¹⁶Birendra 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

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.

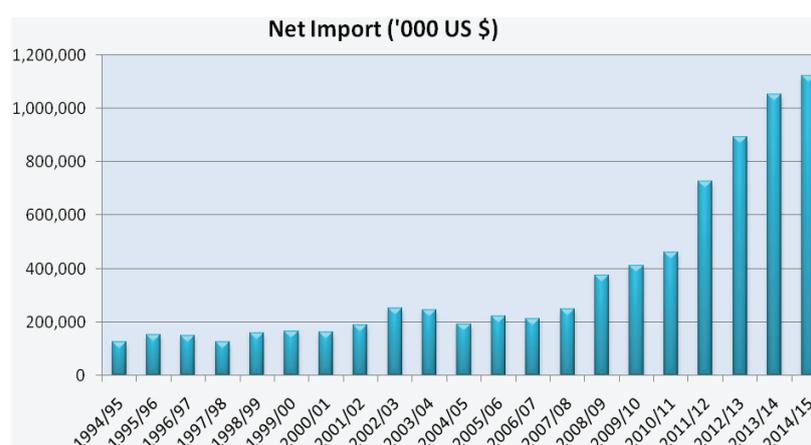


Figure 6: Net Import of Food and Agricultural Products

Source: Calculations based on data from TEPC, Nepal Foreign Trade Statistics 1994/95 to 2014/15 .

98. 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 11). Most of the competitiveness indicators are ranked very low in international benchmarking.

Table 11: Competitiveness indicators for Nepal

Indicator	Rank of Nepal
Difficulty of doing business across borders	99 of 189 countries
Infrastructure index	126 of 144 countries
Ease of access to loan index	116 of 144 countries
Corruption perception index	128 of 144 countries
Governance effectiveness index	-0.83 (range -2.5 to 2.5)
Regulatory quality index	-0.85 (range -2.5 to 2.5)

Source: World Economic Forum 2016, World Bank 2016¹⁸

99. Nepal's agricultural import and export trade comprises about 17.5% 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,

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

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

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 namely cardamom, fruits, and tea is only one-quarter of the value of cereal and dairy imports (Table 12).

100. 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 fodder, sugar and confectionery, and 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.

101. 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.

102. 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 12: Import and Export of high value crops, cereals, MAPs and dairy (average of 2012/13 to 2014/15)

	Exports (Rs. Million)	Imports (Rs. Million)	Surplus/Deficit (Rs. Million)
Lentils	1,994	1,267	727
Tea	2,027	69	1,957
Cardamom	3,987	619	3,368
Fruit	2,348	9,700	(7,352)
Ginger	749	340	409
Vegetables	166	3,301	(3,135)
Coffee	66	41	25
Beans	4	4,192	(4,189)
Sub-total High Value Crops	11,340	19,530	(8,190)
Cereals	133	30,190	(30,057)
MAPs	1,501	455	1,046
Dairy products	184	1,660	(1,475)

Note: Figures in parentheses are trade deficits. Ref Vol 2, Table 56 for yearly data.

Source: TEPC database and MOAD Year Books (2012/13, 2013/14 and 2014/15)

103. 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, MOU on

¹⁹ITC, 2011. Online trade statistics.

²⁰Department of Industry, Industrial Statistics 2010/11.

Nepal-China FTA 2016m 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 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 (NTIS 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. The government has validated the NTIS 2015, which charts out actions and measures of intervention in cross-cutting areas, such as trade capacity building including trade negotiation, trade and transport facilitation, standards and technical regulations, sanitary and phyto-sanitary measures and intellectual property rights. It also identifies priority export potential sectors including agro-foods (cardamom; ginger; tea; and medicinal plants), crafts and manufacturing (all fabrics; textiles; yarn and rope; leather; footwear; pashmina; and carpets), services (semi-skilled human resources; information technology and business process outsourcing) and tourism.

2.6 Poverty

104. **Poverty** is still widespread (21.6% 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 22 million (83 %) in 2011 (Table 13), and is projected to be 23 million (80%) in 2016. Agriculture employed about 6.4 million persons in 2011, 64% of the workforce²¹; and it is projected to be 9.9 million (62%) by 2016 . 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 labourers 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. Recently, 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.

105. The Government's Millennium Development Goals (MDGs) Progress Report 2010 and MDG Progress Report 2013 ²³ stated that the poverty rate has decreased, the population suffering chronic food insecurity reduced, and unemployment rates reduced, 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

²¹Of 26.49 million population, total labour force/ economically active population is 9.93 million, agriculture employment 6.36 million (CBS Census of Population and Housing 2011).

²²ADB (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.

²³NPC (2010). "MDG Progress Report". NPC 2010; NPC (2012) "MDG Acceleration Framework; NPC (2013) "MDG Progress Report"; and NPC (2015) "Sustainable Development Goals 2016-30: National (Preliminary) Report" . Kathmandu

achieving most of the MDG targets seems favorable with the Constitution of Nepal 2072 (2015 AD) and its subsequent laws emphasizing inclusive, participatory and decentralized governance. As a guide for the ADS, the Report observes that the Government required 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.
- Adopt forward-looking macroeconomic policies that promote sustainable development and lead to sustained, employment-centric, inclusive and equitable, broad-based economic growth;

Table 13: 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%
2012/13	27,257,347	22,376,703	34.8%
2013/14	27,646,053	22,560,749	23.1%
2014/15	28,037,904	22,728,974	23.5%
2015/16	28,431,494	22,878,782	21.6%

Source: EIC Survey 1977; National Living Standards Survey 1995, 2005, 2010; Annual Household Survey 2012/13, 13/14, Household Budget Survey 2014/15, Central Bureau of Statistics National Population and Household Census 2011, and (Population Projection 2011-2031, and NPC Approach Paper 14th Plan

The Government's Sustainable Development Goals 2016-2030 National (Preliminary) Report (2015) concluded that most of MDG targets have been achieved in advance and others have been met within the 2015 deadline, and fixed national targets for the SDGs indicators. The National SDG Report underscores the strong need to protect agriculture from external shocks due to the regional and international high and uneven regime of subsidy to agriculture, Nepal's low agricultural productivity, low subsidy, and the lack of encouragement from negotiations on trade in agricultural goods to the Nepalese production and the patenting of technologies and seeds. The SDGs' seven goals and their target indicators, which are quantified, have a bearing on ADS (refer box below). The indicators whose targets are still being formulated include: maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species; implement the IWRMP at all levels; protect and restore water-related ecosystems; Implement programmes on sustainable consumption and production; integrate the climate change measures into national policies, strategies and planning, and so forth. The ADS needs to correspond with these National SDGs targets and programmes once it is final.

Box 1: Nepal SDG's selected target statements having quantified indicators and bearing on agriculture

SDG1: End poverty in all its forms everywhere:

1. T1.4: all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance;

2. T1.5: build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture:

3. T2.1: end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
4. T2.2: end all forms of malnutrition including the internationally agreed targets on stunting and wasting in children under 5 years of age, and addressing the nutritional needs of adolescent girls, pregnant and lactating women and older persons
5. T2.3: double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
6. T2.4: ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production; that help maintain ecosystems; that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

SDG5: Achieve gender equality and empower all women and girls

7. T5.1: end all forms of discrimination against all women and girls everywhere

SDG 6: Ensure availability and sustainable management of water and sanitation for all (SDG6)

Indicators about IWRMP etc being quantified

SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all:

8. T8.1: sustain per capita economic growth and, in particular, at least 7 percent GDP per annum in the LDCs
9. T8.3: promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services
10. T8.5: achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
11. T8.10: strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all

SDG 12: Ensure sustainable consumption and production patterns:

12. T12.2: achieve the sustainable management and efficient use of natural resources

SDG 13: Take urgent action to combat climate change and its impacts:

Indicators being quantified

SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

13. T15.1: ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and dry lands
14. T15.2: promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and increase afforestation and reforestation
15. T15.4: ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development
16. T15.5: take urgent and significant action to reduce the degradation of natural habitats,

halt the loss of biodiversity and protect and prevent the extinction of threatened species
17.T15.9: integrate ecosystem and biodiversity values into national and local planning,
development processes, poverty reduction strategies and accounts

Note: T1.4 refers to SDG1's target indicator no 4 that are quantified for Nepal, and so on
Source: Based on NPC (2015) SDGs 2016-2030 National (Preliminary) Report

2.7 Food Insecurity

106. 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); the incidence of stunting reduced to 37.4% by 2014 against the MDG target of 30% by 2015 (CBS MICS 2014, and SDG Report 2015) .

107. Three and half million people in Nepal, 13% of the population, are considered to be insecure in food moderately to severely, and 42 out of 75 districts are classified as food insecure with respect to food grains²⁴. By 2014/15, the number of food deficit districts decreased to 32 out of 75 (MoAD Year Book), and 41% of the population are deprived from consuming the recommended minimum calories daily, and 26 districts in remote areas are food insecure (NPC 14th Plan Approach Paper). Cereal yields are among the lowest in South Asia region. The national cereal balance has been more or less in equilibrium, but is in deficit in years of inadequate monsoon rainfall. The 2014/15 cereal balance was a surplus of about 156,000 tons, equivalent to over 2.9% of total requirement, but in the past decade, Nepal's average food grain import was about 12.0% of gross domestic production annually in 2015²⁵. Despite national food grain surplus in 2011/12, about 1.8 million people received staple food supplements from Government—an 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 maize farmers.

108. 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 indicates that 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 the major portion of household expenses is on food which has risen slightly from 59% in 2003/4 to 62% in 2010/11, but it declined to 59% in 2012/13 and 57% in 2013/14, and to 43% in 2014/15²⁶. More positively, the percent of households reporting inadequate food consumption has dropped substantially from 51% in 1995/6 to 16% in 2010/11, and it dropped to 14.2% during July-November 2014.

109. 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

²⁴Draft Food and Nutrition Security Plan, MOAD 2012

²⁵MOAD Statistics, 2012. MOAD Year Book 2014/15, and MOF Economic Survey 2015/16, and TEPC (2016) Foreign Trade Statistics

²⁶NLSSIII 2010/11. CBS AHS 2012/13 and 2013/14, NRB Household Budget survey 2014/15, NeKSAP Nepal Food Security Bulletin Year 2015, Issue 43

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 import of livestock products remained as US\$44 million in 2015/16. The situation and trend for fruit and vegetables is more critical because the imports of fruits increased from US\$65 million to US\$117 million and the import of vegetables increased from US\$51 million to US\$160 million between 2010/11 and 2015/16.

2.8 Some Positive Signals in the Agriculture Sector

110. In spite of the low development stage, there are some positive signals in the agriculture 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 coverage 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.

111. **Agribusiness and commercial agriculture** is growing. The poultry and dairy processing industries are moving fast and the private sector is improving productivity; other dynamic agribusiness sectors include tea, flowers and vegetable seeds (Table 14). 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). The total real sales of all the agribusiness enterprises increased by 22.9% annually during 1996/97-2003/04. Based on the agribusiness-related Census of Manufacturing Establishments (CME) during 1996/97-2011/12, the annual growth rates of employment, investment and output were 6.9%, 8.7% and 5.9%, respectively. Here, the leading agribusiness sub-sectors or commodities are meat and its products; floriculture; tea, coffee and spices; and vegetable seeds (Table 14-b). During 2008/09 – 2014/15, the companies processing and manufacturing agricultural products increased from ... to 10,564., by February 2016 there were 12,221 agricultural cooperatives (mostly, dairy, vegetables, MAPs, tea, coffee, honey and citrus), and 17,685 registered community forestry groups²⁹.

Table 14: Annual growth in agribusiness indicators 1996/97-2003/04 (%/year)

Agribusiness Units	Production	Sales Volume	Export Value	Employment	Investment
Dairy	65	51	-	8	159
Tea	23	36	41	28	23
Floriculture	18	37	156	35	35
Vegetable seeds	28	28	96	17	17
Poultry	5	8	-	5	6

Note: Growth rate of production and employment are based on physical quantities; and the growth of sales, exports and investment are in current prices; the manufacturing prices increased by 31% during 1996/97- 2003/04

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

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

²⁸Draft Food and Nutrition Security Plan, MOAD 2012. TEPC and Department of Customs Foreign Trade Statistics

²⁹DCSI 2015 Industrial Promotion Statistics; MoF Economic Survey (2016); Department of Forests (http://dof.gov.np/dof_community_forest_division/community_forestry_dof) Accessed July 2016.

Table 14 (b): Growth in Agribusiness Indicators based on Census of Manufacturing Establishments (CME) in constant prices of 1996/97 = 100

	Manufacturing groups related to agribusiness	Units	CME Years				Av Growth 1996/97 - 2011/12 (%/yr)
			1996/97	2001/02	2006/07	2011/12	
I Manufacturing of meat and meat products							
1	Establishments	Nos	2	3	4	3	3.9
2	Persons engaged	Nos		98	83	145	5.9
3	Wages, salaries & other benefits	Mn Rs		2.0	2.3	5.4	14.9
4	Gross fixed assets by year end	Mn Rs		8.3	24.5	9.7	13.4
5	Value of output	Mn Rs		38.2	31.5	30.7	29.7
6	Value of input	Mn Rs		28.5	18.5	99.1	40.1
7	Value added	Mn Rs		9.7	13.0	31.6	17.6
II Processing and preserving of fruits and vegetables							
1	Establishments	Nos	2	3	4	7	10.6
2	Persons engaged	Nos		230	292	372	5.4
3	Wages, salaries & other benefits	Mn Rs		7.7	11.1	14.9	7.7
4	Gross fixed assets by year end	Mn Rs		11.1	20.9	125.1	58.6
5	Value of output	Mn Rs		73.2	90.0	120.6	5.7
6	Value of input	Mn Rs		47.5	53.9	89.6	8.0
7	Value added	Mn Rs		25.8	36.0	31.0	2.6
III Manufacture of dairy products							
1	Establishments	Nos	26	39	39	56	6.2
2	Persons engaged	Nos	1,841	1,978	2,131	2,049	0.8
3	Wages, salaries & other benefits	Mn Rs	64.9	82.2	78.5	124.0	5.3
4	Gross fixed assets by year end	Mn Rs	594.7	657.8	1,841.2	830.4	9.0
5	Value of output	Mn Rs	1,466.2	1,786.6	1,814.7	2,547.1	4.3
6	Value of input	Mn Rs	898.7	1,505.2	1,515.4	1,873.0	6.1
7	Value added	Mn Rs	567.5	281.4	299.3	674.1	5.4
Iv Manufacture of other food products n.e.c.							
1	Establishments	Nos	43	62	53	67	3.7
2	Persons engaged	Nos	1,898	6,533	3,675	3,440	12.9
3	Wages, salaries & other benefits	Mn Rs	31.3	130.0	134.1	91.5	19.1
4	Gross fixed assets by year end	Mn Rs	324.6	510.2	860.0	941.8	9.0
5	Value of output	Mn Rs	310.9	683.8	840.5	968.0	10.5
6	Value of input	Mn Rs	183.3	418.1	544.8	657.7	11.9
7	Value added	Mn Rs	127.6	265.7	295.7	310.2	8.3
V Sum of agribusiness related manufactures							
1	Establishments	Nos	73	107	100	133	4.9
2	Persons engaged	Nos	3,739	8,839	6,181	6,006	6.9
3	Wages, salaries & other benefits	Mn Rs	96	222	226	236	9.1
4	Gross fixed assets by year end	Mn Rs	919	1,187	2,747	1,907	8.7
5	Value of output	Mn Rs	1,777	2,582	2,777	3,766	5.9
6	Value of input	Mn Rs	1,082	1,999	2,133	2,719	7.9
7	Value added	Mn Rs	695	583	644	1,047	3.8
VI Floriculture							
	Production	Ropanies	105	245	691	711	21.2
VII Vegetable seeds							
	Production	MT	419	729	841	950	6.8

Source: CBS CME 1996/97, 2001/02, 2006/07, and 2011/12; FAN 2016; and DoA/VDD 2014, and SSSC database

112. **Production** of fruit and vegetables, vegetable seeds, coffee, goats, and honey is accelerating. Vegetable production has grown consistently, by average of 5.6 %/year during 1995/96 – 2015/16³⁰. Tea and coffee production have grown between 12.2 % and 18.1 % annually during 1996/97 - 2015/16. 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 2.1% and 2.3% per annum during 1995/96 – 2015/16, and real net returns from agricultural crops (paddy, wheat and maize) have increased some 33% between 1994/95 – 2014/15³¹.

113. **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 (both capital and recurrent expenses) in the poultry sector is about Rs 31 billion in 2013/14(CBS Nepal Commercial Poultry Survey 2015).

114. Several **policy** formulations including the National Agriculture Sector Development Policy 2010, the Three-Year Plans (TYPs), 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.

115. Access to **infrastructure** and services including road, market, irrigation banks and agricultural service centers have also considerably improved (Table 15). Outside of the agriculture sector, the information and communication technology (ICT) revolution is also affecting Nepal, where nearly all the population has access to telephone, and 90% of the geographical area is serviceable by the mobile networks.

Table 15: Infrastructure Progress

Households with Access to Facilities	1995/96	2003/04	2010/11	2015/16
Agricultural Service Center	25%	32%	43%	48 % (*)
Commercial Bank	21%	28%	40%	45 % (*)
Market Center	24%	34%	45%	51 % (*)
Vehicle passable road	58%	68%	80%	86% (*)
Electricity	14%	37%	70%	74%
Irrigated land area (% of land)	40%	43%	55%	55%

³⁰MOAC Agriculture Information Book (2014/15) and Economic Survey (2016) .

³¹Calculations (agri-GDP deflated) from CBS Statistical Yearbook 2005, 2011, 2016; MoAD Year Books for Cost of Production and Returns; and DoA/APMDD (2015) Cost, Production and Price Spread of Cereal Crops in Nepal: A Time Series Analysis.

³²MOF Economic Survey 2011

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

Note" (*) The values of indicators for 2015/16 are linear-equation estimates based on historic trends
Source: NLSSIII, DOI (2016), NSCA (2001/02), NSCA (2011/12), NPC Approach Paper for 14th Plan

2.9 APP Targets and Achievements

116. The Agriculture Perspective Plan (APP) is the long term plan and strategy that informed agriculture development in Nepal for the 1995/96 – 2014/14 period. 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.

117. The APP was designed to increase agricultural growth whereby per capita AGDP will grow from its 1995 level of 0.5% to 4% per year. This growth was expected to stimulate non-agricultural 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 2015/16 is estimated at 21.6 %, 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.

118. 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.

119. 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-agriculture 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 women.

120. 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.

121. 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.

122. Agriculture sector growth has been less than the APP target of 4 % annual AGDP growth, achieving an average of 3.2 %, slightly below the national GDP average growth of 4.0 % during 1995/96 – 2015/16; however, the AGDP growth declined to 0.8 % in 2014/15 and 1.3% in 2015/16 which pulled the growth trend downwards³⁴. APP targets and achievements are summarized in Table 16.

