

# Roadmap for Adaptation Planning in Nepal's Agriculture Sectors

Synthesis report of Nepalese adaptation strategies and achievements under the Integrating Agricultural Sectors into National Adaptation Plans Project



Government of Nepal  
Ministry of Agriculture and Livestock Development  
Food Security and Food Technology Division  
Singhadurbar

2019

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## Foreword

The agriculture sector contributes about 27 percent to the country's GDP and nearly 70% of total employment in Nepal. The development of agriculture and livestock is key to developing the national economy and achieving prosperity. The agriculture sector is one of the most climate vulnerable, and we have already witnessed its impacts and can see how it will affect Nepal in the future.

Over the years, the Government of Nepal has shifted from a reactive to a proactive approach to climate change adaptation and has undertaken several initiatives to strengthen legal frameworks, planning and budgeting, institutional capacities and partnerships. The Government of Nepal is formulating its National Adaptation Plan (NAP), with an aim to reduce the country's vulnerability to climate change and to facilitate the integration of climate change adaptation in policies, programmes and activities across all sectors and levels.

The project titled *Supporting Nepal to Integrate Agriculture Sector into National Adaptation Plan (NAP-Ag)* was implemented following an agreement between the then Ministry of Agricultural Development and the Food and Agriculture Organization of the United Nations on 21 June 2016. This synthesis report *Roadmap for Adaptation Planning in Nepal's Agriculture Sectors* is part of this endeavor.

The roadmap summarizes lessons learnt from the NAP-Ag Project based on desk studies, workshops, interviews and consultations with the respective stakeholders. This document describes the country context and background, findings from the progress assessment, gap analysis of integrating agriculture in adaptation planning, pathways to address identified adaptation planning gaps and presents an implementation timeline. The planning staff of MoALD should implement the reform required within the agriculture sector to integrate adaptation concerns through regular agriculture sector development plans.

I would like to extend my sincere appreciation to the MoALD staff and experts involved in preparing this roadmap. I greatly appreciate the technical assistance provided by UNDP and FAO and the German government for their financial support. Preparing the roadmap is an ongoing part of the NAP process and should be revisited at appropriate intervals to comply with the evolving circumstances and to inform future courses of action.



Yubak Dhoj GC, PhD  
Secretary,  
Ministry of Agriculture and Livestock Development  
Government of Nepal

# Preface

The project titled *Supporting Nepal to Integrate Agricultural Sector into National Adaptation Plan (NAP-Ag)* was initiated following an agreement on 21 June 2016 between the what was then the Ministry of Agricultural Development and the Food and Agriculture Organization of the United Nations. At that time, the national adaptation planning process (NAPprocess), of which NAP-Ag is a part, was led by the Ministry of Population and Environment (MoPE), starting in September 2015, and was already halfway through implementation.

The NAP-Ag Project inception work was done during the last quarter of 2016, and that report was finalized in February 2017. During the inception phase, the project planned to implement the integration of NAP outcomes into agriculture sector development planning based on the assumption that the national NAP process would soon conclude with the development of a national NAP document. However, the NAP process concluded in May 2017 without a complete formulation of a NAP document. Now, the Ministry of Forests and Environment has resumed the national NAP formulation process with support from the Green Climate Fund Readiness and Preparatory Support Programme.

This document, the *Roadmap for Adaptation Planning in Nepal's Agriculture Sectors* provides clear areas of further work to fully integrate climate change adaptation concerns in the agriculture sector focusing on implementation of MoALD's Agriculture Development Strategy (ADS). The roadmap proposes to undertake agriculture sector reform to integrate adaptation into all elements prescribed by the LDC Expert Group NAP technical guidelines.

This roadmap is intended for review and application by all agriculture sector planners, policy makers, extension workers and other concerned people at federal and subnational levels. I believe this document will be useful for agriculture sector staff to gradually integrate adaptation concerns into planning and budgeting processes and that it will be a sector model for the national NAP formulation process led by the Ministry of Forests and Environment.



Hari Bahadur K.C., PhD  
Joint Secretary and National Focal Point of the NAP-Ag Project  
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## Preface

The United Nations Development Programme (UNDP) and Food and Agricultural Organization of the United Nations (FAO) in Nepal are supporting the Government of Nepal in its efforts to achieve the national goal of *Happy Nepali* and *prosperous Nepal* through a package of climate actions, including integration of climate change adaptation into new and existing development policies, plans and programmes. Agriculture and livestock sectors directly contribute to 27 percent of the national GDP and provide livelihoods to nearly 70 percent of the Nepali population. Given how the agriculture sector is directly affected by changes in temperature and precipitation, integrating climate change adaptation is key to achieving the national goal of prosperity and happiness.

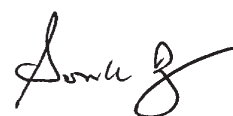
In an effort to identify medium and long-term adaptation needs and to develop strategies and programmes, the Ministry of Agriculture and Livestock Development (MoALD) initiated the project on Integrating Agriculture Sector into National Adaptation Plan (NAP-Ag) with technical support from UNDP and FAO. We congratulate the Government of Nepal for taking the lead role in climate-proofing agriculture sector policies, plans, budgets and monitoring and evaluation frameworks in a comprehensive and sustained manner.

We are pleased to have this opportunity to work together with the Government of Nepal to prepare this *Roadmap for Adaptation Planning in Nepal's Agriculture Sectors* (NAP-Ag Roadmap). We believe this will help the government to take systematic steps to scale up adaptation actions throughout the country as well as contribute to the national NAP process led by the Ministry of Forests and Environment, Government of Nepal.

This NAP-Ag Road Map is expected to support agriculture sector planners and decision makers to better understand the existing situation and respond to critical adaptation needs in a more systematic way. UNDP and FAO remain committed to building further partnerships with the Government of Nepal for the implementation of this roadmap.



Ayshanie Medagangoda-Labé,  
Resident Representative  
UNDP Nepal



Somsak Pippopinyo,  
Representative  
FAO Nepal

# Acronyms

NPC	National Planning Commission
ToT	Training of Trainers
AITC	Agriculture Information and Training Center
MoALD	Ministry of Agriculture and Livestock Development
UNFCCC	United Nations Framework Convention for Climate Change
CBA	Community-based Adaptation
ADS	Agriculture Development Strategy
NAPA	National Adaptation Programme of Action
LAPA	Local Adaptation Plan of Action
TWG	Thematic Working Group
VRA	Vulnerability and Risk Assessment
LEG	Least Developed Country Expert Group
NDC	Nationally Determined Contribution
GDP	Gross Domestic Product
DHM	Department of Hydrology and Meteorology
GHG	Greenhouse Gas
CCC	Climate Change Coordination Committee
PSC	Project Steering Committee
CCA	Climate Change Adaptation
AEZ	Agro-Ecological Zone
NAP	National Adaptation Plan

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## Executive summary

The NAP process, instituted following Cancun Adaptation Framework (2010), has envisioned reducing vulnerability to impacts of climate change by building adaptive capacity and resilience and facilitating integration of climate change adaptation into development planning processes and strategies within sectors at national and subnational levels. In addition, the Paris Agreement calls on parties to engage in adaptation planning processes such as formulation and implementation of NAPs. The LDC expert group technical NAP guidelines (2012), supplemented by NAP-Ag guidelines (2017), aim to support developing countries in: i) reducing the vulnerability of the agriculture sector to climate change impacts by building adaptive capacities and increasing resilience; ii) integrating the sector in the formulation and implementation of NAPs; and iii) enhancing climate change adaptation integration in agricultural development policies, programmes and plans.

The NAP-Ag Project was intended to mainstream NAP into agriculture and assumed the NAP process would come up with a Nepal-NAP document by the time the NAP-Ag Project came into operation. The NAP-Ag Project was approved by the then Ministry of Agricultural Development and started implementation from February 2017 when the NAP process was in its preparatory phase. As a result, the project worked with a two-pronged strategy linking the agriculture sector with the NAP process and the NAP process results into sector planning, while integrating broader climate change adaptation into the agriculture sector. The NAP process Agriculture and Food Security (Nutrition) thematic group was set up to serve as the technical taskforce of the NAP-Ag Project.

The impacts of climate change in Nepal's agriculture sector are becoming increasingly evident. Major impacts are: declining availability of water for agricultural uses, hindrance in operation of conventional irrigation systems and decreasing water use efficiency, increasingly degraded agricultural land and increased depletion of land from agricultural uses, disease and pest epidemics, and increasing crop management risks. Major impacts in animal husbandry include pastoral degradation and decreasing forage productivity, increasing animal parasites and vector-borne diseases, heat stress and changes in reproductive behaviour. Agro-ecological changes, forest fires, emerging alien and invasive species, changes in timing of sprouting, flowering and fruiting of crop species and phenological disorder in animals are affecting crops and livestock productivity. Impacts such as decreasing soil moisture, prolonged droughts resulting in crop failures and productivity losses, and climate induced disasters such as erosion, landslides and floods resulting in agricultural land degradation and losses of crops, livestock and other properties are reported with increasing frequency. To cope with these impacts on agricultural systems, farmers are increasingly relying on food aid and selling their assets or migrating in search of employment. In response, the government has undertaken several policy initiatives, established institutional mechanisms and facilitated implementation of projects and programmes. The Ministry of Forests and Environment (MoFE), as focal point to the UNFCCC, is coordinating climate change adaptation integration into development planning processes in the country. Line ministries in the federal and provincial governments have appointed climate change focal points for necessary coordination and climate change integration into their respective plans and programmes.

After an inception workshop in October 2016, the NAP-Ag-Project worked in close collaboration with the national NAP formulation team, in particular the Agriculture and Food Security (Nutrition) thematic group, in undertaking the activities outlined in the LDC expert group NAP Technical Guidelines (2012) for laying the ground work (Element A) and preparatory works (Element B). As the NAP process ended in May 2017 without a NAP document formulated, the NAP-Ag Project continued supporting the country to integrate climate change adaptation into national and subnational agriculture development planning with a focus on the Agriculture Development Strategy (ADS), and undertaking activities under Preparation of



implementation strategies (Element C) and monitoring, reporting and review of the process (Element D) of the NAP Guidelines. The NAP-Ag Project interventions mainly covered i) developing the technical capacity of agricultural ministries through tools and methods development (on Climate Change Vulnerability and Risk Assessment (CC-VRA), identification of climate change adaptation measures and climate change adaptation M&E), knowledge materials preparation and delivery of training; and ii) supporting sector planning and budgeting processes through formulation of ADS-based sector development pathways for integration of climate change adaptation, a climate change adaptation M&E framework, budget coding and expenditure tracking tools, and budget and project preparation guidelines (Table 9).

The groundwork and addressing gaps (Element A) for integrating the agriculture sector into the NAP and climate change adaptation into agriculture sector development planning and budgeting processes involved: forming focal points and project implementing structures; reviewing policies and information materials such as NAPA/LAPA, adaptation tools and methods, state institutional arrangements and organizational structures, pilot districts profiles and NAP process reports. NAP-Ag activities at this stage supported the NAP process through the project's strategic engagement with the national NAP team and its Working Group on Agriculture and Food Security (Nutrition) Theme, the Ministry of Agricultural and Livestock Development and other key stakeholders, including service providers relevant to agriculture sector planning and development.

After some preparatory work (such as developing VRA framework reports, stocktaking reports and climate trends and scenarios reports), the NAP process was formally grounded. The NAP-Ag expert teams, while planning and preparing for project outputs (VRA, extended cost benefit analysis (eCBA) and a climate change adaptation M&E framework), reviewed the NAP documents, contextualized them to the agriculture sector and tested them in three physiographic regions. It involved assessments of climate change impacts and vulnerabilities and risks of exposed systems in the sector and piloting tools in selection and prioritization of adaptation measures. Because of the interruption in the NAP process, it was no longer practical to conduct the sector-specific studies and assessments in association with the NAP process team and integrate agriculture sector adaptation perspectives into the NAP formulation.

As a part of Element C (Developing implementation strategies), the project sensitized agriculture professionals in federal, provincial and local governments, and built capacity through a series of training events on agriculture sector integration of climate change adaptation. A range of knowledge materials were prepared and shared with training participants, agriculture sector training institutes, and agriculture sector agencies in federal, provincial and local governments (procedural manuals and handbooks for training on agriculture sector CC-VRA, climate change adaptation M&E, sector budget coding and expenditure tracking and eCBA in appraisal of climate change adaptation measures

In connection to Element D (Reporting, monitoring and review) of the LDC expert group guidelines, the project prepared a climate change adaptation pathways document and a climate change adaptation M&E framework for the ADS. The Federal Ministry of Agricultural and Livestock Development is revising the ADS. The pathways document and the climate change adaptation M&E framework would be valuable assets while revising the ADS and framing a detailed M&E framework that integrates climate change adaptation. The Agriculture Information and Training Centre (AITC) within the Ministry has come up with a process to build on the training materials of the NAP-Ag Project and to internalize the training packages into its regular programme.

Following the completion of the NAP-Ag Project and based on the prevailing context of the NAP process in the country, the NAP Thematic Working Group for Agriculture and Food Security (Nutrition) is central to further development and making use of the NAP-Ag knowledge products and coordinating integration of the agriculture sector into NAP components. Conversely, the NAP outcomes are being integrated into the sector strategies and programmes.

Some policies, statutes and strategies are being revised and new ones formulated as a part of the institutionalization of federalism. These will have implications in implementing the roadmap, and require integration of the roadmap into the forthcoming policy documents at federal and local levels.

Major issues requiring special consideration and appropriate action are:

- Low participation by provincial and local stakeholders as they were not formed in time, and gender and social groups in the earlier part of the NAP process and the NAP-Ag Project implementation.
- Lack of a CC-VRA for the entire country applicable to climate change adaptation planning at provincial and local levels.
- Weak stakeholder coordination following institutionalization of federalism.
- Lack of downscaled climate trend and scenario information.
- Lack of a comprehensive list of adaptation options covering wider agriculture subsectors, major agro-ecological zones and gender and social groups.
- Need to integrate agriculture sector adaptation perspectives into the upcoming NAP.
- Climate change adaptation readjustment to be incorporated into the ADS.
- Strengthened institutions and human resource capacity development required.
- Enhanced data collection and reporting of climate change adaptation integration in the agriculture sector.

### *Scope of the Roadmap*

The roadmap should guide integration of climate change adaptation into agriculture development planning processes based on learning and experience following implementation of the NAP-Ag Project. Because agriculture is the sector most hit by climate change impacts, it is urgent that adaptation measures be mainstreamed into sector policies, strategies, plans and programmes and viewing sector development interventions from a climate change perspective. This is possible when the sector is appropriately addressed during national planning processes, such as formulation of the NAP and when the outcomes of the NAP formulation are well articulated in agriculture sector development planning and implementation. This roadmap is framed considering this two-dimensional approach of integrating climate change adaptation and agriculture. Therefore, this roadmap is intended for review and application by the NAP formulation team and sector policy makers, planners and development implementers at national and subnational levels.