Table 16: Summary of APP targets and achievements

Item	Targets	Achievement as of 2010	Achievement up to 2015	Data Source
Inputs				
Irrigation	1.44 million ha	1.23 million ha (2009)	1.37 million ha (2015)	DOI, 2010 & DOI, 2016
Fertilizer	131 kg/ha Reform of AIC Ltd	102 kg/ha (2001) Partial reform, subsidy amount fluctuated. Illegal fertilizer imports supply 70% of needs	131.35 kg/ha (2015/16)	Agriculture Sector Performance Review, 2001, ADB Y. Thapa. (2006) Informal Cross Border Trade, FAO NSCA 2011/12 and Dept of Customs FTS 2015/16
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	Limited responsiveness to farmer needs. NARC priorities in budgeting crops (28%), livestock (20%), horticulture (14%), fisheries (7%) and multi-sector activities (30%) are congruent to their share in AGDP; focus on HVAC limited Government Investment growth rate: Extension 27.8% vs. Research 24.1% (2006/07-2015/16). Devolution issues remain	APP Implementation Status Report, MOAC, 2006. NARC Research review report. MOAC, 2005 MoF Red book (2006/07-2015/16) NARC's Strategic Vision for Agri Research 2011-2030
Roads and Power	6,200 km rural roads 9,496 km of 400/220V distribution line	17,244 km of rural roads 15,106 km of distribution line	60,000 km rural roads 89,540 km of 400/230 v distribution line	MoPPW (2011), "Statistic of Strategic Road Network 2009/10", prepared by Department of Roads, MoPPW, 2011 MoSTE, 2016, "Road, Rail and Transport Development five years (2073-2078) Strategic Plan

³⁴CBS National Accounts Estimates, Nepal 2016 .

Item	Targets	Achievement as of 2010	Achievement up to 2015	Data Source
				for Prosperous Nepal", prepared by Ministry of Physical Infrastructure and Transport", 2016 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> Economic Survey, 2016 and NEA, 2016 (database)
Credit	109.5 billion estimated need, 75% from ADB/N	ADB/N and Small Farmer Development Bank loans to agriculture about 50 billion	65.2 billion loans to agriculture of which, 28.41% is by ADB/N (2015)	ADB/N 2011 APP Implementation Status Report, MOAC, 2006. NRB, 2015
Outputs				
Livestock	45% of Ag GDP	29.4% in 2011. Private sector investing in dairy and poultry	24.6 % in 2015/16. Private sector investing in dairy and poultry	MOAC Statistical Yearbook 2011, and 2015 Economic Survey, 2016
High Value Crops	5.8% of Ag GDP	11.8% (fruit and vegetables) in 2011	23.4% (fruit and vegetables) in 2015/16	As above Economic Survey, 2016
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 at current prices (1996/97-2003/04): dairy 159 %, floriculture 35 %, tea 23 %, vegetable seeds 17 %, poultry 6 %	Investment growth in constant prices (1996/97=100) during (1996/97-2011/12): dairy 9%; processing of tea, coffee and spices 9%; processing and preserving of vegetables and fruits 59%; and manufacturing of meat and meat products 13%	APP Implementation Status Report, MOAC, 2006. CBS, 2011 ; CBS CME 1996/97, 2001/02, 2005/06, and 2011/12; and CBS National Accounts for manufacturing sector price deflators
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.	6.7 % of Ag GDP in - 2015/16. 17,685 CFUs established, and 7,685 leasehold forest groups established.	CBS, 2011 FECOFUN, 2010 DOF, 2016 Economic Survey, 2016

123. **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.

124. 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 for the agriculture 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 support from the government and donor in agriculture. The explanation of the weak performance of the APP therefore cannot be solely attributed to a single factor i.e., reduction of government and donor support during the years (2001/02 to 2006/2007) of intensification of the conflict.

125. In addition to the reduced support of the government and donors 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)(the government has resumed the subsidy recently)
- c) Faults in the design and economic assumptions of the APP
- d) Weak institutional capacity on project/program implementation
- e) Lack of attention on legal issues
- f) Lack of attention in social and geographic inclusiveness
- g) Low attention in Land Management issues
- h) Inadequate consideration of Regional Trade

2.10 Review of Constraints to the APP Performance

126. The APP was reviewed in 2001/2002 as part of the Agriculture 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

127. 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 in 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

128. The APP Report was not accompanied by a legal annex nor are there similar annexes to any of the subsequent agriculture sector policies adopted by the GoN³⁵. The APP did not

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.

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.

129. 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.

130. The need for adequate legislation cannot be underestimated. The rule of law and the certainty it provides for the stakeholders involved in the economy is one of the cornerstones for the development of a sustainable economy in which the rules of the game are clear and not subject to random interpretation or application. More specifically, there is a need to ensure that there is an enabling legislative framework that allows the function of users organizations to operate, maintain and develop irrigation systems, that there is adequate legislation to allow the functioning of cooperatives in the value chain of the agricultural 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

131. 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 2001/02 Agriculture Sector Performance Review. These design issues 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 - that sees the main source of growth in fertilizer and irrigation
- **Emphasis on guiding inputs and outputs** rather than on outcomes and impacts, and
- **Lack of systems for re-planning** based on evaluation of actual results achieved.

2.10.4 Conflict

132. The 12 years conflict that concluded with the ceasefire in 2006 had negative impact³⁶ on the agriculture sector that include:

- 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, and
- f) Destruction of rural physical infrastructure.

2.10.5 Politics and Policies

133. Politics in Nepal has been characterized by frequent changes and short tenures of cabinets. Both before and after the conflict, similar tendencies repeated. During the 20 years of the APP, there have been 22 Prime Ministers and 18 Secretaries of MoAD. This has reduced coordination and commitment to carry out policies, plans, and investments.

134. 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
- c. Poor coordination
- d. Lack of supporting legislation
- e. Lack of monitoring and evaluation

2.10.6 Investment

135. Government expenditures on the agriculture 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 agriculture sector as a ratio of AGDP declined up to 2005/06 and start to rise thereafter (Figure 8).

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.

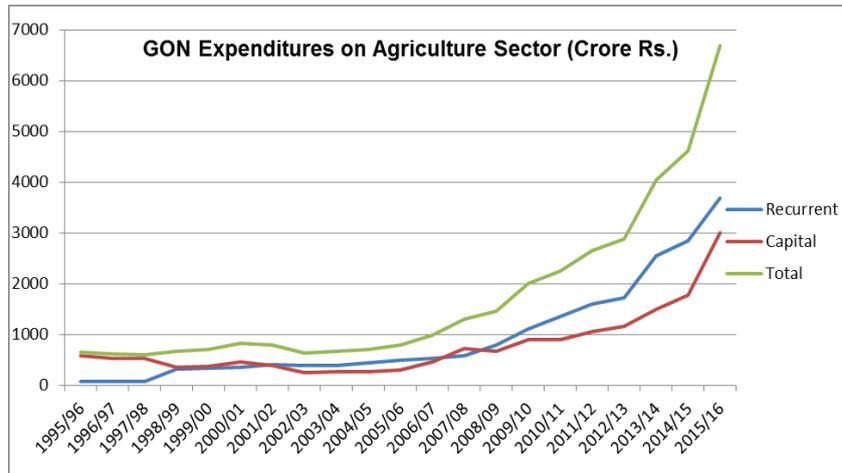


Figure 7: Trends in Government Expenditures in Agriculture Sector

Source: Economic Survey 2006 and 2016, Ministry of Finance

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

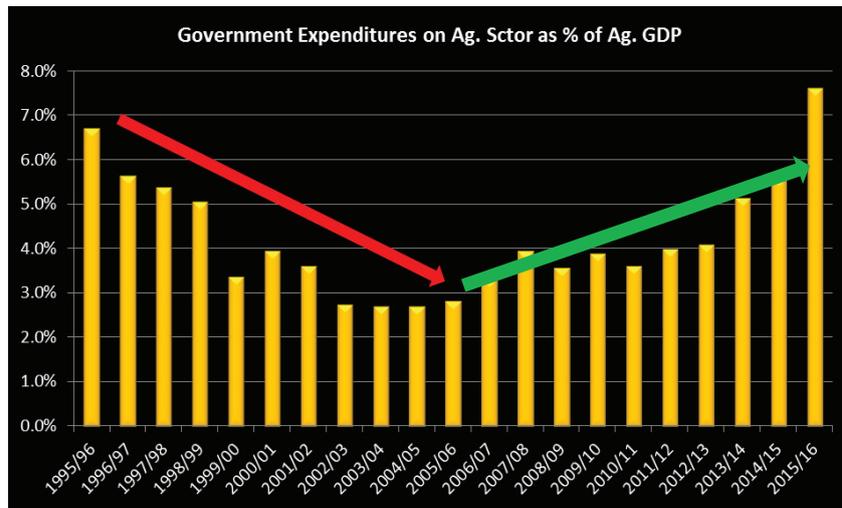


Figure 8: Government Expenditures as Percent of Agricultural GDP

Source: MoF Economic Survey, 2003, 2006, and 2016.

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

136. 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 that shifts away from loans to 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. The NPPR 2015 recorded that the MOAD has sought to improve the situation by ensuring aid harmonization and increasing synergy by holding coordination events to promote the sectoral approach, and to overcome the inadequate investment in agriculture.

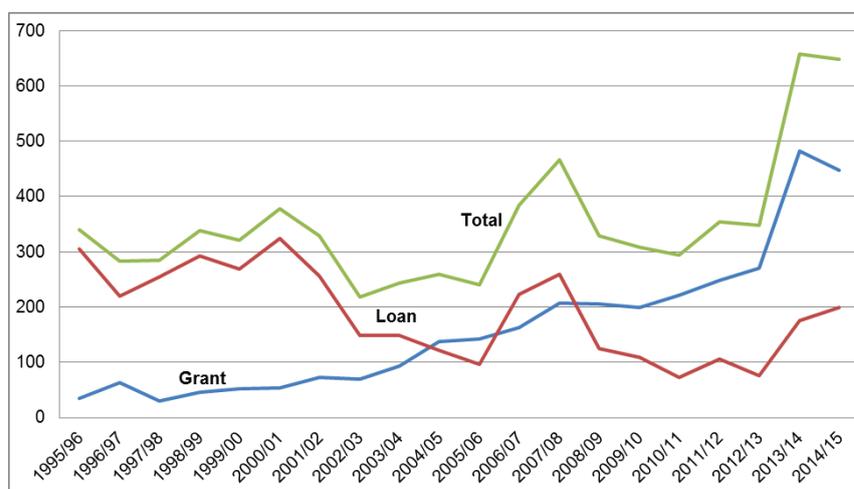


Figure 9: Donor Assistance to the Agriculture Sector (Rs 10 million)

Source: Economic Survey 2002, 2006, 2015 & 2016, Ministry of Finance. Includes agriculture, irrigation, forestry, and land reform and survey

137. 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

138. 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 1,399 farmer households³⁸. The

³⁷MOF, 2013 and 2015. Report on Nepal Donor Portfolio Performance Review Conference;

³⁸This was based on estimates by the TA Team of about 2,875 Crop extension workers (including subject matter specialists and supporting technical staff, source: www.doanepal.gov.np) and a farmer households

agriculture education is not promoted in school level course curricula in order to develop massive human resources in agriculture and allied fields. Similarly agriculture colleges were not sufficiently established to develop entrepreneur farmers across the nation. 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

139. 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 three Three-Year interim plans, till 2015/16. 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.
- Peoples' participation in the local governance has been low pending gaps in the acceleration of decentralization and devolution, community level service delivery, and institutionalization of democracy at the grass root levels.
- Inadequate canalization of the increased remittance inflows in to the productive sectors, and mobilizing the NRN and other foreign agencies willingness to invest more.
- Gaps in policy and legislative frameworks, and implementation mechanisms.
- Information system having weak documentation of data and literature, initial stages of adopting the software on programme performance information system, and the National M&E Directives 2070, and utilization of their feed backs.

2.11 Summary and Lessons Learned from the APP

140. Agriculture in Nepal is currently more developed than it was 20 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 grow, sometimes against formidable odds presented both by internal 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 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 made the continuity of leadership and tenures of senior officers impossible, thus making implementation of programs more difficult. In

of 3.364 million in 2001, 3.831 million in 2011 and estimated population of farmer households of 4.021 million in 2015 with a growth rate of 1.22% annually (CBS: National Sample Census of Agriculture).

spite of numerous policies favorable to agriculture were drafted or approved, their implementation remained poor due to a combination of factors due to the lack of resources, weak capacity, credibility of policies, and the lack of 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.

141. 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 agriculture sector in Nepal. The lessons have been part of a checklist for formulation of the ADS that are 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? Is Public Private Partnership 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 to adapt 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

142. The assessment of the agriculture sector aimed at identifying the key issues that need to be considered in the new agriculture 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 17 and related appendices.

Table 17: 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, 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 and doing business. Improvement in

No.	Category	Issues
		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 between 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 inadequate suitable policies (e.g. contract farming), competition with state enterprises and cooperatives, lack of services and infrastructure to support value chain development (e.g. agribusiness incubators, agroindustrial parks), low coverage 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, Municipal 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 low coverage 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

No.	Category	Issues
		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 agriculture development strategy. Rural/farm population could be roughly classified into three groups comprising 20 % of small commercial farmers (with 1 to 5 ha and above of land); 27 % of subsistence farmers (with 0.5 to 1 ha of land); and the landless and near landless (less than 0.50 ha) comprising about 53 % of the rural population. Similarly, the livestock herd size averages 5 livestock units per farm household. 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.
9.	Food and Nutrition Security	Food and nutrition security is a multidimensional concept that entails the aspect of food availability, food access, food use and utilization, and stability. There is a need to clarify to what extent food and nutrition security in Nepal requires achievement of foodgrains self sufficiency and to what extent nutritional security requires an emphasis on a more diversified agricultural production system with a larger role of animal and horticultural products than foodgrains. As urban markets and international food trade increase, food safety issues will become more important.
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 agriculture 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 being studied, but even the preliminary evidence suggests the need of introducing appropriate adaptation mechanisms to increase

No.	Category	Issues
		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, gender and geographic exclusion, and massive youth outmigration have multiple and complex links with agricultural development. The high differentiation of Nepali 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.
13.	Legal	Although policy formulation in Nepal has addressed several dimensions relevant to agriculture 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.

143. The issues affecting the agriculture 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

144. 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
145. **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 agriculture 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 in advance 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 agriculture sector.
146. **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 Agriculture Sector in Nepal

147. The discussion of future trends in this chapter provides a context for the formulation of the vision of the agriculture 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

148. Over the 20-year period 2015-2035, one possible scenario is for GDP/capita of Nepal to increase substantially and Nepal moves 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 years. In case of Nepalese agriculture, the TFP growth annually during 1995-2011 was 1.5%, which is 44% of the AGDP growth rate⁴⁰.
- 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

149. 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 the forecast is 1.7% (2010-20) (FAO 2010). For example,

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; and <https://knoema.com/USDAIAP2015/usda-international-agricultural-productivity-2014?tsid=1148140>

Error! Reference source not found. 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 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.

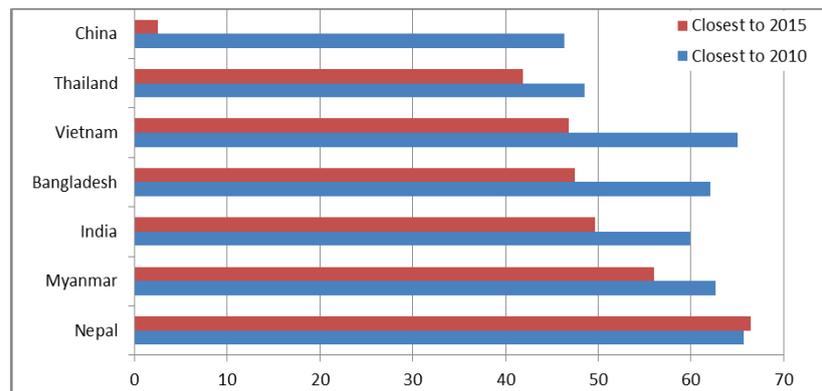


Figure 11: Agricultural labor force by countries (% of total)

3.4 Source: WDI dataset, 2016; Raitzer et al. (2015), ADB for MyanmarUrbanization

150. 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

151. 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, people will be more conscious of health issues (cholesterol, diabetes, allergies, etc.) related to food and food safety.

3.6 Globalization and Trade

152. 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

153. 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 agriculture 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

154. There will be global pressure for countries to implement green technologies (e.g. solar power) and reduce carbon emissions (e.g. Rs. 50/ton coal tax in India). At the 2012 'Rio+20' UN Conference of Sustainable Development and subsequently in the 2015 UN General Assembly, 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

155. Developing a more commercial and competitive agriculture sector is essential to face the trends that have direct impacts on the food and agriculture 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

156. 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

157. 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 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 *E. coli* in tomatoes in 2007 and bean sprouts in Germany in 2011. In Nepal, the average fatality rate associated with food epidemiology and communicable disease outbreaks has been 3% in 2014/15 (DoH AR 2015) In all cases, a system to trace the source of contaminated products was essential to rapid and effective response.

3.12 Cost of Energy

158. 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

159. 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

160. 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

161. 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

162. 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 agriculture sector.

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

3.17 Key Elements of the Vision

3.17.1 Self-reliance

163. 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

164. 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.

165. 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 programs 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.

166. 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. ADS strongly recommends for the equal wage for male and female labors for the same work.

3.17.3 Competitiveness

167. 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

168. 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 81%) own less than 1 hectare and the livestock herd size average 3 to 7 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

169. 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 agriculture 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

170. 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.

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

3.17.7 Food and Nutrition Security

171. 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 agriculture 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 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 (MSNP) and the Food and Nutrition Security Plan of Action (FNSP). FNSP, as approved by MOAD, is an integral part of ADS to implement Food and Nutrition Security programs which complement MSNP too.

3.18 Targets and Indicators

172. 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 18. A TA would be used to update data for base year of ADS implementation (2015) and subsequent targets accordingly.