Formation of this roadmap is based on learning and experience from implementation of the NAP-Ag Project over two years, starting from the first quarter of 2017 to the first quarter of 2019. Only highlights from the project implementation which are important to climate change adaptation integration endeavours are described here. The roadmap is based on project implementation reports and knowledge products provided to stakeholders. The learning and experiences, presented as instructions and suggestions, are detailed in the reports and the knowledge products, which complement this roadmap. The main documents are:<sup>1</sup>

1. Final Report on Implementation of Agriculture Sector Climate Change Vulnerability and Risk Assessment and Institutional Capacity Building in Adaptation Sensitive Planning and Budgeting (Contract No. FANEP/UNFA/GLO/616/UND-2017-001)
2. Final Report on Agriculture Development Strategy (ADS) Sector Development Pathways for Integration of Climate Change Adaptation (Contract No. FANEP/UNFA/GLO/616/UND-2017-001)
3. Handbook on Implementation of Agriculture Sector Climate Change Vulnerability and Risk Assessment and Institutional Capacity Building in Adaptation Sensitive Planning and Budgeting (Contract No. FANEP/UNFA/GLO/616/UND-2017-001)
4. Training Manual on Agriculture Sector Climate Change Vulnerability and Risk Assessment and Adaptation Planning and Budgeting (Contract No. FANEP/UNFA/GLO/616/UND-2017-001)

<sup>1</sup> Available at <https://drive.google.com/open?id=19A8U9HF8nKWSmpbGhcG5zof2PueNGimm>

5. Final report: Conduct a Climate Change Risk and Vulnerability Assessment of Agro Ecological Zones of Nepal and Appraising Climate Change Adaptation Measures in Agriculture
6. Extended Cost Benefit Analysis Methodology Report: Conduct a Climate Change Risk and Vulnerability Assessment of Agro Ecological Zones of Nepal and Appraising Climate Change Adaptation Measures in Agriculture
7. Appraising Cost of Options: Conduct a Climate Change Risk and Vulnerability Assessment of Agro Ecological Zones of Nepal and Appraising Climate Change Adaptation Measures in Agriculture
8. Internal handbook: Tools and Techniques Required for Developing Green Climate Fund Proposals for Climate Change Adaptation Measures in Agriculture Sector
9. Agriculture Sector Climate Change Adaptation Results Monitoring and Evaluation Framework of Nepal (Contract No.: RFP/FANEP/UNFA/GLO/616/UND-2017-002)
10. Training manual: Monitoring and Evaluation of Agriculture Sector Climate Change Adaptation
11. Integrating Climate Change in the Planning and Budgeting of Agriculture Sector at the National and Subnational Levels
12. Guidelines on Agriculture Sector Climate Change Budget Coding 2075 (in Nepali)



# Introduction

## Overview of NAPs and their link to Nationally Determined Contributions / Paris Agreement

The Cancun Adaptation Framework (CAF, 2010) established the process of formulating a national adaptation plan (NAP)<sup>1</sup> to address medium- and long-term adaptation needs, and developing and implementing strategies and programmes to address those needs. The NAP aims to reduce vulnerability resulting from the impacts of climate change by building adaptive capacity and resilience and facilitating integration of adaptation measures into new and existing policies, programmes and activities, in particular, development planning processes and strategies within all sectors at national and subnational levels. Building on the Decision 5/CP.17, the LDC expert group (LEG) in 2017 developed technical guidelines to support and facilitate the process of NAP formulation. There has been a global understanding of the NAP process to build on the experience and lessons learned from the preparation and implementation of the NAPAs. Nepal is in the formulation phase of its NAP<sup>2</sup>, which is adopting an approach of leave-no-one-behind emphasizing stakeholder engagement through a working group approach focusing on seven thematic and two cross-cutting areas (MoFE, 2018a).

Article 7 of the Paris Agreement (2015)<sup>3</sup> establishes a global goal to increase the ability to adapt to the adverse impacts of climate change and to foster climate resilience and low greenhouse gas emission development so it does not threaten food production<sup>4</sup>. The Paris Agreement also calls on parties to engage in adaptation planning processes such as formulation and implementation of NAPs, share experiences and lessons learned on support needs, plans and actions through adaptation communications and actively participate in a global stocktaking to enhance implementation of adaptation actions. Nationally determined contributions (NDCs) that consist of commitments, targets and efforts of each country on mitigation, adaptation or both, are at the centre of the Paris Agreement and the achievement of these long-term goals<sup>5</sup>. Most countries, including Nepal, have an adaptation component embedded in their NDCs. Nepal, in its NDC, has clearly mentioned NAP as the overarching adaptation component in addition to local adaptation plans for action (LAPA) indicating a clear opportunity for the alignment of the two processes to enhance adaptation planning and action. The two processes are mutually reinforcing, as explained by Hammill & Price-Kelly (2017), which is depicted in Figure 1.

1 Decision 1/CP.16, paragraph 15

2 The NAP process supported by the NAP Global Network, Action on Climate Today (ACT) and Practical Action Nepal.

3 [https://unfccc.int/files/meetings/paris\\_nov\\_2015/application/pdf/paris\\_agreement\\_english\\_.pdf](https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf)

4 Decision 1(b)/CP.21.

5 <https://unfccc.int/process/the-paris-agreement/nationally-determined-contributions/ndc-registry>

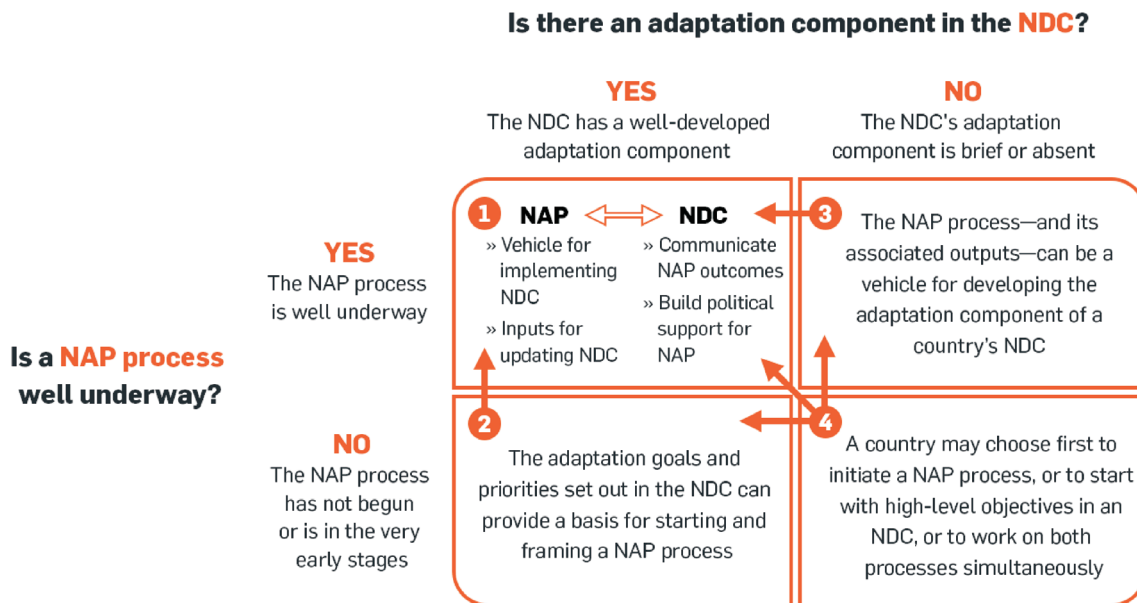


Figure 1. A framework for linking NAPs and NDCs. Source: Hammill & Price-Kelly, 2017.

Nepal launched its NAP process in 2015 before the formulation of its NDC in 2016 to address medium and long-term adaptation needs and to reduce climate vulnerabilities. The NAP process and formulation of a NAP envisaged promoting integration of climate change adaptation into sector policies, strategies, plans and programmes through country-driven, extensively consultative, participatory, transparent and sector-led thematic working group approaches. In line with this, the NAP-Ag Project worked independently with the agriculture sector, supporting the integration into the NAP process and conversely the integration of the NAP process outcomes and achievements into agriculture sector policy, strategy and programmes at all three levels of government.

## Overview of NAP technical guidelines for agriculture sector and agriculture sector adaptation planning

The NAP-Ag guidelines (FAO, 2017) encompassing the technical guidelines prepared by the Least Developed Countries Expert Group of the UNFCCC (2012) made it compatible for the agricultural sector. This is one of several sectoral guidelines prepared to facilitate formulation and implementation of the NAP as requested by the LEG in 2013.

The NAP-Ag guidelines aim to help developing countries reduce vulnerability in the agriculture sector by building adaptive capacities and resilience, addressing agriculture in the formulation and implementation of NAPs and enhancing the integration of adaptation in agricultural development policies, programmes and plans. The guidelines support national planners, decision makers, authorities and experts within the agriculture sector who are contributing to climate change adaptation and NAP formulation and to better understanding the needs and opportunities for adaptation in the agriculture sector. Guidelines are expected to empower agriculture stakeholders to participate effectively and efficiently in the NAP process and help nonagricultural specialists to understand the issues related to the agriculture sector, food security and nutrition in the context of climate change (Table 1).

**Table 1. Checklist for elements and steps in the NAP-Ag Process. Source: NAP-Ag Guidelines, FAO, 2017.**

<p><b>Element A: Laying the Ground work and Addressing the Gaps</b></p>	<ul style="list-style-type: none"> <li>▪ Initiate participation of representatives from the agriculture sector in national adaptation planning, including clarifying mandates and engaging focal points for the different subsectors.</li> <li>▪ Take stock of existing vulnerabilities and risk assessments, knowledge, methodologies, and possible capacity and institutional gaps, policies, plans and investment frameworks.</li> <li>▪ Address capacity gaps and weaknesses in adaptation planning.</li> <li>▪ Assess and identify links between adaptation needs and development goals.</li> </ul>
<p><b>Element B: Preparatory elements</b></p>	<ul style="list-style-type: none"> <li>▪ Analyse current and future climate scenarios for production and sustainability.</li> <li>▪ Assess climate impacts, risks and vulnerabilities and identify adaptation options.</li> <li>▪ Select and appraise adaptation options.</li> <li>▪ Compile and communicate agricultural perspectives for NAPs.</li> <li>▪ Review integration and alignment of climate change adaptation in development planning and NAPs, including national, subnational and sectoral and sub sectoral plans.</li> </ul>
<p><b>Element C: Developing implementation strategies</b></p>	<ul style="list-style-type: none"> <li>▪ Ensure priority for the agriculture sector in national adaptation planning and NAPs.</li> <li>▪ Develop a long-term adaptation implementation strategy that includes potential options for scaling up adaptation actions and leveraging climate finance.</li> <li>▪ Improve capacity for planning and implementing adaptation.</li> <li>▪ Promote coordination and synergies at the national and subnational levels.</li> </ul>
<p><b>Element D: Monitoring, reporting and review of the process</b></p>	<ul style="list-style-type: none"> <li>▪ Prepare for monitoring adaptation planning and implementation.</li> <li>▪ Review the national planning process assessing how the agriculture sector is being addressed.</li> <li>▪ Monitor and update the process of adaptation planning and implementation.</li> <li>▪ Outreach on the process and report on the alignment of NAP/NAP-Ag progress and effectiveness.</li> </ul>

In line with the principles of the UNFCCC NAP technical guidelines, the NAP-Ag Guidelines further say to:

- Provide supporting material and examples on the specific aspects of agricultural adaptation planning.
- Emphasize the need for gender-responsive and nutrition-sensitive analyses and solutions.
- Stress the many inputs essential in an iterative process that spans planning, decision-making, implementation and reviewing progress in improving resilience and adaptation to climate change.
- Seek to promote coherence across sectors and subsectors, and across general sectoral planning and climate change adaptation.
- Help to identify and address gaps in capacity, information and adaptation actions.
- Seek to support periodic review of progress and successes of the process through a structured monitoring and evaluation framework.

# Country context and background

## Development profile

Nepal lies on the southern face of the Himalayan mountain range with average east-west and north-south stretches of 885 and 193 km respectively. It covers an area of 147,181 km<sup>2</sup>, 86% of which extends into the hills and mountains and 14% into the plains or Terai landscapes. The country is divided into five physiographic regions from north to south: i) High Himal with 24% area under snow, ii) High Mountains with 20% area, iii) Middle Mountains with 30% country area, iv) Siwalik with 12% area, and v) Terai with 14% area in the northern Indo-Gangetic plain (MoSTE, 2014). The physiographic regions' distinct altitude and climate characteristics vary from subtropical in the south to alpine in the north (Table 2). The average annual rainfall of the country is 1,530 mm. Annual rainfall generally increases with elevation up to 3,000 metres and then declines with aspect, elevation and latitude. The rainfall distribution pattern varies considerably in both north-south and east-west directions. The physiographic and climatic conditions of the country are shown in Figure 2 and Table 2, respectively.

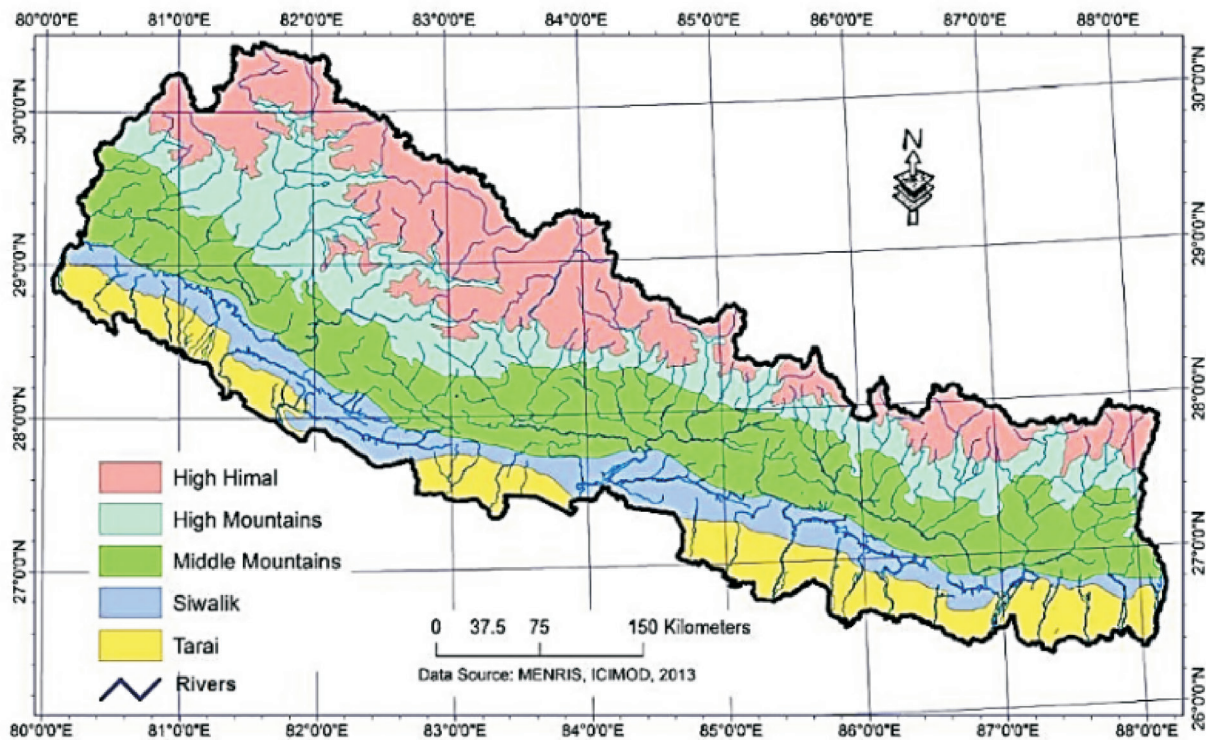


Figure 2. Physiographic zones of Nepal. Source: MoFSC, 2014.

**Table 2. Climate characteristics of ecological belts in Nepal.**

Physiographic zones	Ecological belts	Climate/w	Average annual precipitation mm	Mean annual temperature °C
High Himal	Higher Mountain	Arctic/alpine	Snow; 150–200	<3–10
High mountains		Cool temperate		
Middle mountains	Lower Mountain and Hill	Warm temperate	275–2,300	10–20
Siwalik		Subtropical	1,100–3,000	20–25
Terai	Terai			



According to the National Population Census in 2011, the annual population growth rate was 1.1%, and the total population was 29.30 million in 2017 (World Bank, 2019). The GDP growth rate is expected to remain around 4.9% and 5.5%, and the per capita GDP growth at 3.5% and 4.1% respectively in 2018 and 2019 (ADB, 2018). About one-fourth of the population lives below the poverty line (Nepal Living Standards Survey, 2010/2011), and the Gini-Coefficient that indicates inequality in income distribution is 0.328 (CBS, 2011). Most poor people live in rural areas and poverty is closely associated with a stagnant rural economy and low agricultural growth. Mountain, Hill and Tarai poverty levels are 42.3%, 24.3% and 23.4% respectively (NPC, 2013). Table 3 summarizes the country's economic profile for the year 2017 adapted from world development indicators database maintained by World Bank.