Table 18: Preliminary Indicators and Targets for ADS Vision

Vision Component	Indicators	Existing Situation (2015)	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 16. % 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 1.5% annually (2000/01-2015/16) to over 2%/yr. Population growth rate no more than 1.4% (2015) .	TEPC, CBS MOAD, Dept of Customs
	Year-round irrigation coverage	25.2%	35 %	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	NPC, MOI, CBS, MOAD, MOF Economic Survey
Sustainable	Soil organic matter	Soil fertility at 2.9 % organic matter	Soil fertility maintained at 3.5 % 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	MOAD
	Ha degraded land	3.72 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 - 2000-2015 poverty reduction rate continues. - Land conservation and land rehabilitation programs - Increased electricity coverage (reduced wood fuel demand).	MOEST, MOFSC, CBS, MOAD
	Forest cover	44.7%	44.7%	44.7%	44.7%	- No net change - Effective land use management regulation enforced.	MOFSC
	Agricultural land productivity (AGDP/ha)	\$ 3,278	\$4,184	\$ 5,339	\$8,697	5%/yr of AGDP increase due to: - expanded irrigation - improved practices	CBS, MOF Economic Survey

Vision Component	Indicators	Existing Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)	Assumptions in estimating target	Source of data
Competitive	Agribusiness GDP as share of GDP	8%	9% %	11%	16%	- improved use of inputs - expanded rural infrastructure - No increase in cultivated land 11.8%/yr average increased value of output due to: - improved business enabling environment - growth in agribusiness investment 12.3% growth/yr of exports and 2.1%/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	MOF Economic Survey
	Agricultural trade balance	\$ 1,123million trade deficit	Reduce food and agriculture trade deficit by 4.5% (\$1,073 million)	Reduce food and agriculture trade deficit by 21.5% (\$ 882 million)	Achieve Food and agricultural trade surplus of \$508 million		TEPC
	Agricultural Exports	\$ 225 million	\$ 456 million	\$ 81.4million	\$ 2,598million	12.3%/yr export growth	TEPC
Inclusive	Percent of farm land ownership by women or as joint ownership	16. %	20%	30%	50%	- 20%/yr incremental registration on land title - Awareness programs on gender and land issues	CBS NSCA
	Percent of farmers reached by agriculture programs	18.2%	22%	26%	32%	5%/yr growth in outreach: - increased rural infrastructure - expansion of ICT services - 5%/yr growth in agribusiness services - increased productivity growth - increased investment - increased rural infrastructure	MOAD, CBS, DoA/Dir of Extn, and DoLS
Growth	Average annual growth of AGDP	2.23% (*)	4%	5%	6%		MOF Economic Survey, CBS
Livelihood	AGDP/ Agricultural labor	\$ 835	\$ 1,029	\$ 1,268	\$ 1,926	0.7% growth in agricultural labor due to: - movement towards other sectors - outmigration - reduced population growth rate	MOF Economic Survey, CBS

Vision Component	Indicators	Existing Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)	Assumptions in estimating target	Source of data
	Poverty in Rural Areas ^(*)	24.3%	19%	15%	9%	5%/yr AGDP growth due to: - increased productivity, investment, infrastructure - improved practices - 4.8% reduction rate/yr against 2003/04 – 2013/14 rate of reduction (- 3.4%) - 7.5% reduction rate/yr against 2000 – 2015 rate of reduction (- 4.8%)	NLSS,AHSS
	Food Poverty	27.6%	19 %	13%	6%		NLSS, AHSS, HBS
Food and Nutrition Security	- % 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)	37.4% stunting; 30.1% underweight; 11.3% wasting; 18.1% 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	NDHS, MICS

(*) Three Year Average Ending (TYAE) 2015/16;

(^*) Data from Household Budget Survey 2014/15, NLSS and Annual Household Survey correlated with agri-GDP

Sources for 2010 and 2015 scenario

Agricultural trade balance and Agricultural Exports: TEPC, Nepal Foreign Trade Statistics 1995/96 to 2014/15, and Department of Customs Foreign Trade Statistics 2015/16.
 Year-round irrigation coverage: Department of Irrigation, DOI(2016); National Planning Commission, NPC (2009), CBS NSCA (2011/12); Ministry of Agriculture Development, MOAD (2014/15); MOF Economic Survey (2016)
 Soil organic matter: Soil Management Directorate, Department of Agriculture (2014/15 & 2015/16)
 Ha degraded land: Ministry of Environment Science and Technology, MOEST (2005); Department of Forest Research and Survey, DFRS (1999 & 2016); Department of Forest, DOF (1999), Environmental Statistics of Nepal (2015); Department of Agriculture (2014/15)
 Forest cover: Department of Forest Research and Survey, DFRS (2016); Approach Paper 14th Plan
 Agricultural land productivity (AGDP/ha): CBS NSCA (2011/12); MOF Economic Survey (2016).
 Agribusiness Share of GDP: MOF Economic Survey, (2016).
 Percent of land ownership by women/ joint ownership: CBS NSCA (2091/92); NSCA (2001/02) & NSCA (2011/12)
 Percent of farmers' reached by agriculture programs: Directorate of Extension, Department of Agriculture (2013/14), and Dept of Livestock Services
 Average annual growth of AGDP: MOF Economic Survey (2016) and CBS National Account
 AGDP/ Agricultural labor: MOF Economic Survey (2016); CBS Population Monograph Vol. III, (2014)
 Poverty in Rural Areas: CBS NLSS (1995/96, 2003/04 & 2010/11); CBS Annual Household Survey (2012/13 & 2013/14)
 Self-sufficiency in food grains: Statistical Information of Nepalese Agriculture, MOAD (2014/15); MOF Economic Survey (2016); TEPC and Dept of Customs Nepal Foreign Trade Statistics (2010/11 to 2015/16).
 Stunting of children 0-60 months: Nepal and Health Demographic Survey (2001, 2006 & 2011); CBS NLSS (2010/11); CBS Multiple Indicator Cluster Survey (2014)
 Proportion of food insecure: CBS Nepal Living Standard Survey (2010/11); CBS Annual Household Survey (2012/13 & 2013/14); NRB Household Budget Survey (2014/15)



4 STRATEGIC FRAMEWORK

4.1 Implications of Agricultural Transformation for ADS

173. The ADS will guide the agriculture sector of Nepal over the next 20 years. Over the course of this period, the structure of the agriculture 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.

174. In this context, it is worth emphasizing again that the ADS looks at the agriculture 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).

175. The strategy is formulated by 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.

176. In this process of transformation, several things take place at the same time⁴². 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.

177. The implications of the lessons from the agricultural transformation experience for the ADS can be summarized as follows⁴³:

- (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

178. 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-

⁴²Timmer 2007.

⁴³Based on Goletti 2011

agricultural growth⁴⁴ and investment in agricultural capital stock has been found to reduce hunger⁴⁵. 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 agriculture sector leading to faster agricultural growth and faster poverty reduction.

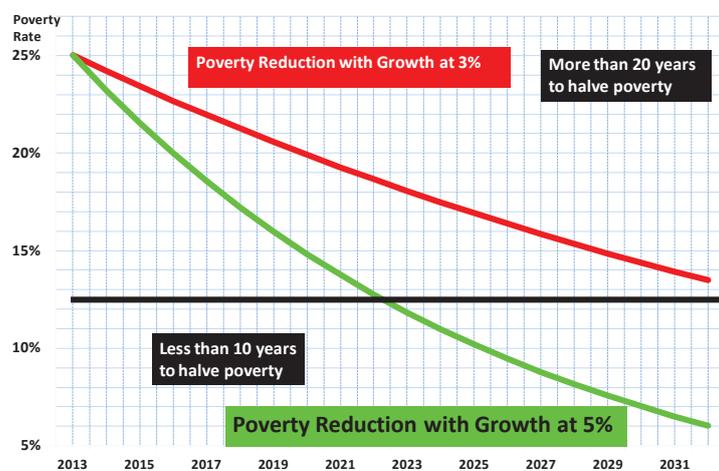


Figure 12: Growth and Poverty Reduction⁴⁶

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

In order to achieve the vision the ADS will accelerate agriculture 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 (e.g. agricultural roads, collection centers, packing houses, market centers), information infrastructure and ICT, and power infrastructure (e.g. 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 competitiveness, higher and more equitable income of rural households, and strengthened farmers’ rights. Figure 13 provides an illustration of the strategic framework of the ADS.

⁴⁴ Christiansen, L., Demery, L., and Kuhl, J. 2010. The evolving role of agriculture in poverty reduction: an empirical perspective, *Journal of Developing Economies*, 96:239-254.

⁴⁵ FAO 2012. *The State of Food and Agriculture*.

⁴⁶ Based on growth poverty elasticity of -2.

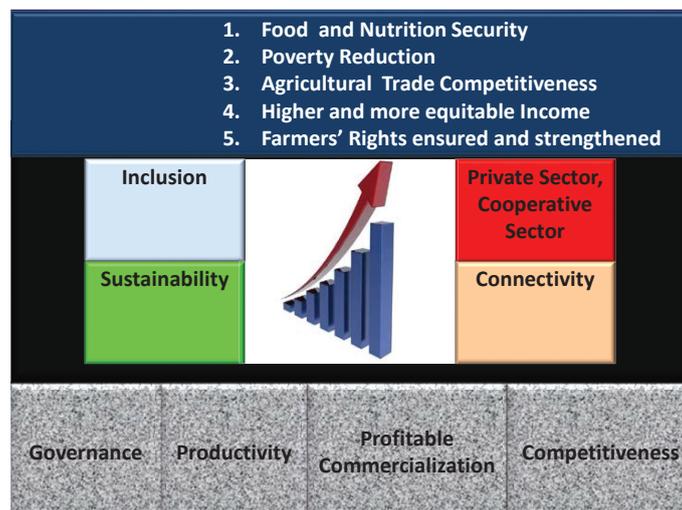


Figure 13: Strategic Framework of the Agriculture Development Strategy

179. The ADS Framework consists of a logical sequence of **impacts, outcomes, outputs, inputs, 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

180. The overall impacts of the ADS consist of the five dimensions of increased food and nutrition security, poverty reduction, competitiveness, higher and more equitable income of rural households, and strengthened farmers' rights. Indicators of impacts are reported in Table 19.

Table 19: Indicators of ADS Impact

Impacts	Indicators
Food and Nutrition Security	<ul style="list-style-type: none"> 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)
Poverty Reduction	<ul style="list-style-type: none"> Rural poverty share
Competitiveness	<ul style="list-style-type: none"> Agricultural Trade Balance
Higher and more Equitable Income	<ul style="list-style-type: none"> Income per Capita Gini coefficient
Farmers' rights Ensured and Strengthened	<ul style="list-style-type: none"> Legislation on Rights to Food and Food Sovereignty Farmers' Representatives in the key ADS Committees Legislation on Farmers' Rights (Farmers' Commission)

4.4.1 Food and Nutrition Security

181. 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.

182. Component 2 of the ADS on Productivity has an impact on 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.

183. 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.

184. 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

185. 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 the disadvantaged and poor households, subsistence farmers and landless rural households; adopting a markets for the poor (M4P) 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

186. 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

187. The ADS aims at increasing prosperity of farmers and agroentrepreneurs 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. 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 agroenterprises led by traditionally excluded groups such as women, youth, and other disadvantaged groups such as the Dalits and the Janajatis.

4.4.5 Strengthened Farmers' Rights

188. 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 3,157 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 agriculture sector; they are consulted when undertaking monitoring of the sector; and they are members of the Nutrition and 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.

189. Furthermore, the ADS promotes the formulation of legislation related to food rights and food sovereignty consistently with the principles of the Constitution of Nepal. Specific initiatives to deepen the understanding of farmers' rights, promoting these rights, monitoring them, and protect them will be formulated as part of the activities under the Governance component of the ADS. Likewise, the Government of Nepal on the leadership of Ministry of Agricultural Development will establish the mechanism for providing minimum support price to the major agricultural products.

190. The ADS also promotes the establishment of a high level fully authorized and permanent type of Farmers' Commission to help advance farmers' right. The specific TOR, composition, and regulation of the Farmers' Commission will be formulated in the early stages of ADS implementation.

4.5 The Outcomes and Outputs of the ADS

191. The ADS has four main outcomes:

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

192. 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	Situation 2010	Situation 2015	Target
Governance	Agricultural Growth	3% average annual growth	2.23(*)	5% average annual growth
Productivity	Land productivity	\$1,804/ha	\$3,278 /ha	\$ 8,697 /ha
	Labor productivity	\$794/agricultural labor	\$835 /agriculture labor	\$ 1,926 /agricultural labor
Commercialization	Marketed surplus	Less than 50% of agricultural production	Less than 50% of agricultural production	More than 80% of agricultural production
	Agribusiness GDP	10% of GDP	8% of GDP	16% % of Agricultural GDP
Competitiveness	Agrifood export	\$248 million	\$255 million	\$2,598 million

(*): Three Year Average Ending (TYAE) 2015/16 to account for high fluctuations due to the mega-earthquake 2015, economic blockade, and persistently poor rain fall ;

4.5.1 Improved Governance

193. Governance in the ADS refers to⁴⁷ “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 include⁴⁸: accountability, participation, predictability, and transparency.

194. In spite of frequent pronouncements in support of the agriculture 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 agriculture sector requiring coordination and effective planning among different agencies, different levels (central, provincial and local), and different stakeholders (government, civil society, development partners). Effective coordination and planning will ensure 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 (e.g. farmer organizations and cooperative organizations) will contribute to the overall strengthening of the governance of the ADS.

195. 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

⁴⁷ World Bank 1992, “Governance and Development”, the World Bank

⁴⁸ ADB 1995, “Governance: Sound Development Management”, Asian Development Bank, October 1995

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.

196. 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 result-based management will be piloted within this component.

197. 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 (such as NPC) 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 Implementation Support Unit (Policy and International Cooperation Coordination Division) under MOAD 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	Ensure that civil society including farmer organizations, cooperatives organizations, and trade/industry organizations are engaged in

No.	Area	Output	Description
		society in the planning, implementation, and monitoring of the ADS	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

198. Improved productivity of land and labor is 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.

199. In the ADS, the government sector will be key leading actor, 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.

200. 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 broadening their role from delivery of extension services to both delivery and 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 and the technicians for the agriculture, livestock and agriculture information and communication will be recruited in the CAESC.

201. 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. The labor wage in the agriculture sector will be updated regularly according to the inflation rate, and the increase in the labor productivity.

202. Productivity enhancement will depend on timely availability of quality inputs. The ADS recognizes that in the long term productivity and competitiveness of the agriculture 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.

203. 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	Expand irrigable area by the most economic and equitable means while increasing irrigation efficiency and intensity, and

No.	Area	Output	Description
		efficiency and management.	improving irrigation management.
2.6	Agricultural Inputs (including animal feeds)	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 2013- 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 current level in the short term, review them in the medium term and adjust them in the long term while initiating a number of measures to improve productivity and fertilizer use efficiency, promote organic/bio fertilizer 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 farmers through the private sector.	Support mechanization with awareness creation, demand stimulation, concessionary financing arrangements, capacity building, and appropriate 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	Establish Good Agricultural, Veterinary and Manufacturing Practices standards and promote adoption of good practices in integrated soil fertility, plant nutrients, pest management, feed management and herd management while promoting renewable

No.	Area	Output	Description
		and adopted.	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

204. The outcome of profitable commercialization in the ADS is part of the overall process of transforming the agriculture 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.

205. 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).

206. 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 that 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, power, market information and market intelligence systems).

207. 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	Improved investment climate for agricultural commercialization through structured dialogues of

No.	Area	Outputs	Description
		agricultural commercialization	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 agriculture sector	Tax policy that supports an efficient commercial agriculture sector with the long term objective of agriculture 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 value chains leading to national program to develop 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 ICT products for market intelligence.	Agricultural market information and ICT 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

208. 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.

209. 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 Nepalese 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.

210. 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.

211. 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.
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 (anti-dumping), and CVD (countervailing duties) measures; reduced/eliminated pro-manufacturing bias in tariff structure; and the policy of pegged exchange rate with India and its impact on the agriculture 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

212. 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.

213. 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 accountable to the local communities. The new guidelines by the Ministry of Finance in Budget Speech 2016/17 indicating a eight percent investment in agriculture, which is 43% increment over the previous year, provide a new impetus for the involvement of the local government in agricultural investment.

214. A new administrative structure of Government Nepal, with a Federalist Structure, is in place. The formulation that is being prepared by the ADS Team is based on the pre-Constitution 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.

215. 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

216. 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).

217. The national programs of the ADS will coexist with local programs that are funded by local agencies (e.g. 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 agro-entrepreneurship of youth, women, disadvantaged groups, and disadvantaged areas (see section 5.5.2).

4.8 ADS and Socioeconomic Diversity of Farmers

218. A simple way⁴⁹ 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 and above, 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 20 percent of rural/farm families⁵⁰, farming 50 percent of the land and presumably a somewhat higher proportion of output. If we add 0.3 percent of families with more than five hectares of land and commanding 3.3 percent of the land, then we have a total of 53 percent of the land. That comprises approximately 745,000 families for the ADS to concentrate on for small commercial production. It is from these 745,000 small commercial farmers that the engine of growth of the agriculture sector comes, driving rural non-farm employment, food supplies, and national income.

Table 25: Landholdings Distribution in 2001/02 and 2011/12

Size of holding	2001/02						2011/12					
	Holding			Area of Holding			Holding			Area of Holding		
	Number ('000)	Percent	Cumulative percent	Area ('000 ha)	Percent	Cumulative percent	Number ('000)	Percent	Cumulative percent	Area ('000 ha)	Percent	Cumulative percent
less than 0.5 ha	1,578.9	47.3	47.3	390.2	14.7	14.7	1,987.0	53.5	53.5	485.0	19.2	19.2
0.5 ha and under 1 ha	915.7	27.4	74.7	641.7	24.2	38.9	984.0	26.5	80.0	695.1	27.6	46.8
1 ha and under 5 ha	817.4	24.5	99.2	1,428.2	53.8	92.7	732.7	19.7	99.7	1,258.1	49.9	96.7
5 ha and over	25.4	0.8	100.0	194	7.3%	100.0	11.8	0.3	100.0	84.4	3.3	100.0
Total	3,337.4	100.0		2,654.1	100.0		3,715.6	100.0		2,522.5	100.0	

Source: TA Team's calculations based on CBS NSCA 2001/02 & NSCA 2011/12

219. The second category includes the **subsistence farmers** commanding from 0.5 to 1.0 hectare in size. They comprise 27 percent of rural families (roughly the same in numbers as the small commercial farmer). They farm on 28 percent of the total land. 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

⁴⁹ 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.

⁵⁰ This is based on Agricultural Census figures for land distribution in 2011/12. 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.

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.

220. The third category includes the **landless and near landless**. They comprise nearly half of the rural population, 2.1 million families in number but command only 19 percent of the land. Of these, landless are six percent. 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.

221. 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.

222. 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.

223. 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 (e.g. 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.

224. 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 agriculture 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.

225. 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 as 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 (e.g. addressing the issues of tenancy, land leasing, cooperative farming, reversing the trend towards degraded land); access to quality and timely inputs (e.g. 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	**	***	**
Mechanization options accessible	***	**	*
Improved resilience of farmers	**	***	*
Sustainable farming, GAP, and GVAHP adopted	**	**	*

OUTCOME/Output	Commercial Farmers	Subsistence Farmers	Landless or near landless
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

226. Nepal urban population reached 17% of the total in 2011 and was increasing at an annual rate of 3.38%, more than three times the growth (1.03%) of the rural population; by 2015, the urban population increased to 19% of total population, and has a growth rate of 4.1% annually (CBS Population Projections). Over the next 20 years, this demographic change will have enormous repercussions for Nepalese society and the agriculture sector in particular. If current trends continue, by the end of ADS period, more than one third of the Nepal population will be living in urban areas.