**Table 3. Economic profile, 2017.**

Eco	2017
GDP (USD in billions)	24.88
GDP growth (annual %)	7.9
Inflation, GDP deflator (annual %)	8.7
Agriculture, forestry, and fishing, value added (% of GDP)	26
Industry (including construction), value added (% of GDP)	13
Exports of goods and services (% of GDP)	9
Imports of goods and services (% of GDP)	43

Source: World Development Indicators database (WB, 2019).





## Nepal's agricultural sector



Agriculture contributes about one-third of Nepal's GDP, employs about two-thirds of the population directly or indirectly (CBS, 2014), and represents 13% of total foreign trade. About 21% of the total land area is cultivated, of which 54% has irrigation facilities. The average size of land holding per household is only 0.68 ha. Over 50% of farmers are small holders cultivating land usually less than 0.5 ha. Agriculture is mostly rainfed and the weather and climate are increasingly highly vulnerable to climate change.

Paddy production is a major part of the Nepalese economy and supplies nearly 7% of GDP. Inflationary pressures subsided with increased paddy and other agricultural production (ADB, 2018). Unusually erratic monsoon rains resulting in frequent droughts and floods have had adverse effects on paddy production and ultimately on GDP and food security. The Value Chain Development Programme in the Agriculture Development Strategy (2015) specially emphasizes maize, dairy, vegetable, lentils and tea. Lentils, tea, cardamom, ginger and medicinal and aromatic plant products dominated export trade, and fruits, cereals, vegetables, beans, peas, dairy products, meat animals, oilseeds and textile fibres in import trade. There is good potential for replacement of imports for vegetables, fruits, beverages and dairy and meat products.

Agriculture in Nepal suffers from long-standing challenges posed by limits on the adoption of new technology, the availability of farm inputs, including finance and insurance, market linkages and institutional arrangements and legal frameworks—all hindering farm productivity. Stagnant and falling farm productivity is a major concern as it hinders livelihood improvement for much of the population. The government wants to promote commercialized agriculture development (MOAD, 2014) to boost farm productivity and incomes. Several public and private stakeholders play pivotal role in the growth, development and climate change resilience of agriculture sector in Nepal (Table 4).

Table 4. Overview of main stakeholders in agriculture.

Subsector	Government	Private sector organisations	Non/ Intergovernmental organisations	Research Institutions
 All Sectors	Federal Government: Ministry of Agriculture and Livestock Development (includes Department of Agriculture, Department of Livestock Services and Department of Food Technology and Quality Control, and Centres For Seed Quality Control. Agriculture Information and Training Centre) Ministry of Energy, Water Resources and Irrigation Ministry of Industry, Commerce and Supplies (including trade and marketing institutes) Ministry of Land Management, Cooperatives and Poverty Alleviation Ministry of Forest and Environment Ministry of Finance (including insurance and finance institutes) Provincial Government: Ministry of Land Management, Agriculture and Cooperatives Ministry of Industry, Tourism, Forest and Environment Provincial Coop. Training Centres Local Government: Municipalities and Rural Municipalities	User groups/ farmer groups, associations and federations Private banks Insurance companies Agriculture cooperatives Finance cooperatives Food First Information Action Nepal (FFIAN) IMP Farmer Federation Agro-vet Association Seed companies Input/ machine suppliers Food right Network Agro Enterprise Center (AEC/FNCCI) Professional Association	UN agencies Local Initiatives for Biodiversity, Research and Development (LIBIRD) CEAPRED Rupantaran Nepal Resource Identification and Management Society (RIMS) Nepal Environment, Culture, Agriculture, Research and Development Society, Nepal (ECARDS-Nepal) iDE Nepal SNV Nepal Helvetas Caritas Oxfam Forward Nepal SAHAMATI Nepal Practical Action CARE Nepal Action Aid Save the Children Plan International The Adventist Development and Relief Agency (ADRA) Lutheran World Relief (LWR) Lutheran World Federation (LWF)	Nepal Agricultural Research Council (NARC) Universities and academia Nepal Academy of Science and Technology (NAST) Food, crops and animal research centres CIMMYT International Rice Research Institute (IRRI) International Water Management Institute (IWMI) International Center for Integrated Mountain Development (ICIMOD) The Council for Technical Education and Vocational Training (CTEVT)
 Aquaculture	Dept. of Livestock services Disciplinary Centres and Farms Fish promotion and Con. Cen. Provincial Directorate of LS & Fishery. Development	Fishery groups, ass. and federations Hatcheries Input/ machine suppliers Fisheries enterprises Professional Association		NARC Universities
 Livestock	Dept. of Livestock Services Disciplinary Centres and Farms Veterinary Laboratories FMD and TB Vet. Lab Animal Quarantine Animal Breeding Animal resource and promotion offices Provincial Directorate of LS & F.Dev Livestock Service Training Centres Vet. Hosp. and Expert Centres	Herders' groups, ass. and federations Agro-vet/ Vet. Ass. Vet clinic and hospitals		NARC Universities
 Forestry	Department of Forest Dept. of NP and WL Dept. of Soil Conservation	Forest User groups/ associations and federations Forest enterprises	Forest Action World Wildlife Fund (WWF) ICIMOD	

Subsector	Government	Private sector organisations	Non/ Intergovernmental organisations	Research Institutions
 Horticulture	Department of Agriculture Disciplinary Centres and Farms Provincial Dir. of Agri. Dev. Agribusiness Prom. and Trn. Centres Agri. Knowledge Centres Provincial laboratories.	Farmer groups, ass. and federations Hort. enterprises Agro-vets/ associations Seed companies Input/ machine suppliers	CEAPRED	
 Cereal & Grains	Department of Agriculture Plant Quarantine and Pesticides Management Centre Laboratories (Soil/ Seed/ Plant Protection) Agricultural Infrastructures Development and Mechanization Promotion Centre Disciplinary Centres and Farms Provincial Dir. of Agri. Dev. Agribusiness Prom. and Trn. Centres Agri. Knowledge Centres Provincial laboratories.	Farmer groups, ass. and federations Agro-vet Association Seed companies Input/ machine suppliers Food enterprises	LI-BIRD CEAPRED FORWARD RIMS ECARDS	

## Climate change profile

### Climate Change Impacts

Observed Climate Trend Analysis of Nepal, published by the Department of Hydrology and Meteorology (2017), shows significant increasing trends ( $0.056^{\circ}\text{C}/\text{yr}$ ) in annual and seasonal all-Nepal maximum temperature. All-Nepal annual minimum temperature trend is increasing ( $0.002^{\circ}\text{C}/\text{yr}$ ) but is not significant. However, all-Nepal minimum temperature shows significant increasing trends only in the monsoon season. The maximum temperature trends are higher than minimum temperature trends in all seasons. In terms of precipitation, annual decrease in precipitation is  $1.3\text{ mm}/\text{yr}$  has been found but there is no significant all-Nepal precipitation trend observed in any season in overall. However, premonsoon and monsoon season precipitation shows significant trends in a few districts, while postmonsoon and winter season precipitation trends are insignificant in most districts. Only premonsoon precipitation shows a significant decreasing trend in the High Himal region. In other seasons, precipitation trends are insignificant in all physiographic regions.