227. 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.

228. 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 food insecurity of the rural population, some of the interventions in nutrition awareness will also have a positive spillover effect on urban areas.

229. 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.

230. Rapid urbanization results in the loss of some of the most fertile agricultural land found in peri-urban 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 peri-urban agricultural land, food security becomes an additional challenge for urban planning.

231. 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.

232. Food safety events due to a number of food borne zoonotic and non-zoonotic diseases can rapidly spread in urban environments. At the same time, nutritional unbalances are more pronounced in urban areas where under-nutrition, 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.

233. 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

234. 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 232 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 (e.g. Farmers' Commission)
	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 2013-2025 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

Outcome	No	Output
		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 agriculture 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 ICT 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

235. Outcome 1 of the ADS is Improved Governance. The outcome is achieved through 10 outputs and 54 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	Establish Farmers' Commission to develop mechanisms that promote farmers' rights
	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

Outcome	Output	Action	
			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 Food Security and Environmental Division (FSED)
		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 Policy and International Cooperation Coordination 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 Agriculture and Water Resource Committee of Legislature

Outcome	Output	Action	
			Parliament, 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 (MoAD, PICCD, ADSISU, DoA, DoLS, DFTQC and NARC)
		1.8.3.2	Conduct capacity building for National Peasants' Coalition
		1.8.3.3	Conduct capacity building for National Cooperative Federation
		1.8.3.4	Conduct capacity building for Professional Organizations/Associations, Private Sector Organizations, Producer's Organizations and Consumer Organizations
		1.8.4	Evaluate organizational reform of MoAD and related departments
		1.8.5	Establish Policy and International Cooperation Coordination Division (PICCD) at MoAD
	1.9		Improved food and nutrition security of most disadvantaged groups
		1.9.1	Design targeted food and nutrition security program
		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

236. **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.

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- c. Presentations about the ADS at the central level, regional 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.

237. **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.

238. **Formulate and enact standard procedures that facilitate longer tenure for key positions in the ADS implementation.** Such positions might include Secretary MoAD, Joint Secretary PICCD, MoAD, DG of departments (DoA, DLS, DFTQC), flagship program managers 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.

239. **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 National ADS Implementation Committee (NADSIC) who will make the final decisions regarding the need of updating or adjusting specific parts of the ADS.

240. **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 consistently with policy commitments.

241. **Establish Farmers' Commission to develop mechanisms that promote farmer rights in the ADS.** The ADS promotes the establishment of a high level fully authorized and permanent type of Farmer's Commission that can promote farmers' rights. The specific TOR, composition, and regulation of the Farmer's Commission will be determined in the early stages of ADS implementation. Although farmers' rights can be assured only through the constitution and legislation, the ADS will commission studies to help a better understanding 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

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- e. 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

242. **Establishment of relevant institutional mechanisms to implement and coordinate ADS, such as Farmers' Commission, NADSIC, NADSCC, CAESC and relevant APP institutions (CADIC, RADC, and DADC);** Formation of subcommittees of NADSCC. The MOAD Secretary will be the ex-officio Secretary of NADSCC; and representatives of the farmer commission, National Peasants Alliance, stakeholder organizations, cooperatives, and private sector are among the members of NADSCC, CADIC, RADC, and DADC.

243. **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. Publish announcement of meetings and the minutes of the meetings on the ADS website.

244. **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. Publish announcement of meetings and the minutes of the meetings on the ADS website. The subcommittees will include:

- a. Subcommittee comprising agriculture and irrigation
- b. Subcommittee comprising government sector, private sector, cooperative sector, and farmer organizations
- c. Subcommittee comprising government sector and NGOs/INGOs
- d. Subcommittee comprising government and development partners
- e. Subcommittee comprising Research-Extension-Education institutions
- f. Subcommittee comprising Food Security, Nutrition, and Food Safety initiatives

245. **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. Publish announcement of meetings and its minutes on the ADS website.

246. **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.

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

248. **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

249. **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 work plans and budget requests of the Ministries.

250. **Ensure integration of long-term plans with annual work plans 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.

251. **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

252. **An ADS Implementation Support TA under MOAD to facilitate implementation of the ADS** through (i) capacity building of MOAD 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 (SWAP⁵¹) for Agriculture 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 (VI) update base year(2015) data and subsequent targets, etc.

⁵¹Sector-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."

253. The Agriculture 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

254. 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. ADSISU is responsible in 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, it 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

255. **Strengthening of the Gender Equity and Social Inclusion** Section under Food Security and Environment Division in the Ministry of Agricultural 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.

256. **Generation and maintenance of national level GESI-based and geographic inclusion-based statistics** at MOAD/FSED 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 geographic inclusion-based statistics to be maintained at MOAD/FSED. 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 FSED and contribute to the formulation of policies and plans.

257. **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.

258. **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 FSED and GESI staff at the district level will be alerted if

deviations from the inclusion principle occur during planning or implementation of ADS programs.

259. **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.

260. **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, through technical assistance, programs implemented by the National Peasants' Coalition.

261. **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.

262. **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

263. **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 DLDO. Capacity building will also be complemented by resources (e.g. hardware and software, survey budget, monitoring visit budgets) to carry out M&E activities on a timely and professional manner.

264. **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.

265. 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.

266. **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.

267. **Conduct an Agricultural and Livestock Census**, in coordination with the Agri-Business Promotion and Statistics Division of MOAD and Central Bureau of Statistics.

268. **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

269. **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.

270. **Establish an ADS Information Desk under the Policy and International Cooperation Coordination Division.** 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, agricultural professional associations, government officials at the central and local level, development partners)

271. 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.

272. **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.

273. **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

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

275. **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.

276. **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. National Peasants' Coalition, National Cooperative Federation, and Private Sector Organizations

277. **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 will be taken into account of the ongoing and previous analysis such as the OIE gap analysis for the DLS.

278. **Establish a Policy and International Cooperation Coordination Division at MOAD** by upgrading the Policy Section and Foreign aid coordination section under the Planning Division of MOAD. Capacity of such Division of MOAD should be strengthened to ensure that it could professionally carry out its functions. This Policy and International Cooperation Coordination Division would provide a mechanism to institutionalize capacity building in policy analysis within MOAD. ADS promotes the development of appropriate human resources to utilize the bilateral and multilateral provisions like WTO and BIMSTEC for the national interests.

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

279. 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 Agriculture and Food Security Project (AFSP), currently being implemented as part of the Global Agriculture and Food Security Program (GAFSP); the Food and Nutrition Security Plan of Action (FNSP), prepared with assistance of FAO; and a new targeted national food and nutrition security project needs to be designed and implemented to complement AFSP, MSNP and FNSP. In order to maximize synergies with existing and planned similar program it is essential to coordinate with the Multi-sector Nutritional Plan (MSNP). The set of activities under this output 1.9 of the ADS include:

280. **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).

281. **Implement a targeted national food and nutrition security program.** This program will be targeted to poor and disadvantaged groups and to geographically disadvantaged areas (e.g. 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 (e.g. 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.

282. **Implement Agriculture and Food Security Project (AFSP).** This is a project focused on 19 hill and mountain districts of the Mid- and Far-Western development regions 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 for their inclusion through project interventions.

283. **Implement Food and Nutrition Security Plan of Action (FNSP)** prepared 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.

284. **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 Multi-sector 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 7.7).

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

286. **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 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.

287. **Promote formulation of Rights to Food and Food Sovereignty Legislation** and monitor their implementation. The rights to food and food sovereignty principles are established in the Constitution. The Article 36 of the Constitution has provisioned the notion 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

288. 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.

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

290. **Conduct a pilot program on performance-based management system** based on a sample of 15 district, one for each physiographic 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 section9.3.1). The pilot will include design and implementation of the system by ADSISU.

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

5.3 Activities Related to Outcome 2: Higher Productivity

292. Outcome 2 of the ADS is Higher Productivity. The outcome is achieved through 13 outputs and 112 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
		2.1.5.1	Provide PCs or tablet with internet for each CAESC and agriculture and livestock service centers and sub-centers
		2.1.5.2	Mobile-based applications
		2.1.6	Link farmer groups and organizations to banks and finance

Outcome	Output	Activity	
			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
		2.3.2.2	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 higher education degrees and trainings.
	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 "National land Leasing Corporation" scheme

Outcome	Output	Activity	
		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
		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
		2.7.8	Promote open pollinated, improved and local seed production system to address seed sovereignty
	2.8		Improved fertilizer supply distribution system

Outcome	Output	Activity	
		2.8.1	Improvement in fertilizer distribution system with appropriate level of subsidy
		2.8.2	Complimentary measures for efficient fertilizer use
		2.8.2.1	Demonstration and awareness campaign
		2.8.2.2	Promote organic and bio-fertilizer
		2.8.2.3	Conduct feasibility studies on fertilizer 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 policy including development of breeding and animal health
		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

Outcome	Output	Activity	
		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

293. **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.

294. The Program Manager for the flagship Decentralized Science, Technology, and Education Program (DSTEP) 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

295. 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. Considering the structuring of federal systems in Nepal, the number of CAESCs might change according to the number of local bodies formed in new structures.

296. **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 ALSCs 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 ALSCs 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), and farmer marketing schools (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.

297. **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. Develop manual for implementing voucher system.
 - iii. Introduce targeting system for extension by which vouchers are primarily targeted to subsistence and semi-commercial farmers in different agroecological areas.
 - iv. 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.
 - v. Design an initial pilot for the voucher system including different target groups of farmers (subsistence and semi-commercial) in different agroecological areas.
 - vi. 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.
 - vii. 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 50,000⁵² farmers.

298. 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.

299. **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

300. **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

301. 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), ICT 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.

302. **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.

⁵² 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 (e.g. seed, fertilizers, etc.) mentioned below.

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- c. Organize quarterly or semi-annual workshops between farmer groups and organization and financial institutions to establish an ongoing dialogue and linkages.

303. **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

304. **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. Further NARC will endorse the research activities of individual farmers, independent research organizations and private sectors. 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 NARDF 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.

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- 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.

305. **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

306. 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:

307. **Improve facilities and capacity of Agricultural and Forestry University,** and IAAS/TU based on periodic requests for improved laboratories and audiovisual and ICT equipment.

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

309. **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.

310. **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.

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

312. **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.

313. **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.

314. **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

315. **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.

316. **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

317. **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

318. **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.

319. **Introduce regulation, incentives and disincentives to promote owner operated farms, farming cooperatives and agribusiness farms.** Improving sharecropping arrangements⁵³, 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

⁵³Keeping in mind that not all sharecropping arrangements are necessarily exploitative.

- 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;
- 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.

320. **Pilot a “Land leasing corporation” scheme** to facilitate land leasing of currently unutilized land. “Land leasing corporation” 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.

321. **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)⁵⁴.
- 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”

⁵⁴Once zoning is introduced in Nepal, any subdivision of existing plots will be subject a procedure that could prevent creation of unsustainable plot sizes.

322. **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.

323. **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 -

- 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.

324. **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 Federal Affairs and 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.

325. **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.

326. **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

327. 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.

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

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- 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 34,000 ha, 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, pump shed and water distribution hose (lay flat). 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 pump-sets 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.

329. **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.

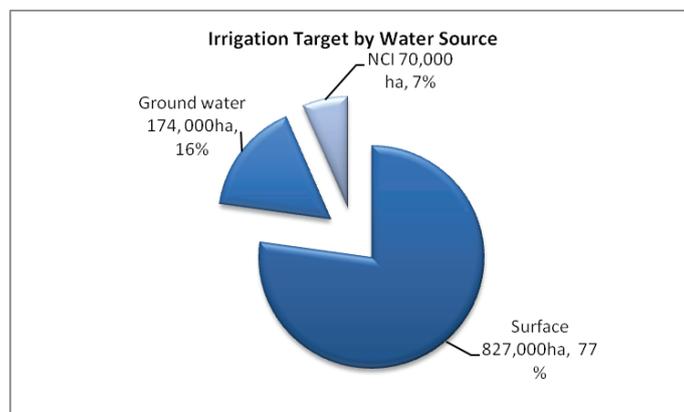


Figure 14: Irrigation Target by Water Source

330. These activities are expected to increase the irrigated area to a target of more than 80% of the potential irrigated area (Table 30). The majority (77%) will be from completion and rehabilitation of surface irrigation schemes, while new and rehabilitated ground water tube wells will contribute 16%.

Table 30: Irrigation target by water source

IRRIGATION	Outputs/ units	New '000 ha	Year-Round Irrigation Targets			
			Surf ace	Ground water	NCI	total
Activities		by 2033	'000 ha			
1.1 Ongoing surface irrigation developments completed		80	80			
2.1 Develop NCI in Hills and Terai	4000 ha/y	70			70	
2.2 Develop new surface irrigation	1000 ha/y	20	20			
2.3 Construct new shallow tubewells	150,000 ha	150		150		
2.4 Define IMT project	40,000 ha	40	0			
Successor project	50,000 ha	5	0			
2.5 Inter-basin transfer schemes a/	3 projects x 70000ha	150	150			
3.1 Damaged surface schemes in Hills and Terai repaired	4k ha/y	67	67			
3.2 Damaged shallow and deep tubewells repaired	2k ha/y	24		24		
3.3 Headworks and main canals improved on around 7000 FMIS b/	25 ha/scheme	170	170			
4.1 Irrigation efficiency on existing schemes improved c/	10,000 ha/y		170			
4.2 Water courses/field canals constructed d/	10,000 ha/y		170			
Total		776	827	174	70	1,071

IRRIGATION	Outputs/ units	New '000 ha	Year-Round Irrigation Targets			
			Surf ace	Ground water	NCI	total
Activities		by 2033	'000 ha			
Nepal potential irrigable area						1,280
Target year-round irrigated area %						84%
percent of target by type			77%	16%	7%	

331. **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.

332. **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.

333. **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.

334. **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.

335. **Implement integrated water resource management.**

- a. Finalize the Integrated Water Resources Management (IWRM) policy drafted in 2010; part of which is now reflected in the Irrigation Policy 2070.
- b. Introduce the IWRM nationally, with management based on hydraulic boundary, starting in areas where there is inter-sectoral competition or conflict over water.

336. **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

337. **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.

338. 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 (e.g. 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.

339. **Establish voucher system for inputs** whereby targeted farmers are provided with a voucher that empowers them to purchase the input of their preference. First develop a manual for implementation of the system; then 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.

5.3.7 Activities related to Output 2.7 on Effective Implementation of Existing Seed⁵⁵ Policies including Seed Vision 2025 through sufficient Investment in Resources and Capacity Building.

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

341. **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 areas that are dominated by subsistence agriculture, and establish good linkages with international agencies.

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

- a. Promoting partnerships with relevant public, 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

⁵⁵ Seed in the ADS includes both crop seed and fodder seed.

- c. Providing breeder and foundation seed to private and cooperative seed growers
 - d. Promoting public 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.
343. **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
344. **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.
345. **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 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.
346. **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 Biodiversity and Genetic Resources
 - d. Restrict the import, production and use of Genetically Modified Organism (Seed, crops and livestock) except for research to avoid negative impact on biodiversity, genetic resources, and human health.
347. **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**
348. **Gradual transformation of fertilizer subsidy system into more effective delivery.** Maintain fertilizer subsidy at current level in the short term, review them in the medium term and adjust them in the long term. This will involve implementing a study possibly entitled 'Review of Impact of Fertilizer Subsidy' every 5 years during ADS.

349. **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

350. **Develop livestock policy** including breeding development and animal health.

351. **Capacity building for improved breed production.**

- a. Support pure breed 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.

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- 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.

352. **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.

353. **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

354. A mechanization strategy 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:

355. **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 of them would have the same aim, to inform farmers of the potential options, however the orientation and relative weighting of these options would be different in the three different agro-economic zones.

356. **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 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 their customers under two options:

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- i. Extend credit on commercial terms to dealers so that they can also on-lend at rates around 17%⁵⁶;
 - ii. Access cheaper credit from the Rastra Bank's "deprived sector" lending program although there are restrictions on the targeting of end users.

357. **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.)

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

- 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.

359. **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.

360. **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.

⁵⁶Commercial banks must lend up to 15% of their outstanding portfolio to agriculture and energy or face fines on loans unallocated to this sector (Monetary Policy 2016/17). They therefore have an incentive to constantly look for lending to this sector. Commercial banks 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.

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

361. **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.
362. **Establish an early warning system** and adopt early warning information for managing climate change risks in agriculture and food and nutrition security.
363. **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.
364. **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.
365. **Promote agricultural insurance** (details under Commercialization).
366. **Strengthen the food reserve system** to cope with emergency and food safety distribution to targeted farm households.
367. **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.
368. **Improve capacity of extension staff and farmers in climate smart agricultural practices** through training, FFS, and demonstrations.
369. **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.

370. **Formulate standards** for good Agricultural, Manufacturing and Veterinary and Animal Husbandry Practices suitable to socioeconomic and agroecological conditions, and comparable to international standards through interaction by public and private sector.
371. **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,

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- 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.

372. **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 graziers.

373. **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.

374. **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.

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

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- 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.
376. **Develop biodiversity conservation and climate change adaptation** and mitigation through the following measures:
- a. Support the Local Adaptation Plan for Action (LAPA) as implementation support for the National Adaptation Program 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 Strategy and Action Plan (NBSAP) and scale up the interventions on soil conservation and watershed management including measures to promote adoption of Sloping Agriculture Land Technology (SALT), and crop management practices (crop rotation, tillage etc).
 - 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
377. **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.
378. **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.
379. **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.
380. **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

381. Outcome 3 of the ADS is Profitable Commercialization. The outcome is achieved through 8 outputs and 42 activities illustrated in Table 31 and detailed in the following sections.

Table 31: 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

Outcome	Output	Activity	
3			Profitable commercialization
	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	Promote financial institution viability
		3.4.1.3	Facilitate development of a range of financial products for agriculture
		3.4.1.4	Provide incentives for agricultural finance
		3.4.1.5	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 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
	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

Outcome	Output	Activity	
3			Profitable commercialization community

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

382. **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 agro-industry. 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 organizations 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).

383. Increase the participation of farmer’s organizations, 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.

384. 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.

385. **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.

386. **Implement the land use policy 2072 to stimulate commercial agriculture** such as on land plotting, land fragmentation, land ceilings, land tenancy, land pooling (see section 5.3.4 on Land)

387. **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

388. **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 market⁵⁷. If implementation of STA proves impractical,⁵⁸ 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.e. – 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 equipment⁵⁹; and (ii) establishing pledge registry either under STA or by amendment of Contracts Act, as described above.

389. **Capacity building in commercial agriculture.** The promotion of commercial agriculture through improved contractual arrangements, value development, and market intelligence,

⁵⁷ 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.

⁵⁸ The STA is a rather complex legislation which may not be suitable as an initial mechanism for using movables as collateral.

⁵⁹ 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.

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 Agriculture Sector

390. **Develop tax policy supportive of an efficient commercial agriculture 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.

391. **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. 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.
- c. 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.

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- d. 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.
 - e. Provide training in financial management for farmers, cooperatives, agri-entrepreneurs, rural women and rural youth, to enhance agricultural enterprise creditworthiness.

392. **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) (Amendment 2016), 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

393. **Prioritize a limited number of 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 and others identified by NADSIC.

- 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 Program manager will be responsible for coordination of projects and

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- 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.

394. **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.

395. **Enhance the development of prioritized value chains as identified by NADSIC. Nature of the programs and the budget would be similar to the examples of Dairy, Lentil, Maize, Tea and Vegetables studied by the TA team and cited herein.**

For example, 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.

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- iii. Technical assistance support in development of monitoring & knowledge management system.

396. **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.

397. **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, certified 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 /Municipality level with service of Leader Farmers as LRPs

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- 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.

398. **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 leaves 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.

399. **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

400. This will involve systematic efforts focused specifically on rural road and transport network expansion. ADS will support the following activities:

401. **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 sub-national levels for implementation of the policy.

402. **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.

403. **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

404. **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

405. **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

406. Outcome 4 of the ADS is Increased Competitiveness. The outcome is achieved through 4 outputs and 24 activities illustrated in Table 32 and detailed in the following sections.

Table 32: 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 in infrastructure and post production activities
		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 Capacity building (Physical and Human resource) of SPS and quarantine (Plant, food and animal) system.
		4.4.1.7	Establish regional laboratories and district offices for DFTQC
		4.4.1.8	Form Food Agency with authority under Food Act (medium term)
		4.4.1.9	Establish capacity for pest risk assessment, SPS management and surveillance
		4.4.1.10	Adopt One Health Approach and strengthen animal health surveillance, diagnostic, and response capacity
		4.4.1.11	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 Development

407. **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.

408. **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, and waste management).

409. **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 a part of the 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.

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

411. **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

412. **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.

413. **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 agroenterprises⁶⁰.

414. **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 (e.g. 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.

415. As experience with other matching grant schemes in Nepal shows (e.g. PACT and HVAP), 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

416. **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 new 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

⁶⁰ 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>

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- 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 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 Ministry of Industry (Mol) and Nepal Investment Board to contribute to improving the investment climate, to facilitate and regulate FDI, and to promote and attract FDI in agriculture 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. Enact Investment Acts and regulations that includes the promotion of investments, by providing for incentives for foreign investments in agriculture and agro-businesses.
 - iii. However, it will not open the Foreign Direct Investments in the primary production activities to ensure the rights of domestic farmers.
- 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 (e.g. tea). 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 agriculture 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

417. **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. Localize DFTQC by (i) establishing food quality control regional laboratories in all five regions; and (ii) establishing food quality regulation offices in all the districts.
 - h. 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.
 - i. 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.
 - j. 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).

- k. 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

418. Other Programs include ongoing MOAD, MOI, and MOFSC operations. Some of these operations and programs are not included in the Flagship Programs or Core Programs of the ADS. Many MOAD programs are related to the development of specific value chains different from the 5 prioritized value chains of the Flagship Programs. These programs can be supported through access to resources made available in the research and entrepreneurship matching grant funds (funds under NARF and INAGEP).

419. Some of the ongoing MOAD 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 33: Other Programs

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 might include 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

Sector	Program	Comment
		(possibly dairy)
	Livestock Market Development	In Core programs on Governance and Competitiveness
Agribusiness	Agribusiness and market development	In Core programs on Productivity and Competitiveness
Irrigation	Completion of current irrigation projects; MOI operations and maintenance; other programs	Some in core programs on productivity and Value Chain Flagship
Forestry	MOFSC Operations and other programs	Some in core programs on productivity



6 COSTS

6.1 Approach to Cost Estimation

420. The costs to implement the ADS Action Plan for the first 10 years (2014-2023), are estimated to be \$5,282 million (Rs 501.8 billion) in total. This amount covers implementation of the 232 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 eachVDC and Municipality)
- Statistics of rural population, women and disadvantaged groups,

421. 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)

422. The summary of ADS costs by component program is in Table 34.

Table 34: ADS Action Plan 10-year Cost Summary

	FANUSE P flagship 1	DESTE P flagshi p 2	VADEP flagshi p 3	INAGE P flagshi p 4	TOTAL FLAGSHI P	CORE PROGRAM S	OTHER PROGRAM S	TOTA L	PERCEN T
Governance	323	-	-	-	323	111	-	434	8
Productivity	-	662	-	-	662	1,300	-	1,962	37
Commercialization	-	-	766	-	766	226	-	992	19
Competitiveness	-	-	-	205	205	208	-	413	8
Other Programs							1,482	1,482	28
TOTAL USD million	323	662	766	205	1,955	1,845	1,482	5,282	100
TOTAL Rs billion	30.66	62.88	72.73	19.48	185.75	175.27	140.81	501.83	
Percent	6.1%	12.5%	14.5%	3.9%	37.0%	34.9%	28.1%	100.0	

423. 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

424. 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 38). Detailed costs for each of the 232 activities are included in APPENDIX 4, 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 related VDCs. These considerations will be relevant to Government and development partners in their portfolio planning, resourcing and execution.

425. 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.

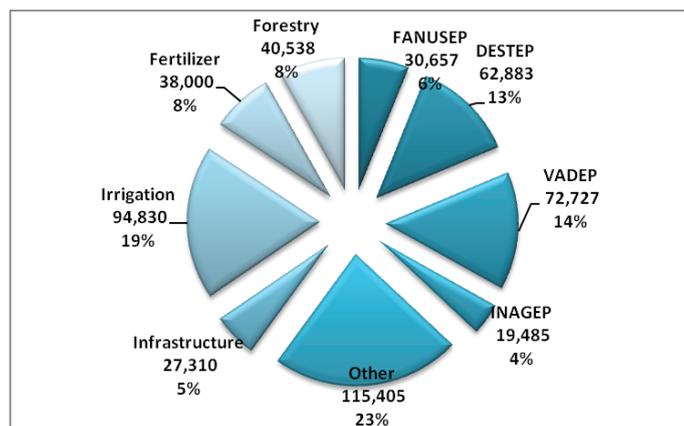


Figure 15: Composition of ADS Costs (Rs million)

6.3 Flagship and Core Programs: Complement not Duplicate

426. 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.

427. 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 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 prioritized value chains. This ensures there are adequate resources allocated to successfully develop the prioritizedvalue chains.

6.4 Financing by Private Sector, Community, Cooperatives and Farmers

428. 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.

429. Financing arrangements for many of the ADS activities that generate economic activity include cost sharing or public-private partnerships. Overall the ADS expects \$600 million (Rs 57 billion) contribution from the private sector, which is 11 percent of the total ten-year cost (Table 35). 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 35: Financing by Public and Private Sectors

ADS	Costs USD million				
	Outcome	Govt, Donor	Private, Community	Sub-total	percent
1	Governance	433	0.9	434	8
2	Productivity	1,823	140	1,962	37
3	Commercialization	613	378	992	19
4	Competitiveness	333	80	413	8
5	Other Programs	1,482	-	1,482	28.1
	TOTAL	4,683	600	5,282	100
	percent	89%	11%	100.0%	

6.5 ADS Costs and Government Budget for Agriculture

430. There has been some increase in budget expenditure allocation to agriculture sector over recent years. Indications⁶¹ for 2016-17 budget are reported here for a comparison with the proposed costs of the ADS. The MOF presents budgeted amount in different forms: by 'Economic Activity: Agency Allocation' (Table 36); 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 36: Indicative Agriculture Budget by Economic Activity - related agencies 2016-17

Budget Head	Planned Expenditure Rs'000			Planned Expenditure USD		
	Recurrent	Capital	Total	Recurrent	Capital	Total
MOAD	23,615,570	3,822,691	27,438,261	224,649,882	36,364,444	261,014,326
MOFSC	8,634,497	5,137,699	13,772,196	82,138,129	48,873,835	131,011,964
MOI	1,442,828	23,019,277	24,462,105	13,725,315	218,977,474	232,702,789
MOLPD	6,529,515	1,936,046	8,465,561	62,113,884	18,417,193	80,531,077
MOLRM	3,200,819	1,056,862	4,257,681	30,448,709	10,053,703	40,502,411
Total	43,423,229	34,972,575	78,395,804	413,075,918	332,686,649	745,762,567

Source: Red Book (2015/16), Ministry of Finance

⁶¹MOF (2016) Red Book

431. ADS will have a slight impact on the overall government Budget. The 2013/14 Budget for agriculture is expected to be about Rs 78 billion (\$ 746 million) per year including both capital (Rs 35 billion) and recurrent (Rs 43 billion) expenditure. The total is about eight percent of total budget expenditure.

432. The ADS inclusive of most current operations and programs will cost Government an average of Rs 44.5 billion/year⁶² in the 2010 prices., but not all can be considered additional to the existing recurrent and capital Budget amount. Annual costs of Rs 18 billion (\$188 million⁶³) are included in ADS as well as the 2013/14 Budget, so the additional annual ADS cost will be Rs 26.5 billion (ADS Rs 44.5 billion, less Rs 18 billion already included) (\$214 million). This implies an annual Budget for agriculture inclusive of ADS program (funded by government and donors) of about Rs 66 billion (\$695 million)⁶⁴, increasing agriculture’s share of Budget from 10% to perhaps 16% of the total. The increase in the annual Budget is manageable with assistance from development partners, and represents a 65% increase relatively to the Budget 2013/2014.

433. Internationally, governments have increased spending on agriculture since the 2006 food price crisis; such spending built up till 2010 and has tended to fall thereafter (Figure 16).

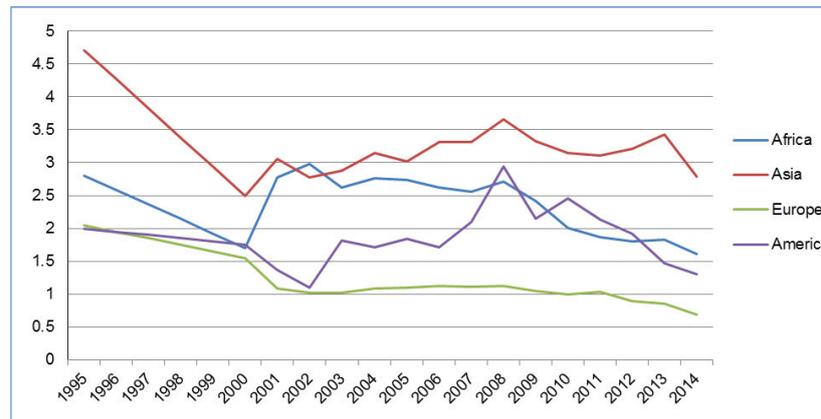


Figure 16: International Trend in Percent Budget Expenditure on Agriculture

⁶²i.e. not including Rs 5.7 billion funded by private sector and communities.

⁶³The major cost items included in ADS and 2011/12 Budget which should not be double counted are: i) fertilizer subsidy (approximately Rs 3.8 billion (\$40 million)), (ii) completion of ongoing surface irrigation schemes that have funding in place (approximately Rs 5.9 billion (\$62 million)); forestry programs (approximately Rs 7.3 billion (\$77million)), and ongoing agriculture programs (approximately Rs 1 billion (\$9.6 million)). Total of these costs is Rs 18 billion (\$188 million).

⁶⁴i.e Rs 40 billion 2013/14 plus Rs 26 billion net annual ADS totals Rs 66 billion.

Source: For 1995 and 2000, visualization and interpolated for 1996 to 1999; For 2001 to 2014, FAOSTAT online statistics database⁶⁵

434. 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.

435. There is rationale and scope to increase the budget concentration on agriculture. Agriculture contributes about 36 % of Nepal's GDP and allocates 8% of its budget to agriculture in 2005 (Table 37). 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 0.27 in 2005, which increased to 0.32 by 2013⁶⁶ compared to Nepal's 0.23 in 2005, which increased to 0.42 by 2013. 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 37: International comparison of budget orientation to agriculture

Country	Year 2005			Year 2013		
	Agricultural GDP	Agricultural Budget	Budget Orientation to Agriculture	Agricultural GDP	Agricultural Budget	Budget Orientation to Agriculture
Nepal	36.35%	8.23%	0.23	35.04%	14.81%	0.42
India	18.81%	4.98 %	0.27	18.63%	6.0 0%	0.32
China	11.73%	7.22	0.62	9.41%	9.50%	1.01
Asia (11 countries)*	6.00%	9.00%	1.50	10.23%	9.17%	0.90

* Eleven countries of Asia includes Bangladesh, China, India, Indonesia, Korea, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka and Thailand

Sources: FAO STAT (2016), World Bank WDI (2016), China Statistical Year Book, <http://www.stats.gov.cn/> (2006 & 2014), Asia Development Bank (2015) & Center for Economic and Social Development, <https://myanmarcesd.org/> (2016)

⁶⁵ Source: <http://www.faostat3.fao.org/download/I/IG/E>

⁶⁶ Source: Union Budget 2013-14, MOF India had referred to data for year 2010; but data from FAOSTAT for 2005 has been used here for comparability.

⁶⁷ S. Akroyd and L. Smith, 2007. Review of Public Spending to Agriculture, DFID/ World Bank Study, Oxford Policy Management, London UK. This study used data pertaining to year 2005.

436. 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.

437. 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 and February 2015 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 to 2014-15.

Table 38: ADS Action Plans Cost by Output and Proposed Implementing Agency

ADS ACTION PLANS		Implementati on	10-yr COSTS SUMMARY BY OUTCOME			
Outcome	Output		Main Agencies	Govt, Donor	Private, Communi ty	Output total
1	Improved Governance		41,100	87	-	41,187
1.1	Credibility of policy commitment and farmers' rights	MOAD	331	11	342	-
1.2	Improved coordination in ADS implementation	NPC, MOAD	761	-	761	-
1.3	Integrated planning	NPC, MOAD	105	-	105	-
1.4	Effective implementation support	NPC, MOAD	669	-	669	-
1.5	Mechanisms established for gender equality and social and geographic inclusion	MOAD, MOCPR	2,043	-	2,043	-
1.6	Timely and effective monitoring and evaluation	MOAD	1,620	76	1,696	-
1.7	Mechanisms established for participation of civil society	NPC, MOAD	1,663	-	1,663	-
1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation	NPC, MOAD	2,446	-	2,446	-
1.9	Improved food and nutrition security of most disadvantaged groups and rights to food	MOAD, FANUSEP	30,657	-	30,657	-
1.10	Performance-based management system with rewards to the performers established	MOAD	808	-	808	-
2	Higher Productivity		173,073	13,283	-	186,356
2.1	A decentralized extension system responsive to farmers and agroenterprises' needs	DOA, DLS, DESTEP, CAESC	46,313	1,924	48,237	-
2.2	Decentralized research system responsive to farmers and agroenterprises' needs	DOA, DLS, DESTEP, CAESC	9,749	-	9,749	-
2.3	A strengthened agricultural education system	MoEdu, DESTEP	4,779	119	4,897	-
2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably	MOLRM	3,090	-	3,090	-
2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	MOI	57,518	8,051	65,569	-
2.6	Timely access to quality agricultural inputs at affordable price.	MOAD	57	-	57	-
2.7	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	MOAD	815	411	1,226	-
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	41,337	2,197	43,534	-
2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	MOAD	496	297	793	-
2.10	A range of mechanization options accessible to farmers through the private sector.	MOAD, MOCS	1,120	166	1,286	-
2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	MOAD, MOEnv	3,420	-	3,420	-
2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established and adopted.	MOAD, MOEnrgy	404	119	523	-
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	MOFSC	3,976	-	3,976	-

439. In the first five years there are greater expenses particularly for:
- Governance: support for reforms including legislation, regulation, standards, strengthening farmers' rights, and food security;
 - Productivity: including capacity building for farmers and service providers, facilities, and irrigation;
 - Current other programs which will be completed, incorporated into ADS core and flagship programs, or phased out (Figure 17).

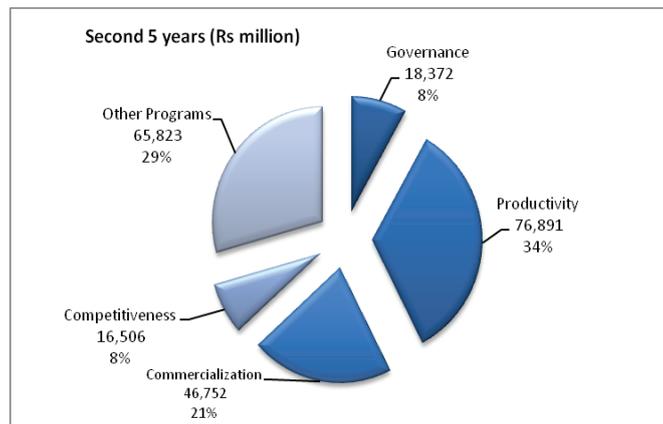
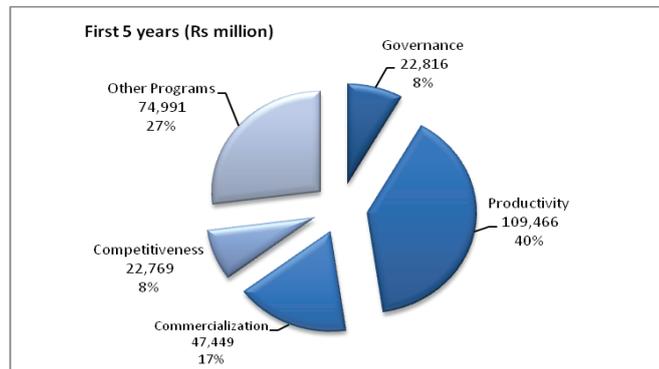


Figure 17: Cost Portions by Five Year Periods

Table 40: Costs over Five Year Periods by Output (Rs million)

Outcome	Output		Costs Rs million)		
			First 5 years 2015-2020	Second 5 years 2020-2025	Total
1		Improved Governance	22,816	18,372	41,187
	1.1	Credibility of policy commitment and farmers' rights	342	-	342
	1.2	Improved coordination in ADS implementation	405	356	761
	1.3	Integrated planning	52	52	105
	1.4	Effective implementation support	502	167	669
	1.5	Mechanisms established for gender equality and social and geographic inclusion	1,026	1,017	2,043
	1.6	Timely and effective monitoring and evaluation	1,394	302	1,696
	1.7	Mechanisms established for participation of civil society	831	831	1,663
	1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation	1,734	713	2,446
	1.9	Improved food and nutrition security of most disadvantaged groups and rights to food	15,723	14,934	30,657
	1.10	Performance-based management system with rewards to the performers established	808	-	808
2		Higher Productivity	109,466	76,891	186,356
	2.1	A decentralized extension system responsive to farmers and agroenterprises' needs	26,625	21,613	48,237
	2.2	Decentralized research system responsive to farmers and agroenterprises' needs	9,749	-	9,749
	2.3	A strengthened agricultural education system	3,401	1,496	4,897
	2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably	1,760	1,330	3,090
	2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	36,000	29,569	65,569
	2.6	Timely access to quality agricultural inputs at affordable price.	57	-	57
	2.7	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	1,226	-	1,226
	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.	23,703	19,831	43,534
	2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	793	-	793
	2.10	A range of mechanization options accessible to farmers through the private sector.	1,286	-	1,286
	2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	2,518	903	3,420

Outcome	Output		Costs Rs million)		
			First 5 years 2015-2020	Second 5 years 2020- 2025	Total
	2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established and adopted.	285	238	523
	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.	2,064	1,912	3,976
3		Profitable Commercialization	47,449	46,752	94,201
	3.1	Improved investment climate for agricultural commercialization	182	-	182
	3.2	Contract arrangements for commercial agriculture	386	380	766
	3.3	Tax policy that supports an efficient commercial agriculture sector	6	-	6
	3.4	A variety of competitive and demand-driven financial and agricultural insurance products.	298	-	298
	3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	36,390	36,338	72,727
	3.6	Rural roads network expanded	6,379	6,234	12,613
	3.7	Agricultural market information and ITC products for market intelligence.	238	238	475
	3.8	Expanded rural electrification and renewable energies	3,572	3,563	7,135
4		Increased Competitiveness	22,769	16,506	39,276
	4.1	Market infrastructure developed	3,928	3,634	7,562
	4.2	Growth of innovative small and medium agribusiness enterprises	9,747	9,738	19,485
	4.3	Growth of food and agricultural products exports	264	238	502
	4.4	Enhanced food quality and safety	8,830	2,898	11,728
5		Other Programs	74,991	65,823	140,814
			-	-	-
		TOTAL	277,491	224,344	501,835

6.7 ADS Recurrent and Capital Costs

440. ADS costs are estimated as 47% recurrent and 53% capital expenditure (Table 41). The main types of recurrent costs are for human resources, fertilizer subsidy, regulatory reforms and capacity building for farmers and service providers, and research and extension. The main types of capital costs are for infrastructure (irrigation, roads, facilities construction and rehabilitation), plant and equipment, and establishment of fund capital (e.g. NARF, Innovation Fund). A more detailed description is in Table 42. Recurrent costs are relatively higher for Productivity (major recurrent items are fertilizer subsidy and capacity building), while capital costs are higher for Governance, Commercialization and Competitiveness (Figure 18).