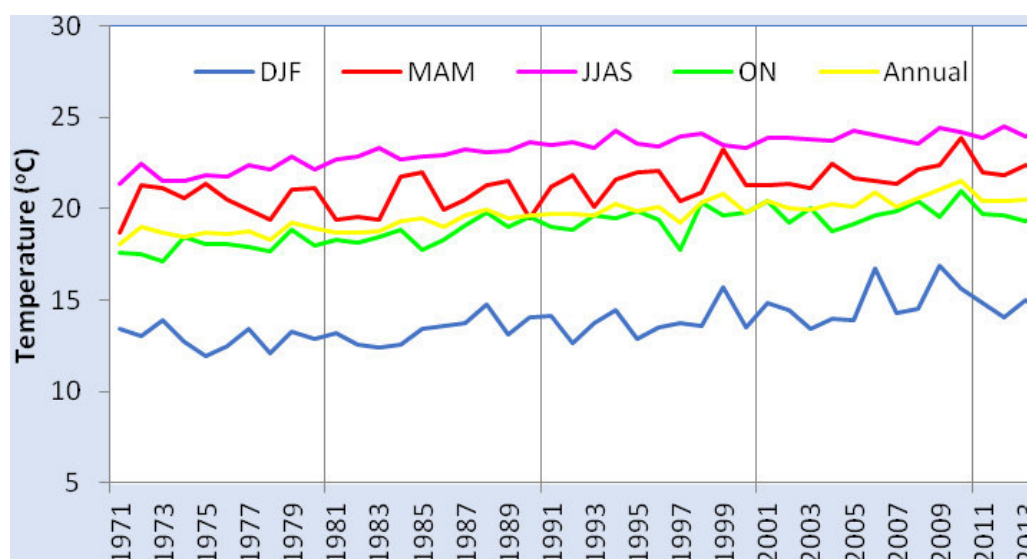


Figure 3. Seasonal and annual maximum temperature time series for Nepal. Source: DHM 2017

According to the DHM report, extreme precipitation trend analysis shows the number of rainy days increasing significantly in the northwestern districts. Very wet days and extremely wet days are decreasing significantly, mainly in the northern districts. Consecutive dry days are decreasing significantly, mainly in the northwestern districts of Karnali Province, while consecutive wet days are increasing significantly in the northern districts of the province and central parts of Gandaki Province and Province 1.

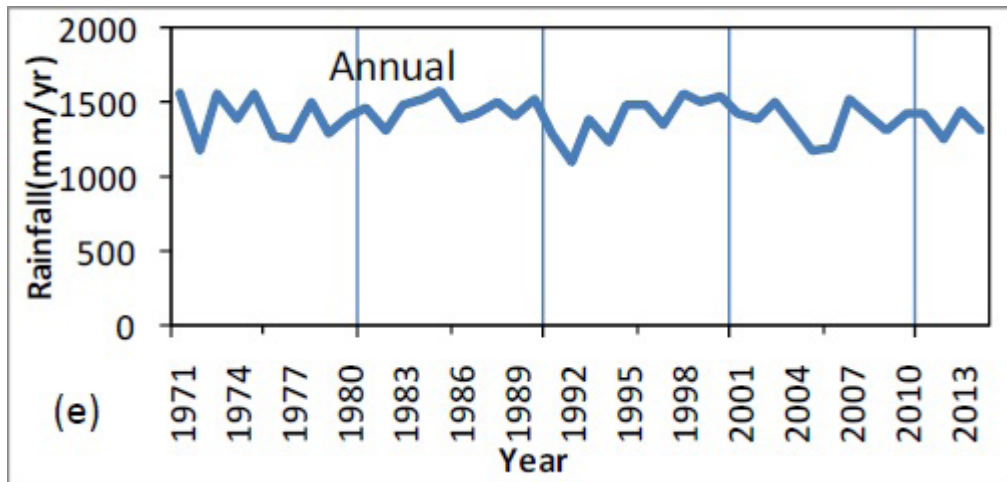


Figure 4. Precipitation time series of Nepal [Annual] Source: DHM 2017

In terms of extreme temperatures, the trends of warm days and warm nights are significantly increasing in most districts. The warm spell duration is increasing significantly in most districts. Cool days are decreasing in most districts, while cool nights are increasing in a few northwestern and northern districts, and decreasing in a few southeastern districts significantly. Cold spell duration is increasing significantly only in the Sudurpashchim Province.

Despite having only 0.4% of the total global population and being responsible for only 0.027% of total GHG emissions, Nepal has been highly affected by climatic changes and associated impacts. The agriculture and food security sector is most sensitive to climate change (MoPE, 2017a).

The impacts of climate change on Nepal's agriculture sector are increasingly evident in the form of:

- Loss and degradation of agricultural land
- Declines in crop and livestock production
- Loss of local crop races and animal breeds
- Decline in the productivity of some herbs and grass species
- Disease and pest epidemics
- Less water for agricultural uses
- Depletion of wetlands
- Hindrance in operation of conventional irrigation systems and decreasing water use efficiency
- Agro-ecological changes
- Forest fires due to prolonged dry spells
- Emergence of new alien and invasive species
- Species and habitats losses of flora and fauna
- Changes in timing of sprouting, flowering and fruiting of crop species
- Phenological disorders in animals

Declining forage production in natural pasture due to poor emergence of grasses

- Pastoral degradation and invasive species
- Increasing prevalence of animal parasites and vector-borne and parasitic diseases
- Heat stresses especially in pigs
- Eroding breeds of sheep and pigs
- Transhumance system loss
- Changes in animal reproductive behaviour especially in terms of heat-period and fertility
- Shortage of feed ingredients
- Increased production of GHGs due to animal health







In the high mountains, we see:

- Agro-ecological extension of some crops to higher elevations due to temperature rise and increased number of warmer days
- Prevalence of livestock diseases and parasites
- Declines in fodder and forage production are reported
- In the middle mountains and terai:
  - Decreasing soil moisture
  - Pests, diseases and prolonged droughts resulting in crop failures and productivity losses
  - Climate induced disasters such as erosion, landslides and floods resulting in agricultural land degradation and losses of crops, livestock and other properties

The overall analysis shows that the direct economic cost of climate variability in the agriculture sector is high. As an example, economic losses in paddy alone due to droughts from 2001 to 2010 amounted to USD 753 million, with USD 75 million lost annually (UNDP, 2013). Total economic loss in the sector due to climate change impacts is estimated at 1.5 to 2% of the country's GDP (IDS et al, 2014).

To cope with the impacts of climate change on agricultural systems, farmers are increasingly relying on food aid and selling their assets or migrating in search of employment. In addition, modern and hybrid crop varieties are increasingly replacing local varieties since they are often drought resistant or high yielding. Climate change impacts, vulnerability and adaptation measures are summarized in Table 5.

**Table 5. Climate change impacts and vulnerabilities by subsector and proposed adaptation measures.**

Subsector	Climate change impacts	Additional factors shaping vulnerabilities	Proposed adaptation measures
 All Sectors	Failure or reduced productivity of crop/livestock businesses and increasing climate disasters affecting agrarian livelihoods and life sustenance	Agriculture sector and climate adaptation there receive low priority in development process Increasing migration of male for employment (feminization) and multidimensional impacts of CC in agricultural system render women vulnerable	Tolerant crop varieties and livestock breeds; early warning, climate information and weather indexation systems; welfare fund; insurance; food/feed/fodder reserves; climate smart technologies, and fund for disaster preparedness and response, as envisaged by ADS and periodic plans
 Aquaculture	Drying water resources and climatic disasters destroying fish production and infrastructure	Resource use conflicts	Fishery research institute under NARC; crop diversification; improved breed; fishery integrated in land reclamation; fishery insurance
 Livestock	Pastoral degradation and declining forage production; increasing animal parasites, vector-borne and parasitic diseases; phenological and animal health stresses	Animal health issues and price fluctuation;	National Animal Health Res. Ins. (NAHRI) under NARC; Good Vet. and Animal Hus. Practice (GVAHP); Livestock-insurance; farm diversification; improved breeds
 Forestry	Encroachment into forest resources Forest fire due to prolonged drought	Resource use conflicts	Coordinated extension, research and education systems; forestry development;
 Horticulture	Drought and climatic hazards Diseases and pest severity hindered market operation	Inefficient market operation	National Horticulture Research Institution (NHRI) under NARC; value chain development interventions (including improved marketing)
 Grains	Declining water availability Decreasing water use efficiency Crop management risks and reduced productivity Reduced food security;	Production risks and stagnant productivity much influenced by climatic events	Strengthened, decentralized extension, research and education systems; expand and improve irrigation; improved varieties and access to inputs; private sector involvement; promote GAP and crop insurance

## Climate Change Governance Structure

### Policy Initiatives on Climate Change

Nepal aspires to become a prosperous nation and has laid out its policies and programmes in line with its long-term national vision. However, climate change events are on the rise. Realizing this, the country has undertaken several policy initiatives, established institutional mechanisms and facilitated implementation of projects and programmes (Table 6). The Ministry of Forests and Environment (MoFE), with its Climate Change Management Division as focal point to the UNFCCC, is the coordinating body in the country to facilitate integration of climate change adaptation into development planning processes.