Table 41: Summary of Recurrent and Capital Costs

Summary of Expenditure by Type	Rs million		
	Recurrent	Capital	Total
Governance	17,237.8	23,949.5	41,187.3
Productivity	101,946.4	84,409.9	186,356.3
Commercialization	32,831.3	61,370.0	94,201.3
Competitiveness	13,945.6	25,330.0	39,275.6
Other Programs	69,346.5	71,467.8	140,814.3
Total	235,307.5	266,527.2	501,834.7
Percent	47%	53%	

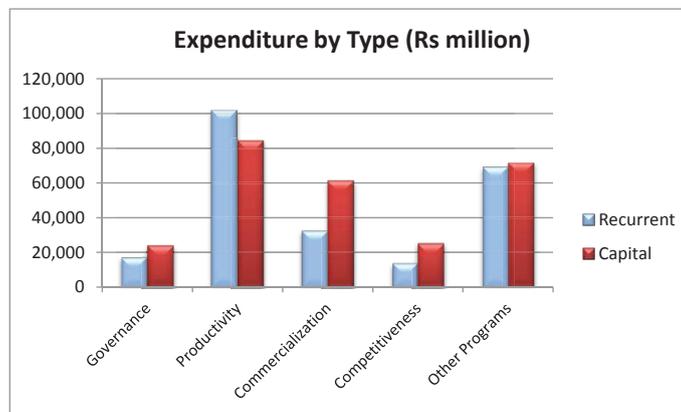


Figure 18: Summary of Recurrent and Capital Costs

Table 42: Recurrent and Capital Costs by Output

Output	10-YEAR COSTS SUMMARY	Costs Rs million			Major recurrent expenses	Major capital expenses
		Recurrent	Capital	Total		
	Improved Governance	17,238	23,950	41,187		
1.1	Credibility of policy commitment and farmers' rights	342	-	342	Awareness campaigns, legislation, review	
1.2	Improved coordination in ADS implementation	761	-	761	Central, regional and district operations	
1.3	Integrated planning	105	-	105		
1.4	Effective implementation support	669	-	669	Technical assistance	
1.5	Mechanisms established for gender equality and social and geographic inclusion	2,043	-	2,043	District GESI staff and training	
1.6	Timely and effective monitoring and evaluation	1,696	-	1,696	Agricultural Census	
1.7	Mechanisms established for participation of civil society	1,663	-	1,663	District information centres	
1.8	Enhanced capacity of key institutions involved in ADS coordination and implementation	2,209	238	2,446	Capacity building	Construction of facilities and equipment
1.9	Improved food and nutrition security of most disadvantaged groups and rights to food	6,945	23,712	30,657	Activities including demonstrations, inputs, food distribution, monitoring, safety net	Facilities and equipment, for example small irrigation, warehouses, collection centers, market facilities at the village level; also small processing equipment
1.10	Performance-based management system with rewards to the performers	808	-	808	pilot project	

Output	10-YEAR COSTS SUMMARY	Costs Rs million			Major recurrent expenses	Major capital expenses
		Recurrent	Capital	Total		
	established					
	Higher Productivity	101,946	84,410	186,356		
2.1	A decentralized extension system responsive to farmers and agroenterprises' needs	39,640	8,598	48,237	Capacity building, demonstration inputs, salary support	Facilities and equipment at agriculture and livestock centres, sub-centers and CAESC; equipment for demonstrations;
2.2	Decentralized research system responsive to farmers and agroenterprises' needs	11	9,738	9,749		Construction, equipment, research fund
2.3	A strengthened agricultural education system	2,997	1,900	4,897	Educational supplies, ICT, etc	Construction of facilities and equipment
2.4	A farming sector composed of adequately sized farms that use land efficiently and sustainably	620	2,470	3,090	legislation and administration	Land rehabilitation, equipment
2.5	Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	12,189	53,381	65,569	Capacity building, demonstrations, administrative support	Construction and equipment
2.6	Timely access to quality agricultural inputs at affordable price.	57	-	57	policy and voucher scheme regulation	
2.7	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	596	629	1,226	capacity building, regulation, research	Construction of facilities and equipment

Output	10-YEAR COSTS SUMMARY	Costs Rs million			Major recurrent expenses	Major capital expenses
		Recurrent	Capital	Total		
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.	39,971	3,563	43,534	fertilizer subsidy, demonstrations, training, research	Construction, equipment, reserve stock
2.9	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	200	594	793	capacity building, regulation, research	Construction of facilities and equipment
2.10	A range of mechanization options accessible to farmers through the private sector.	823	463	1,286	tax incentives, capacity building	Farm machinery
2.11	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	1,235	2,185	3,420	research, capacity building, inputs	Welfare fund
2.12	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established and adopted.	523	-	523	capacity building	Disaster fund, reserve stock, equipment and construction
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.	3,085	891	3,976	capacity building, research, materials	Land conservation works, equipment

Output	10-YEAR COSTS SUMMARY	Costs Rs million			Major recurrent expenses	Major capital expenses
		Recurrent	Capital	Total		
	Profitable Commercialization	32,831	61,370	94,201		
3.1	Improved investment climate for agricultural commercialization	182	-	182	regulation	
3.2	Contract arrangements for commercial agriculture	766	-	766	farmer capacity building	
3.3	Tax policy that supports an efficient commercial agriculture sector	6	-	6		
3.4	A variety of competitive and demand-driven financial and agricultural insurance products.	298	-	298	loan finance, capacity building	
3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	31,117	41,610	72,727	Capacity building, demonstrations, research	Collection centers, processing facilities, small irrigation, equipment, etc. at VDC, District and regional level
3.6	Rural roads network expanded	73	12,540	12,613		Road construction
3.7	Agricultural market information and ITC products for market intelligence.	380	95	475	Information services	Construction of facilities and equipment
3.8	Expanded rural electrification and renewable energies	10	7,125	7,135		Energy infrastructure
	Increased Competitiveness	13,946	25,330	39,276		
4.1	Market infrastructure developed	437	7,125	7,562	planning, regulation, training	market infrastructure
4.2	Growth of innovative small and medium agribusiness enterprises	8,370	11,115	19,485	Youth, women and disadvantaged, for example capacity building, business development support	Construction of facilities and equipment for business incubators and PPP

Output	10-YEAR COSTS SUMMARY	Costs Rs million			Major recurrent expenses	Major capital expenses
		Recurrent	Capital	Total		
4.3	Growth of food and agricultural products exports	312	190	502	regulation, capacity building, international negotiation	Construction of facilities and equipment
4.4	Enhanced food quality and safety	4,828	6,900	11,728	regulation, standards, certification and capacity building for farmers, agribusiness and services	Construction of facilities and equipment including for laboratories and border biosecurity
	Other Programs	69,347	71,468	140,814	staff costs, demonstrations, research	Irrigation, soil conservation, facilities and equipment
	TOTAL	235,308	266,527	501,835		

6.8 Costs by Subsector

441. An indicative estimation of ADS costs allocated by subsector (crops, livestock, fisheries, forestry, irrigation, research, infrastructure, and other) shows that 84% of expenses will be for development of crops, irrigation, forestry and livestock subsectors (Figure 19). For each ADS outcome the total by subsector and is provided in Table 43, and in more detail by activity output in Table 44, however the reader should be aware that these allocations are intended as a guide only. Some costs for items such as for food and nutrition security, extension and capacity building, and innovation will be spread across multiple sub-sectors and to some degree will be determined by needs and demand.

Table 43: Costs by sub-sector

Expenditure by Subsector Summary (Rs million)	Crops	Livestock	Forestry	fisheries	Irrigation	Research	Infra structure	Other
Governance	7,415.7	7,415.7	2,964.0	1,482.0	2,964.0	2,964.0	2,964.0	13,017.9
Productivity	71,213.9	26,199.1	6,217.8	171.0	65,911.0	11,387.7	3,021.0	2,234.9
Commercialization	63,650.0	7,600.0	-	-	-	-	19,747.7	3,203.6
Competitiveness	9,218.8	10,643.8	2,922.7	974.2	-	-	10,187.0	5,329.1
Other Programs	1,852.5	5,415.0	73,124.3	285.0	58,522.5	-	-	1,615.0
Total	153,350.9	57,273.6	85,228.7	2,912.2	127,397.5	14,351.7	35,919.7	25,400.5

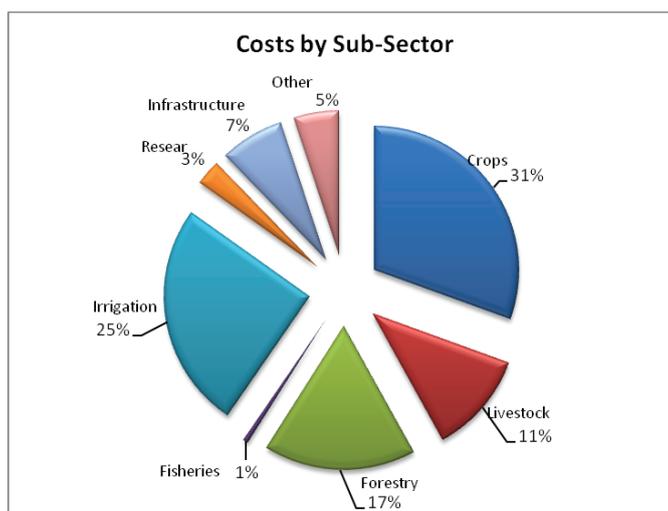


Figure 19: Costs by Sub-sector

Outcome	Output	Costs Rs million										Total
		Crops	Livestock	Forestry	Fisheries	Irrigation	Research	Infrastructure	Other			
	Total	7,416	7,416	2,964	1,482	2,964	2,964	2,964	13,018	41,187		
1	Improved Governance											
	1.1 Credibility of policy commitment and farmers' rights	-	-	-	-	-	-	-	342			
	1.2 Improved coordination in ADS implementation	-	-	-	-	-	-	-	761			
	1.3 Integrated planning	-	-	-	-	-	-	-	105			
	1.4 Effective implementation support	-	-	-	-	-	-	-	669			
	1.5 Mechanisms established for gender equality and social and geographic inclusion	-	-	-	-	-	-	-	2,043			
	1.6 Timely and effective monitoring and evaluation	-	-	-	-	-	-	-	1,696			
	1.7 Mechanisms established for participation of civil society	-	-	-	-	-	-	-	1,663			
	1.8 Enhanced capacity of key institutions involved in ADS coordination and implementation	-	-	-	-	-	-	-	2,446			
	1.9 Improved food and nutrition security of most disadvantaged groups and rights to food	7,416	7,416	2,964	1,482	2,964	2,964	2,964	2,487			
	1.10 Performance-based management system with rewards to the performers established	-	-	-	-	-	-	-	808			
2	Higher Productivity	71,214	26,199	6,218	171	65,911	11,388	3,021	2,235	186,356		
	2.1 A decentralized extension system responsive to farmers and agroenterprises' needs	23,207	23,207	-	-	-	-	1,824	-			
	2.2 Decentralized research system responsive to farmers and agroenterprises' needs	-	-	-	-	-	9,692	57	-			
	2.3 A strengthened agricultural education system	817	817	342	171	342	1,268	1,140	-			
	2.4 A farming sector composed of adequately sized farms that use land efficiently and sustainably	-	-	1,900	-	-	-	-	1,190			

Outcome	Output	ADS Activity Output Costs by Subsector												
		Total	Crops	Livestock	Forestry	Fisheries	Irrigation	Research	Infrastructure	Other	Total			
		Irrigated area expanded equitably and viably, and improved irrigation efficiency and management.	-	-	-	-	65,569	-	-	-	-	-	-	-
	2.5	Timely access to quality agricultural inputs at affordable price.	29	29	-	-	-	-	-	-	-	-	-	-
	2.6	Effective implementation of existing seed policies including Seed Vision 2025 through sufficient investment in resources and capacity building.	988	-	-	-	-	238	-	-	-	-	-	-
	2.7	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.	43,534	-	-	-	-	-	-	-	-	-	-	-
	2.8	A variety of improved animal breeds appropriate for the Nepal farming systems conditions are available to farmers.	-	793	-	-	-	-	-	-	-	-	-	-
	2.9	A range of mechanization options accessible to farmers through the private sector.	1,286	-	-	-	-	-	-	-	-	-	-	-
	2.10	Improved resilience of farmers to climate change, disasters, price volatility and other shocks.	1,093	1,093	-	-	-	190	-	-	-	-	1,045	-
	2.11	Sustainable farming, good agricultural practices (GAP), good veterinary animal husbandry (GVAHP) are established and adopted.	261	261	-	-	-	-	-	-	-	-	-	-
	2.12	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.	-	-	3,976	-	-	-	-	-	-	-	-	-
3		Profitable Commercialization	63,650	7,600	-	-	-	-	-	-	-	19,748	3,204	94,201

Outcome	Output	ADS Activity Output Costs by Subsector										Total		
		Crops	Livestock	Forestry	Fisheries	Irrigation	Research	Infrastructure	Other	Total				
		Costs Rs million												
		Total												
	3.1	Improved investment climate for agricultural commercialization	-	-	-	-	-	-	-	-	-	-	182	
	3.2	Contract arrangements for commercial agriculture	-	-	-	-	-	-	-	-	-	-	766	
	3.3	Tax policy that supports an efficient commercial agriculture sector	-	-	-	-	-	-	-	-	-	-	6	
	3.4	A variety of competitive and demand-driven financial and agricultural insurance products.	-	-	-	-	-	-	-	-	-	-	298	
	3.5	Competitive agricultural value chains that increase value added and benefits to smallholder farmers and agroenterprises	63,650	7,600	-	-	-	-	-	-	-	-	1,477	
	3.6	Rural roads network expanded	-	-	-	-	-	-	-	-	12,613	-	-	
	3.7	Agricultural market information and ITC products for market intelligence.	-	-	-	-	-	-	-	-	-	-	475	
	3.8	Expanded rural electrification and renewable energies	-	-	-	-	-	-	-	-	7,135	-	-	
4		Increased Competitiveness	9,219	10,644	2,923	974	-	-	-	-	10,187	7,562	5,329	39,276
	4.1	Market infrastructure developed	-	-	-	-	-	-	-	-	-	-	-	-
	4.2	Growth of innovative small and medium agribusiness enterprises	7,794	7,794	2,923	974	-	-	-	-	-	-	-	-
	4.3	Growth of food and agricultural products exports	-	-	-	-	-	-	-	-	-	-	-	502
	4.4	Enhanced food quality and safety	1,425	2,850	-	-	-	-	-	-	2,625	-	4,828	-
5		Other Programs	1,853	5,415	73,124	285	58,523	-	-	-	-	-	1,615	140,814
		TOTAL	153,351	157,274	85,229	2,912	127,398	14,352	35,920	25,400	501,835	501,835	501,835	501,835

7 IMPLEMENTATION ARRANGEMENTS

7.1 Introduction

442. 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 agriculture sector that drives economic growth, and contributes to improved livelihoods, and food and nutrition security leading to food sovereignty.”**

443. The agriculture 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.

444. 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 agriculture 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

445. The implementation of the ADS will entail the combination of traditional and new mechanisms. The traditional way of implementing strategies and plans for the agriculture 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.

446. 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.

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

448. 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

449. A bird's view of the ADS implementation is presented in Figure 20. 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.

450. 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.

451. 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.

452. 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.

453. 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 2: The ADS Mechanisms

Organizations

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

National 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
6. Other Programs

Leading Stakeholders

1. Ministry of Agricultural Development, National Planning Commission and other government agencies
2. Farmer Organizations
3. Cooperative Organizations
4. Private Sector Organizations

454. A summary of the key actors and their role in the implementation of the ADS is provided in Table 45.

Table 45: 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	
NADSIC	National ADS Implementation Committee. Guides and ensures overall implementation of the ADS.	<ul style="list-style-type: none"> • Chaired by Minister of MOAD
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 	

Actors	Role in the ADS	Comments
	<ul style="list-style-type: none"> • 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
ADSISU	ADS Implementation Support Unit. Facilitates implementation of ADS through capacity building, communication activities, support services, and monitoring and evaluation support. It provides support to the NADSCC, other coordination committee, implementation agencies, and flagship program managers.	<ul style="list-style-type: none"> • ADSISU Team established as unit to support ADS. ADS Coordination Section will act as ADSISU • 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"> • Flexible implementation modality to be agreed by GON and Development Partners • Basically will be led by the Government of Nepal
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	<ul style="list-style-type: none"> • DOA, DLS, DFTQC; and NARC involved in the implementation of activities of the ADS

Actors	Role in the ADS	Comments
	the board of all the ADS Flagship programs.	
Other Ministries	Include MOI, MFALD, 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"> DSTEP established by Act as a professional society DSTEP manager selected by Recruitment Committee established by NADSICCoordinates with implementing agencies NARC, DOA/DLS, Agricultural University,...
VADEP Flagship 3	Value Chain Development Program. Coordinates prioritized value chains programs , 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 by MoAD 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 as a professional society INAGEP manager selected by MoAD
National Peasants' Coalition	A coalition of farmer organizations with representatives from 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.	
Farmers' Commission	Ensures the farmers rights	<ul style="list-style-type: none"> TOR, Acts, Regulations will be developed at the initial years of ADS implementation

Actors	Role in the ADS	Comments
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.	