**Table 6. Policy Initiatives that govern climate change efforts in Nepal.**

Constitutions of Nepal	<p>Article 30 provides for:</p> <ul style="list-style-type: none"> <li>• Right to clean and healthy environment</li> <li>• Right against environmental damage (right to obtain compensation)</li> <li>• Conflict between environment and development (covers necessary legal provisions for a proper balance between environment and development)</li> <li>• Article 51 (State policies, e.g. Natural Resource Protection &amp; Promotion) covers: <ul style="list-style-type: none"> <li>• Intergenerational equity, sustainable use, priority to community use, equitable distribution of resources</li> <li>• Multipurpose use of water resources</li> <li>• Energy alternatives and equitable use</li> <li>• Water induced disasters, river control, sustainable irrigation</li> <li>• Environmental awareness</li> <li>• Options to mitigate negative environment impacts</li> <li>• Polluter-pays principle, precautionary principle, pre-informed consent</li> <li>• Disaster risk reduction, early warning</li> </ul> </li> </ul>
National Adaptation Programme of Action, 2010	<ul style="list-style-type: none"> <li>• Identification, prioritization and implementation of most urgent and immediate adaptation activities and projects</li> <li>• Nine prioritised project profiles</li> <li>• Financial estimate (a total of USD 350 million) for NAPA implementation</li> </ul>
Climate Change Policy, 2011 (2019 revision underway)	<ul style="list-style-type: none"> <li>• Mitigate adverse impacts of climate change, utilize opportunities and improve livelihood through climate-friendly development</li> <li>• Requires over 80% of the total climate change fund channelled to field activities</li> <li>• Formulation of new climate change policy underway; a draft version indicates efforts incorporated to integrate climate change issues into sector policies and programmes</li> </ul>
Local Adaptation Plan for Action Framework, 2012	<ul style="list-style-type: none"> <li>• Localized climate change adaptation and integration of adaptation into development planning processes</li> </ul>
Climate Change Budget Code, 2013	<ul style="list-style-type: none"> <li>• 11 criteria of relevance in climate budget coding</li> <li>• Climate budget coding; categorised programmes as directly beneficial, indirectly beneficial and neutral to climate change adaptation</li> </ul>
Reducing Emission from Deforestation and Forests Degradation (REDD) Strategy, 2016	<ul style="list-style-type: none"> <li>• Aimed at strengthening the resilience of forest ecosystems for emission reductions and increased environmental, social and economic benefits through improved policies, measures and institutions with enhanced stakeholder capacity, capability and inclusiveness</li> <li>• Process on harnessing REDD+ Readiness Emission Reduction Program</li> </ul>
Nationally Determined Contribution (NDC), 2016	<ul style="list-style-type: none"> <li>• Reduce climate induced hazards and disasters through mitigation and adaptation actions</li> </ul>
National Adaptation Plan (on the process)	<ul style="list-style-type: none"> <li>• Identifying medium and long-term adaptation needs of the country taking 2017-2030 as a medium term and 2017-2050 as a long-term.</li> <li>• Integrating climate change adaptation into policies, plans and programmes.</li> </ul>
Third National Communication	<ul style="list-style-type: none"> <li>• (Underway)</li> </ul>
Agriculture Development Strategy (ADS), 2015-2035	<ul style="list-style-type: none"> <li>• Long-term agriculture development vision and plan</li> <li>• Integration of climate change adaptation and resilience development in the sector</li> <li>• Includes research and knowledge generation on climate change such as research on stress-tolerant crop varieties, breeds of livestock and fish and development of climate-resilient agriculture.</li> </ul>
Fourteenth Periodic Plan, 2016/17-2018/19	<ul style="list-style-type: none"> <li>• Envisages developing productivity and competitive capacity of agriculture sector; achieving self-reliance on basic food production and harnessing potential comparative benefits of local crops; reducing agricultural dependency of the workforce by attracting them to nonagricultural services and industries, reducing negative impacts of climate change and disasters, and expanding environment-friendly agriculture technology and research and knowledge generation on climate change.</li> </ul>
Fifteenth Plan Approach Paper	<ul style="list-style-type: none"> <li>• Mainstreaming climate change issues in all levels, sectors and regions and developing policies and plans at state, province and local levels</li> <li>• Local level capacity building for implementing climate change adaptation and mitigation practices</li> <li>• Identifying main drivers of climate change and categorizing them based on contribution, and develop a reference level to monitor changes in their contribution level.</li> <li>• Developing a long-term strategic plan and revising national level roadmap to comply with Paris agreement.</li> </ul>

### ***Institutional Arrangements:***

The institutional structure for climate change governance in Nepal has three tiers of coordination mechanisms. The Climate Change Council (CCC), chaired by the Prime Minister was established in 2009 to provide high-level coordination, guidance and directives in formulating climate change and related policies, and to promote integration of climate change into other policies, plans and programmes.

The Climate Change Coordination Committee (CCCC), chaired by the Minister for the Ministry of Forests and the Environment, was established in 2011 to better coordinate implementation of climate change activities within the ministry, including the pilot programme on climate resilience.

The Multistakeholder Climate Change Initiatives Coordination Committee, under the chair of the Secretary for the Ministry of Forests and the Environment (MoFE), was established in 2010 to coordinate and implement climate change programmes, projects and activities. This committee has representation from ministries and institutions, INGOs, NGOs, academia, the private sector and donors.

According to the government's business allocation rules (2015), MoFE is mandated to formulate, implement, monitor and evaluate policies, plans and programmes related to environment, hydrology and meteorology, pollution control, alternative energy, climate change and adaptation, and liaise and coordinate with national and international environmental agencies. The Department of Environment is mandated to promote climate change adaptation activities.

The Federal Ministry of Finance is responsible for coordinating climate investment and is the National Designated Authority to the Global Climate Fund. Several line ministries in the federal government (Table 7 & 8) have appointed climate change focal points to coordinate with the ministry and integrate climate change concerns into their respective plans and programmes. Under new federal structure, provincial and local governments are mandated with climate change adaptation and resilience development responsibilities.

**Table 7. Line ministries in the federal government of Nepal<sup>6</sup>**

Office of the Prime Minister and Council of Ministers	Ministry of Home Affairs*
Ministry of Agriculture and Livestock Development*	Ministry of Defence
Ministry of Culture, Tourism and Civil Aviation*	Ministry of Finance*
Ministry of Water Supply*	Ministry of Industry, Commerce and Supplies
Ministry of Physical Infrastructure and Transport*	Ministry of Law, Justice and Parliamentary Affairs
Ministry of Energy, Water Resources and Irrigation*	Ministry of Education, Science and Technology
Ministry of Women, Children and Senior Citizen*	Ministry of Labour, Employment and Social Security
Ministry of Urban Development*	Ministry of Federal Affairs and General Administration*
Ministry of Land Management, Cooperatives and Poverty Alleviation	Ministry of Foreign Affairs
Ministry of Health and Population*	Ministry of Youth and Sports
Ministry of Forests and Environment*	Ministry of Information and Communications

**Table 8: Line ministries in the provincial government of Nepal**

Ministry of Internal Affairs and Law	Ministry of Land Management, Agriculture and Cooperatives
Ministry of Social Development	Ministry of Physical Infrastructure and Development
Ministry of Industry, Tourism, Forests and the Environment	Ministry of Economic Affairs and Planning

Different institutional mechanisms in the Federal Ministry of Agriculture and Livestock Development, or directly linked to it, have been created to facilitate integration of climate change into the agriculture sector. These are:

<sup>6</sup> Those with asterisks have climate change focal points and leadership and membership in the NAP Thematic Working Groups.