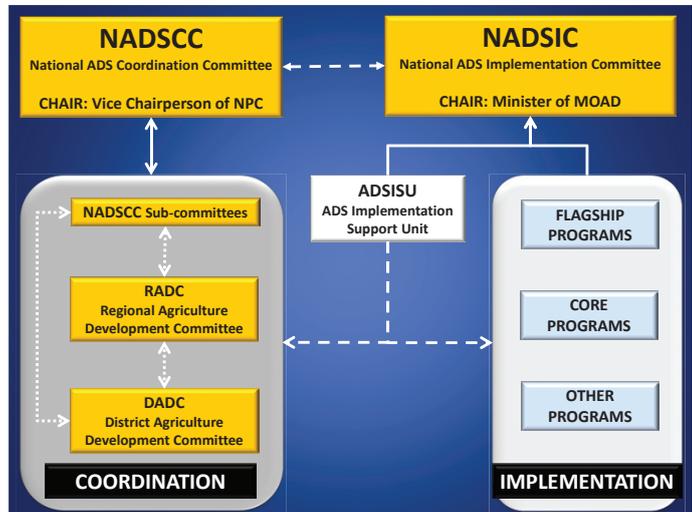


Figure 20: ADS Implementation and Organization Mechanisms

7.4 The Prime Minister

455. 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)

456. 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.

7.6 The National ADS Implementation Committee (NADSIC)

457. A National ADS Implementation Committee (NADSIC) will be established, which will be chaired by Hon. Minister for Agricultural Development, with Hon VC of NPC as co-chair, Hon member of NPC (Agriculture Sector), VC University of Agriculture and Forestry, Secretaries from the Ministries of Finance, Irrigation, Forestry, Federal Affairs and Local Development, Cooperative and Poverty Alleviation, Land Reform and Management, Education, Presidents of FNCCI and CNI, representative of National Peasant's 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. Ensure the implementation of ADS by promoting policy, administrative and legislative changes in responsible institutions.
- ii. Ensure resource mobilization both from internal (public and private) and external sources.
- iii. Provide guidance to the line ministries and the stakeholders to facilitate ADS programs and projects implementation from the grassroots to the national level.
- iv. To act as the Project Steering Committee for the TA which supports ADS implementation,
- v. Together with NADSCC and the NPC, organize periodic assessment of the ADS and recommend adjustments.
- vi. Adjust ADS Programs, and institutional structure as per the upcoming federal structure.

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

458. The National ADS Coordination Committee will coordinate the ADS at the national level through periodic meetings. The NADSCC will be established at NPC and its composition will include representatives of farmer organizations, private organizations, and cooperative organizations. The NADSCC is the national coordination committee of institutions involved in the ADS and will be 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. National 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)

7.8 CADIC, RADC, DADC

459. 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.

460. 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.

461. 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.

462. 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.

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

464. 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.

465. 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.

7.9 ADS Implementation Support Unit (ADSISU)

466. 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, will greatly contribute to bridging the gap between policy and implementation. The unit will be established at MOAD and will support the ADS implementation and capacity building of related stakeholders and the agencies involved in ADS implementation and coordination. The main ADSISU at the MOAD(focal division: Policy and International Cooperation Coordination Division)will work with subunits of ADSISU that will operate at NPC, MOF, MOI, MFALD, FNCCI, and in Agriculture and Forestry University and Tribhuwan University.

467. 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.

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

469. 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)

470. 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) to be established with a flexible implementation modality agreeable to both GON and development partners. However, the implementation of the ATF will be led by the Ministry of Agricultural Development. Resources in the ATF 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.

7.11 The Ministry of Agricultural Development (MOAD)

471. The MOAD leads the implementation of the ADS. The Minister of MOAD will chair the NADSI; the Secretary MOAD will be (i) Member Secretary of the NADSI; (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

472. 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).

473. 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

474. 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

475. 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.

476. 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.

477. Some 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.

478. 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).

479. Over time, the ADS will include only two types of programs, namely the Flagship and the Core Programs. The existing Other Programs (see Table 33) will be either discontinued after their completion or will be absorbed in a new formulation of Flagship and Core Programs.

Table 46: Flagship and Core Programs of the ADS

No.	OUTCOME/Output	FLAGSHIP PROGRAMS	CORE PROGRAMS
	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		√

No.	OUTCOME/Output	FLAGSHIP PROGRAMS	CORE PROGRAMS
2.6	Access to agricultural inputs		√
2.7	Implementation of seed policies		√
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, GMP 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

480. 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)

481. 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.

482. 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 7.7). The ADS in general and FANUSEP in particular will align with the MSNP a five year program already approved by the GON.

483. 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)

484. The Flagship Program DESTEP 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.

485. The program will be implemented through a Program Manager deputed by the Ministry of Agricultural Development. The DESTEP 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.

486. 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.

487. 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, Institute of Agriculture and Animal Sciences and Agricultural Colleges.

7.17.1 Community Agricultural Extension Service Centers (CAESC)

488. 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 3,157 VDC and 217 municipalities (MOF: Ministry-wise Progress Report 2072/73).

489. 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.

490. 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/ Municipality and funded by the combination of resources from the VDC/Municipality, cooperatives, private sector, and GON.

491. 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 DESTEP 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.

492. 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.

493. 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.

494. 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.

495. 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.

496. 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.

497. 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.

498. 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

499. 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 NARDF 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.

500. 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

501. The integration with the agricultural education system will include support to the Agriculture and Forestry University, Tribhuvan University, creation of a department of agribusiness in those university, capacity building of vocational schools, inclusion of agriculture courses in school curricula and support to the establishment of agricultural colleges in the districts wherever it seems feasible. 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.

502. Accelerated growth of agriculture 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 agriculture sector, this declining trend investment in agricultural education has to be reversed.

7.18 Value Chain Development Program (VADEP)

503. 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 chains⁶⁸ 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 will be developed through comprehensive and integrated measures that result in strengthened value chain linkages, increased PPP investment and value added with sector impact.

504. 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.

505. The Manager of VADEP will be deputed by the Ministry of Agricultural Development. The Manager will be a highly regarded professional with in-depth experience in agricultural value chain development, project management, and business development. 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.

⁶⁸The potential value chain commodities will be decided by the NADSIC as per the dynamic priority of the country .

7.18.1 Value Chain Development Alliances (VCDA)

506. 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.

507. 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. The Board will include 6 elected members and 7 non-elected members. The non-elected members will be nominated by GON and include representatives from MOAD, MoF, NPC, MOI, MFALD, FNCCI, and NRB. The Board will be chaired by MOAD representative. 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)

508. 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.

509. The program will be implemented through a Program Manager deputed by the Ministry of Agricultural Development. The INAGEP Manager will facilitate the growth of innovative small and medium agroenterprises improved tax incentives, establishment of agribusiness incubators, and matching grants.

510. 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 INAGEP 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

511. In addition to the public sector, the leading stakeholders in the ADS will be the farmers and their commission, cooperatives, Value Chain actors, private agroenterprises, and their organizations (eg the National Peasants' Coalition, the National Cooperatives Federation, National Farmers Group 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.

512. 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 agriculture sector, the ADS has involved farmer organizations in the formulation stage and will continue to involve them during implementation, monitoring, evaluation, and periodic reviews.

513. 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

514. 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

515. The rights of the leading stakeholders in the ADS are institutionalized as follows. Representatives of Farmer commission, 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 PICCD at MOAD
- viii. Steering Committee for the periodic 5-year Review, Evaluation, and Updating Committee of the ADS.
- ix. NeKSAP District Food Security Network

516. 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

517. 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
- Association of VDC
- Media
- Producer Organizatopm

518. 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 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.

7.22 Organizational Changes in MOAD and related Institutions

519. As a multisector development strategy, the ADS requires adequate mechanisms to facilitate coordination and implementation at the national and local level. A number of mechanisms have been described in the previous sections including the NADSIC, the NADSCC, the ATF, and the flagship programs. In the case of MOAD and its Departments, the following sections will further elaborate the organizational changes needed to facilitate implementation of the ADS.

520. The guiding principle of reorganizing MOAD and related Departments is to improve effectiveness in implementation of ADS. The restructuring should keep into account the division of responsibility between MOAD and Departments. MOAD is responsible for formulation of policy, overall coordination and planning, development of legislative frameworks, budgetary allocation, ensuring adherence to international and regional commitments, trade promotion, and overall monitoring and evaluation of the agriculture sector; the Departments are responsible for implementation and technical backstopping of the related subsectoral programs.

521. The restructuring of MOAD proposed in the ADS includes the following:
- a. Establish a Policy and International Cooperation and Coordination Division (PICCD);
 - b. Establish an Agricultural Trade Division;
 - c. Creation of ADS Implementation Support Unit -the PICCD ;
 - d. Assure open placement of professional and technical staff from within MOAD positions for all competent and qualified staff irrespective of their original faculty or departmental specialization.

522. The restructuring of NARC towards a more decentralization structure has been discussed in section 5.3.2. For the DFTQC, the ADS suggests (i) to establish food quality control regional laboratories in all five regions; and (ii) to establish food quality regulation offices in all districts. For the DOA, the ADS suggests to consider a detailed study for the establishment of a separate Department of Horticultural Development. The ADS does not suggest any specific restructuring of DLS at this stage.

523. For the Agriculture and Forestry University and agricultural colleges the ADS suggests: (i) to establish agricultural colleges in the districts wherever it seems feasible; (ii) to establish an

agribusiness department in the Agriculture and Forestry University; and (iii) to establish a Technology Dissemination Department in the Agriculture and Forestry University.

524. The ADS also indicates the need of an in depth administrative and management survey of MOAD and related department (see paragraph 287).

7.23 Exit Strategy for APP

525. The preparation of the ADS and its approval by the GON will coincide approximately with the ending of the APP in 2014. The APP has been reviewed at different stages; an early review was conducted in 2001-2005 during the Agriculture Sector Performance Review (ASPR) and more recently in 2006 with the APP Implementation Status Report (APP-ISR). In the period subsequent to 2007, it was increasingly perceived by different stakeholders in the Government of Nepal (GON) and society at large that the initial formulation of the APP required revision in view of several factors including (i) a new national and international context; (ii) a general perception that the APP had not been successful in achieving its main targets; and (iii) the period of validity of the APP (1995-2014) approaching its end and the need of a new long-term strategy.

526. The review conducted by the ADS TA team has highlighted a mixed performance of the APP and highlighted some key lessons. Some of the key ideas that were formulated under the APP remain valid in the ADS including the focus on research and extension and technology as a driver of growth, the emphasis on commercialization of smallholder farmers, the recognition of women as critical human factor in agriculture, the importance of rural infrastructure (particularly rural roads and rural electrification) for agricultural development.

527. At the same time, several new approaches and programs are required for the ADS that were not part of the APP such as the role of governance; the role of farmers, cooperatives, and private sector in planning, decision making, and monitoring of the ADS; the need of addressing land issues; the establishment of community based service centers; the integration of smallholders with dynamic value chains; the promotion of agro-entrepreneurship and competitiveness; the emphasis on trade promotion and net exports; the development of quality assurance systems; capacity building of service providers at village level; climate change and resilience building measures; and measures to promote not only food security but also nutrition security.

528. The approval of the ADS will represent the end of the APP as the official strategy for long-term development of agriculture sector in Nepal.

8 FOOD AND NUTRITION SECURITY

529. One of impacts of the ADS is to ensure food and nutrition security (FNS). The FNS dimension is underlying the overall strategy and is present in all components and many of the activities of the ADS. The ADS is also aligned with the *Multi-Sectoral Nutritional Plan* and the *Food and Nutrition Plan of Action* (prepared with support of FAO).

8.1 Food and Nutrition Security Definition and Targets

530. The definition of FNS proposed by FAO in 1996⁶⁹ entails the aspects of food availability, food access, food use and utilization, and stability, and is also related to the dimensions of inclusion and livelihoods of the ADS vision statement. FNS is a multisector concept; even though agriculture is not the only determinant of food security, it is certainly a major one. The vision for the agriculture sector in Nepal implies that higher agricultural growth is reflected not only in additional income but also in the availability, access, and utilization of more nutritious food, particularly of those who are currently food insecure. Food and nutritional security should entail a more diversified agricultural production system with a larger role of animal and horticultural products. As urban markets and international food trade increase, food safety issues will also become more important aspects of food and nutrition security.

531. Indicators and targets of FNS in the ADS are reported in Table 47. They include: *food poverty* defined as the proportion of people below a poverty line determined by a basket of food consumption able to meet the caloric requirement of 2,200 kcal/person/day; *stunting* defined as the percentage of children under 5 years of age who are below a certain norm for height for age; *underweight* defined as the percentage of children under 5 years of age who are below a certain norm for weight for age; *wasting* defined as the percentage of children under 5 years of age who are below a certain norm for weight for height; and *chronic energy deficiency of women* in reproductive age, measure by a low Body Mass Index (BMI). Monitoring and evaluation of these indicators will be undertaken by the ADS in coordination with other agencies involved in FNS.

Table 47: Indicators and Targets of Food and Nutrition Security in the ADS

Indicators	Current Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)
Food Poverty	27.6%	16%	11%	5%
- % stunting (height for age) among under 5 children	37.4%	29% stunting; 20%	20% stunting; 13%	8% stunting; 5%
- Underweight (weight for age) among under 5 children	30.1% underweight; 11.3%	underweight; 5% wasting; 15% women with low BMI	underweight; 2% wasting; 13% women with low BMI	underweight; 1% wasting; 5% women with low BMI
- Wasting (weight for height) among under 5 children	18.1% women with low BMI			

⁶⁹ The 1996 World Food Summit adopted the following definition: "Food security, at the individual, household, national, regional and global levels [is achieved] when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life".

Indicators	Current Situation (2015)	Target Short Term (5 years)	Target Medium Term (10 years)	Target Long Term (20 years)
- Women in reproductive age with chronic energy deficiency (measured as low BMI)				

8.2 Contribution of ADS Component 1 on Governance to Food and Nutrition Security

532. All outcomes, outputs, and activities of the ADS will contribute to improve FNS 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.

533. Under ADS Component 1 on Governance one set of activities is entirely dedicated to improved FNS of disadvantaged groups. The ADS realizes that without credible programs to alleviate the FNS conditions of the most disadvantaged groups, there could be hardly any credibility in the ADS and its contribution to food and nutrition security. These activities will be organized under one national Flagship Program 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 ADS synergies with existing and planned similar programs and improve targeting it will be essential to coordinate with the Multi-sector Nutritional Plan (MSNP).

534. In addition to programs to address the FNS of the most disadvantaged groups and regions of Nepal, the ADS includes GESI and Nutrition mainstreaming, and support to the formulation of legislation such as Rights to Food and Food and Nutrition Security Act. The ADS through its FANUSEP Program Manager will 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 most food insecure rural households and farmers are reached by various programs. The Program Manager of FANUSEP will report to the subcommittee on food and nutrition security of NADSCC.

535. ADS will support strengthening 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 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.

536. ADS will 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.

8.3 Contribution of ADS Component 2 on Productivity to Food and Nutrition Security

537. Component 2 of the ADS on Productivity has an impact on FNS 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.

538. Increased sustainable productivity will affect not only the production of foodgrains to achieve self-sufficiency and possibly a trade surplus; but it will also affect the production of vegetables and fruit, oilseeds, pulses, and animal proteins (milk, eggs, meat, and fish) through improved practices in seed production and distribution, irrigation, plant protection and nutrition, breeding, and animal nutrition. The outcome will be a more diversified agricultural system able to supply products that meet the demand for a richer nutrition of the Nepalese population, in addition to the demand for exports of several products where Nepal has a comparative advantage. This will require mainstreaming of nutrition in both the extension programs and in agricultural education programs, two activities that are also incorporated in the ADS formulation. In addition to the main foodgrains and main vegetables and animal protein sources, the ADS will also contribute to the preservation and utilization of local products that do contribute to food and nutrition security of remote areas. The localized needs for these indigenous foods and the requirements in terms of knowledge support and demonstrations will be conveyed to the research and extension system by the Community Agricultural Extension Service Centers located in each VDC.

539. Impact on FNS will also be through strengthening resilience of farmers and communities to shocks of various nature (pest attacks, disease, flooding and droughts, etc.). The ADS will promote the development of food, seed, and feed reserve systems and early warning systems to improve preparedness and response of communities and households to extreme events.

8.4 Contribution of ADS Component 3 on Commercialization to Food and Nutrition Security

540. 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.

541. Integration of smallholder farmers and farm workers with dynamic value chains will be primarily reflected through their higher income and improved access to markets. This in turn will entail a richer and more diversified diet of the rural population. Of particular significance will be the development of the national programs on dairy, vegetables, maize, and pulses. The development of effective value chains for these commodities will imply the availability of a larger and more convenient supply of quality and affordable products highly relevant to a protein and micronutrient-rich diet.

542. The development of commercialized agriculture will accomplish an improvement in postharvest systems that will be reflected in lower postharvest losses and availability of a greater range of food products over a longer period of the year.

8.5 Contribution of ADS Component 4 on Competitiveness to Food and Nutrition Security

543. 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.

544. The food safety situation in Nepal needs considerable improvement in terms of policies, institutions, surveillance, technology, and inspection. The ADS promotes several measures including the establishment of district level offices of the Department of Food Technology and Quality Control to assure improved food safety standards throughout Nepal. Improved food safety in turn entails improved nutrition and food utilization.

545. The ADS envisages a situation in which Nepal will be a net agricultural and food exporter, a strategy that not only ensures food reliance but also allows access to a broader availability of food items through trade.

546. Competitiveness cannot be achieved without the contribution of a vibrant agribusiness sectors consisting of micro, small, medium, and large enterprises. By promoting the emergence of sustainable and competitive agribusiness enterprises, the ADS will contribute to growth of the non-farm sector in rural areas. A more vibrant rural non-farm sector implies higher rural income and lower rural food poverty.

8.6 Monitoring and Evaluation of Food and Nutrition Security in the ADS

547. FNS 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 ADS will support the institutionalization of the NeKSAP system already existing at MOAD as a project supported by WFP through EU. Improved monitoring of FNS will also require coordination with other agencies and programs particularly the MSNP. A subcommittee on FNS and Food Safety will be established by the NADSCC.

9 MONITORING AND EVALUATION

9.1 Introduction

548. The ADS framework includes a Vision, Outcomes, Outputs, and Activities. Progress towards the vision can be monitored by considering the Vision targets and indicators. Similarly, targets and indicators for the Outcomes. A number of indicators for the Outputs will be presented in this chapters.

549. 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.

9.2 Monitoring and Evaluation of the ADS

550. 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.

551. In addition to project and program monitoring, the ADS will require regular policy monitoring to be carried out by Policy and International Cooperation coordination Division . 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.

9.3 Monitoring Vision, Outcomes, and Outputs

552. The ADS Vision and its targets are reported in Table 18, the **impacts** and its indicators are reported in Table 19; targets for the **outcomes** are reported inTable 20, and preliminary indicators for the **outputs** are provided in the following Table 48 to Table 51.

Table 48: 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 NADSCC, CADIC held and minutes available on ADS website• Subcommittees of NADSCC established

Output	Indicators
	<ul style="list-style-type: none"> Subcommittees of NADSCC 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 MOAD 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"> FSED staff trained on GESI GESI statistics consolidated by FSED 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 Policy and Interanational Cooperation Coordination Division of MoAD 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 49: 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
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 and institutes • 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	<ul style="list-style-type: none"> • Population of improved animal breeds increased

Output	Indicators
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.	<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 50: 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 agriculture 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	<ul style="list-style-type: none"> • Value of the production and postproduction in each prioritized value chain • Value added by stakeholder

Output	Indicators
smallholder farmers and agroenterprises	
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 51: 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

9.3.1 Linking Monitoring to Good Performance

553. 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.

554. 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.



10 ROADMAP

555. The ADS provides a strategy for the next 20 years (2015 to 2035 AD) 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 agriculture sector that will need to be improved and updated several times during this period.

556. 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

557. 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.

10.1 Government Commitment

558. 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 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.

10.2 Policies and Regulations for ADS Implementation

559. 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 52).

Table 52 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			
8. Farmers' Commission			

10.3 Consensus of Key Stakeholders

560. 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 agriculture 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.

561. 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.

562. 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.

563. 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.

10.4 Development Partners Support

564. 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 agriculture 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.

10.5 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 (ADS signing ceremony)
 - Indicative support by development partners
- During First Year of Implementation
 - Regulations standards and guidelines for NADSCC, NADISU, ATF and Flagships as appropriate
 - Establish ADS Institutions
 - Formulate Guidelines for ADS Implementation
 - Recruit Program Managers for ADS Flagships
 - Budget allocations to ATF by Donors
 - Establish Farmers' Commission
 - Update relevant data and statistics

10.6 ADS as a Living Strategy

565. 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. However, the ADS will be reviewed and revised just after the endorsement of new constitution.



APPENDIX 1: REFERENCES

- ACI (2003), "Fertilizer use study", Agrifood Consulting International, Bethesda, Maryland, US.
- ADB (2015), "Key Indicators for Asia and the Pacific 2015", Asia Development Bank, July 2016.
<http://www.adb.org/>
- ADB (2011a), "Outlook for Nepal". ADB Resident Mission, Kathmandu, 2011
- ADB (2011b), "Demonstrating Enhanced Productivity of Irrigated Agriculture System through Multifunctional Water Users' Associations". ADB RETA 6498, Manila 2011
- ADB (2011c), "Update for Nepal". ADB Resident Mission, Kathmandu, February and May 2011
- ADB (2010a), "Nepal: Community Irrigation Project" Report and Recommendation of the President. Asian Development Bank, Manila.
- ADB (2010b), "Nepal: Community Irrigation Project" Mission Response to Comments from OPR on Water Use Efficiencies, Asian Development Bank, Manila.
- ADB (2010c), "Water Operational Framework 2011-2020 Draft 2", Asian Development Bank, Manila.
- ADB (2010d), "Nepal: Operational Strategy and Program for Water Resources, Assessment Report". Singh, Achyut Man, Asian Development Bank, Manila.
- ADB (2010e), "Development and Dissemination of Water-Saving Rice Technologies in South Asia", TCR, RETA 6276-REG, ADB Manila 2010.
- ADB (2009), "Country Assistance Program Evaluation: Nepal—Delivering Assistance in a Challenging Environment". Manila. 2009
- ADB (2008), "Rural micro-finance loan project 1998-2007". TCR, ADB Manila 2008
- ADB (2006), *Report and Recommendation of the President to the Board of Directors: Proposed Sector Development Program Cluster of Loans, Asian Development Fund Grant, and Technical Assistance Grant to Nepal for Rural Finance Sector Development Cluster Program*. Manila (Loan 2268-NEP, for \$56 million, approved on 26 October).
- ADB (2000), Technical Assistance to the Kingdom of Nepal for Agriculture Sector Performance Review. Manila (TA 3536-NEP, for \$600,000, approved on 4 December).
- Adhikari, D. (2010). *Promoting Nepal's Trade in the perspective of Bilateral and Multilateral Trade*. Economic Policy Network II (ADB TA 7042-NEP), Ministry of Finance, Kathmandu 2010.
- ANZDEC (2006) "Agricultural Sector Study on Commercialization, SPS and Quality Control", Interim Report, MOAC, Kathmandu.
- ANZDEC, ACI, and CMS (2002) "Agricultural Sector Performance Review" ADB TA No. 3536-NEP, Final Report, Asian Development Bank, Manila.
- APP (1995a), "Agriculture Perspective Plan": (APP), Kathmandu: Agricultural Projects Services Centre, Kathmandu (APROSC) and John Mellor Associates. Inc. Washington DC (JMA).
- APP (1995b), "Agriculture Perspective Plan: Irrigation and Water Control: Background Technical Paper by Sharma CK and Poudel SN", Kathmandu: APROSC/JMA.
- APP (1995c), "Agriculture Perspective Plan: Irrigation Management, On-farm Water Use and Water Pricing CB Shakya", Kathmandu: APROSC/JMA.

-
- Asian Development Bank, World Bank, Department for International Development of the United Kingdom, and International Labor Organization. (2009). "Country Diagnostic Studies—Nepal: Critical Development Constraints." ADB, Manila 2009
- Bhattarai, T.C. (2005). "Opportunities and Constraints in Nepalese Poultry Industry", March 2005, Kathmandu and Nepal Hatcheries and Feed Association, 2005.
- 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
- Birner, R. and D. Resnick (2010): The Political Economy of Policies for Smallholder Agriculture, in: World Development, Vol. 38 (10): 1442-1452.
- CBS (2015), "Compendium of Environment Statistics Nepal, 2015", Central Bureau of Statistics, Kathmandu
- CBS (2014), "Annual Household Survey 2013/14", Central Bureau of Statistics, Kathmandu, Nepal
- CBS (2014), "Multiple Indicator Cluster Survey 2014", Central Bureau of Statistics, Kathmandu, Nepal
- CBS (2014), "Population Monograph of Nepal Volume II (Economic Demography)", Central Bureau of Statistics, Kathmandu
- CBS (2013), "Annual Household Survey 2012/13", Central Bureau of Statistics, Kathmandu, Nepal
- CBS (2012), "National Sample Census of Agriculture 2011/12", Central Bureau of Statistics, Kathmandu, Nepal
- CBS (2011), "Nepal Living Standard Survey 2010/11", Central Bureau of Statistics, Kathmandu, Nepal
- CBS (2004), "Nepal Living Standard Survey 2003/04", Central Bureau of Statistics, Kathmandu, Nepal
- CBS (2002), "National Sample Census of Agriculture 2001/02", Central Bureau of Statistics, Kathmandu, Nepal
- CBS (1996), "Nepal Living Standard Survey 1995/96", Central Bureau of Statistics, Kathmandu, Nepal
- CESD (2016), "Briefing Note for Agriculture and Rural Development Sector Working Group Agricultural Public Expenditures in Myanmar, February 16, 2016", Center for Economic and Social Development, July 2016. <https://myanmarcesd.org/>
- CIWEC (1990), "Master Plan for Irrigation Development in Nepal, Canadian International Water and Energy Consultants & East Consult
- CMIASP (2010), Mid-term Review
- DFRS (2015), "States of Nepal's Forest", Department of Forest Research and Survey, Ministry of Forest and Soil Management, Kathmandu
- DOC (2016), "Foreign Trade Statistics 2015/16 - Preliminary" Department of Customs, Ministry of Finance, July 2016. <http://www.customs.gov.np>.
- DOE (2014), "Annual Program and Progress Report DAE 2070-71", Directorate of Extension, Department of Agriculture, Ministry of Agriculture and Development, Kathmandu
- DOF (2016), "Community Forestry", Department of Forest, Ministry of Forests and Soil Conservation, June 2016. <http://dof.gov.np/>
- DOI (2016), "Irrigation Hand Book", Department of Irrigation, Kathmandu

- Development Vision Nepal (2006), "Shallow Tube Well Impact Assessment Study, Kathmandu. Nepal (March 2006)
- DOI (2005), "Nepal: Irrigation Development Vision, An action plan for irrigation development for the period 2005-2012", Kathmandu
- Energy Minister's Statement (2011).Nepal Electricity Conference. Ministry of Energy, 19 May 2011.
- ESCAP (2011). "Economic and Social Survey".UN Economic and Social Commission for Asia Pacific. Bangkok, 2011
- Export Statistics (2011). Trade and Export Promotion Center, Ministry of Commerce and Supplies, Nepal 2011.
- Federation of Community Forestry Users Nepal, from the database of www.FECOFUN.org.np accessed July 2011
- GDC (1994), "Reassessment of Groundwater Development Strategy for Irrigation in the Terai" (A discussion paper).
- Goletti, F. (2001). "The Impact of Fertilizer Subsidy Removal in Nepal".ASPR Discussion Paper No.1, TA 3536-NEP. ADB Manila 2001
- Goletti, F., Bhatta, A., Gruhn, P. and U. Dulal (2001). "Farmer Survey Report", Discussion Paper No.4, TA 3536-NEP, ADB Manila 2001
- Goletti, F. (2011).International Experience in Agricultural Transformation and Implications for the Agriculture Development Strategy in Nepal.Paper presented at the Nepal ADS Conference, Kathmandu, 29 November 2011.
- Guimbert, S. and Sailesh Tiwari (2007). SIMPLE MACROECONOMIC MODEL FOR NEPAL, June 2007, Report No. SASPR-11
- Hancock, I. (2010). "Agribusiness and Value Chains Report".In RRP Supplementary Technical Annexes, ADB TA 7928-NEP, Manila 2010.
- IFAD (2006) "Nepal Strategic Opportunities Programme". IFAD Rome 2006
- IFPRI.(2010). *Nepal Food and Nutritional Security*.New Delhi: IFPRI 2010
- Kalu IL et al. (2004), "OFWMPP, DOI Nepal: Impact Assessment Study Report,
- Kansakar, D.R. (2006), "Ground Water Irrigation Development Vision", DOI Nepal
- Karmacharya, B.K. (2010). *A Study on cross Border Informal Trade between Nepal and India on Selected Agricultural Commodities*.FAO/ Nepal Council for Development Research, Kathmandu 2010.
- Landon-Lane, C. (2011). "Meeting notes: AIC Ltd.", ADB TA 7762(NEP): Preparation of the Agriculture Development Strategy, Kathmandu, June 2011.
- Michaud, M. (2011). "Report on Lessons Learned EU Food Facility INGO Projects, EU Cooperation Office, Kathmandu 30 June 2011
- MOAC (2010), "National Agriculture Sector Development Priority (NASDP) for the Medium-Term (2010/11 - 2014/15) Kathmandu (reviewed abstracted)
- MOAC, WFP, FAO (2009).*Winter drought in Nepal: Crop and Food Assessment*. Kathmandu: WFP 2009
- MOAC (2005), "Statistical Information on Nepalese Agriculture, Agri-Business Promotion and Statistics Division 2004/05, Kathmandu
- MOAC (2004), "National Agriculture Policy" Kathmandu

-
- MOCS (2011), Revised Legislative Action Plan
- MOAD (2015), "Statistical Information on Nepalese Agriculture 2014/15", Agri-Business Promotion and Statistics Division, Kathmandu
- MOAD (2014), "Statistical Information on Nepalese Agriculture 2013/14", Agri-Business Promotion and Statistics Division, Kathmandu
- MOAD (2013), "Statistical Information on Nepalese Agriculture 2012/13", Agri-Business Promotion and Statistics Division, Kathmandu
- MOF (2016), "Red Book 2015/16", Ministry of Finance, June 2016. <http://www.mof.gov.np>.
- MOF (2015), "Economic Survey 2014/15", Ministry of Finance, June 2016. <http://www.mof.gov.np>.
- MOF (2011), "Economic Survey 2010/11", Ministry of Finance, June 2016. <http://www.mof.gov.np>.
- MOF (2006), "Economic Survey 2005/06", Ministry of Finance, June 2016. <http://www.mof.gov.np>.
- MOF (2003), "Economic Survey 2002/03", Ministry of Finance, June 2016. <http://www.mof.gov.np>.
- MOF (2002), "Economic Survey 2001/02", Ministry of Finance, June 2016. <http://www.mof.gov.np>.
- MoPIT (2016), "Road, Rail and Transport Development Five Years (2073-2078) Strategic Plan for Prosperous Nepal", Ministry of Physical Infrastructure and Transport, Kathmandu
- MOSC (2010). Trade Conference Proceedings. MOSC Kathmandu 2010.
- MOSC (2010). *Nepal Trade Integration Strategy and Action Matrix*. MOSC Kathmandu 2010.
- MOE (2010), National Adaptation Programme of Action (NAPA) to Climate Change, Ministry of Environment
- MOI (2003) "Irrigation Policy, Kathmandu
- NBSC (2006), "China Statistical Year Book-2006", National Bureau of Statistics of China, July 2016. <http://www.stats.gov.cn/>
- NBSC (2014), "China Statistical Year Book-2014", National Bureau of Statistics of China, July 2016. <http://www.stats.gov.cn/>
- NDHS (2001), "Nepal Demographic and Health Survey 2000", Ministry of Health and Population, Government of Nepal, New ERA, and Macro International Inc.
- NDHS (2007), "Nepal Demographic and Health Survey 2006", Ministry of Health and Population, Government of Nepal, New ERA, and Macro International Inc.
- NDHS (2011), "Nepal Demographic and Health Survey 2010", Ministry of Health and Population, Government of Nepal, New ERA, and Macro International Inc.
- National Dairy Development Board (2001). "National Milk Marketing and Strategy Study", NDDB, Kathmandu March 2001
- NDHS (2006) Nepal Demographic and Health Survey. Ministry of Health and Population, New ERA, and Macro International Inc. Kathmandu, Nepal.
- NEAT (2012) Nepal Fertilizer Demand and Plant Nutrient Assessment, a Study prepared by Chemonics International with the support of Dr. Raymond Hoyum and Project Research and Management (PRAM) Associates under USAID Prime Contract No. EEM-I-00-07-00008, AID-367-TO-11-00001, November 2012

- NFSMS, (2013-2015), "Nepal Food Security Bulletin Vol. 40-47", Nepal Food Security Monitoring System Jointly Produced by the Ministry of Agricultural Development (MoAD) Food Security Monitoring Unit and the World Food Programme (WFP) Food Security Monitoring and Analysis Unit.
- NPC (2009), "Thirteen Three Years interim Plan", National Planning Commission, Government of Nepal, Kathmandu
- NPC (2004). "Rural Infrastructure Policy", National Planning Commission, Kathmandu 2004
- NPC (2010). "Base Paper of Three-Year Plan 2010/11 – 2013/14", National Planning Commission, June 2010
- NRB (2015), "Banking and Financial Statistics Mid July 2015, No. 41", Bank and Financial Institution Regulation Department, Statistics Division, Nepal Rastra Bank, Kathmandu
- NRB (2016), "Household Budget Survey 2014/15", Nepal Rastra Bank, Kathmandu
- Nepal Tea Association (2000). "National Tea Policy". Kathmandu, 2000
- OneWorld (2010) "Effects of Climate Change - Nepal briefing. September 2010.
<http://uk.oneworld.net/guides/nepal/climate-change>
- Pandey, P. R. (2009). *Trade Policy as an Instrument to Ensure Food Security: A case study of Nepal*. Asia-Pacific Trade Economists' Conference of Trade-Led Growth in Times of Crisis. UNESCAP, Bangkok 2009
- Perry, S. (2000). *Enabling Development: Food Assistance in Nepal*. World Food Program, Nepal 2000.
- Pyakuryal, B., Y. Thapa, D. Roy (2005). *Trade Liberalization and Food Security in Nepal*. MTID Discussion Paper no.88. IFPRI, Washington DC. 2010.
- Raitzer, D.A., L. C. Y. Wong, and J. N. G. Samson (2015), "Myanmar's Agriculture Sector: Unlocking the Potential for Inclusive", Asian Development Bank (ADB) Working Paper Series No 470 December 2015
- Sapkota, C. (2009). *Nepal's Long Term Direction in Global and Regional Trade Policy*. UNESCAP, Bnagkok 2009.
- Shakya, B. (2010). *Exports of Ayurvedic Herbal Remedies and SPS Issues*. Managing the challenges of WTO participation: Case Study 31. WTO 2010;
- Sharma, S., M. Karkee, L. Gautham, Eds. (2007). "Implications of the WTO Membership on Nepalese Agriculture". FAO/ MOAC, Kathmandu 2004
- SMD (2015), "Soil Management Directorate Annual progress Reports 2014/15", Soil Management Directorate, Department of Agriculture, Ministry of Agriculture and Development, Kathmandu
- Thapa, G. (2009). *Smallholder Farming in Transforming Economies of Asia and the Pacific: Challenges and Opportunities*. Discussion Paper, IFAD
- 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.
- Thapa, Y. (2006), "Constraints and Approach for Improving Fertilizer Supply for Meeting Domestic Demand." Economic Policy Paper No.30. Economic Policy Network, MOF/ADB, Kathmandu. 2006

-
- USAID (2010). Ensuring Food and Nutritional Security in Nepal: A Stocktaking Exercise. International Food Policy Research Institute USAID, Kathmandu.
- World Bank (2004), "Approach to mitigation of groundwater arsenic contamination including new groundwater legislation 2004/09/01 38812 Working Paper (Numbered Series) 30. The World Bank.
- World Bank (2008), "Irrigation Sector Project" Project Performance Assessment Report. Report No.: 44438.
- World Bank (2010), Water and Development: An Evaluation of World Bank Support 1997-2007.
- World Bank (2011), Large-Scale Migration and Remittance In Nepal: Issues, Challenges, And Opportunities, No. 55390-Np, Poverty Reduction and Economic Management Sector Unit South Asia Region
- WECS (2002), Water Resources Strategy Nepal, Kathmandu: Singh Durbar.
- WECS (2005), National Water Plan (in Nepali), Kathmandu: Singh Durbar
- WFP (2013), Monitoring and Evaluation for Food and Nutrition Security. Assessment, Vision, Options, and Strategy Background Papers for the Preparation of the ADS, World Food Programme, Kathmandu, 2013.

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