**High Level Nutrition and Food Security Steering Committee** in the National Planning Commission (NPC) with its vice-chairperson as chair and secretary as member-secretary, and secretaries of ministries including MOALD as members. A Food Security Monitoring Unit is created in MOALD.

**National Nutrition and Food Security Coordination Committees** in NPC with its member for health and nutrition sector as coordinator and joint secretary for Social Development Division as member-secretary, and Joint Secretaries of ministries and experts as members. The coordination committee is extended to subnational levels in the form of District Nutrition and Food Security Coordination Committee (DNFSCC) and Municipal Nutrition and Food Security Coordination Committee.

**Food Security and Food Technology Division** in MOALD coordinated by the Joint Secretary, who is also a National Focal Point for the NAP-Ag Project and coordinator for the NAP-Working Group for Agriculture and Food Security (Nutrition) Theme. The division provides an Agriculture Biodiversity and Environment Section to coordinate environmental and climate change issues. Similarly, provincial MoLMAS provides an Agrobiodiversity and Climate Change Section in its Food Security and Agribusiness Promotion Division.

**Agriculture Loans, Insurance and Disaster Management Section** in Agriculture and Livestock Business Promotion Division of MOALD is mandated to coordinate disaster management issues in the agriculture sector.

**Nepal Food Security Monitoring and Analysis System (NeKSAP)**, a unit in MOALD.

**National Nutrition Program** under DFTQC, MOALD deals with nutrition.

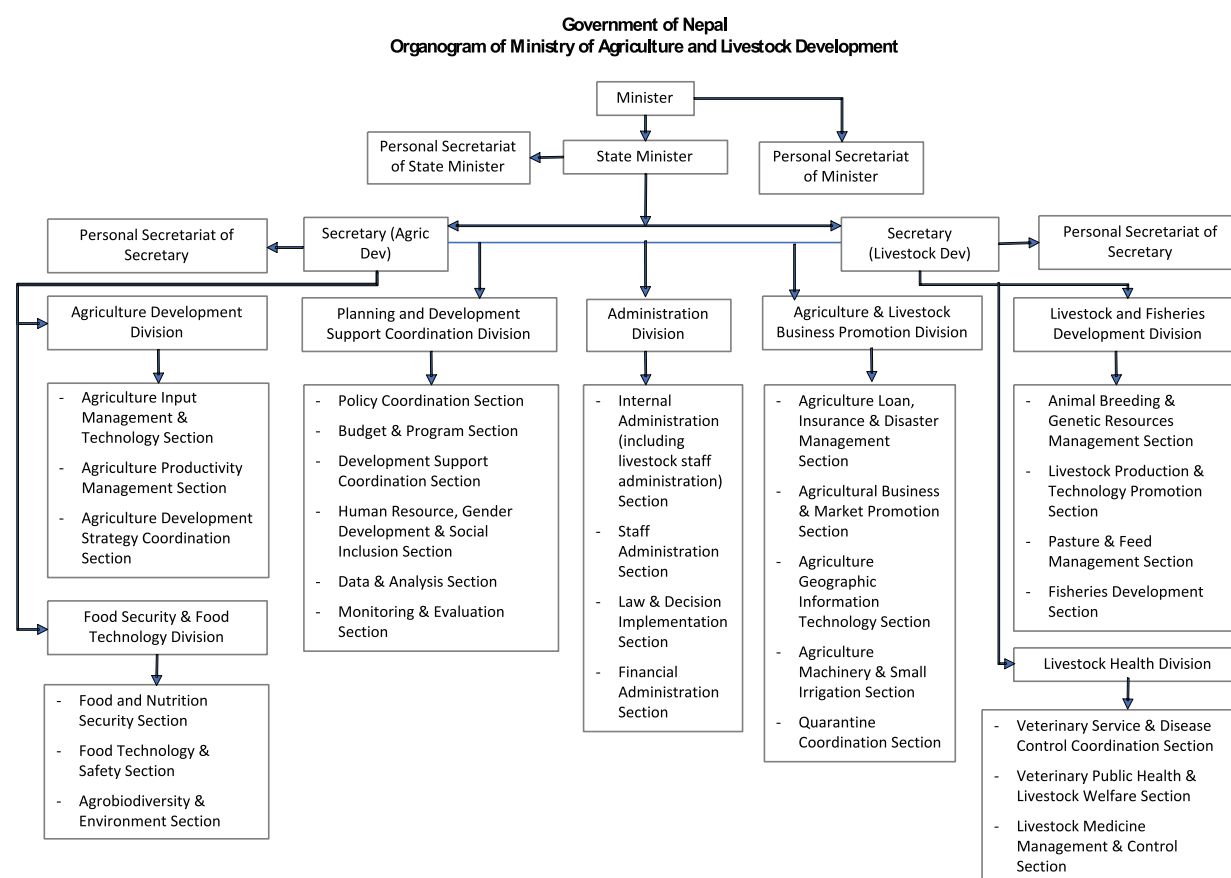


Figure 5. Structure of Federal Ministry of Agricultural and Livestock Development.

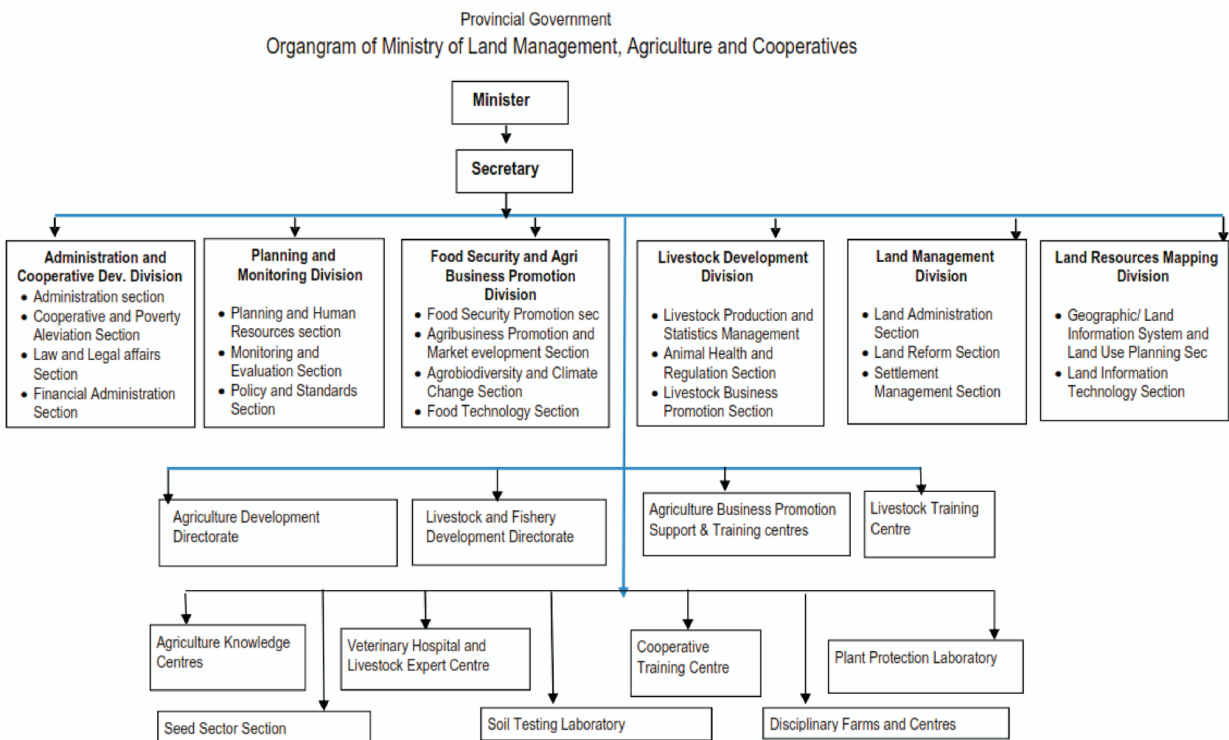


Figure. 6. Structure of Provincial Ministry of Agriculture, Land Management & cooperatives.

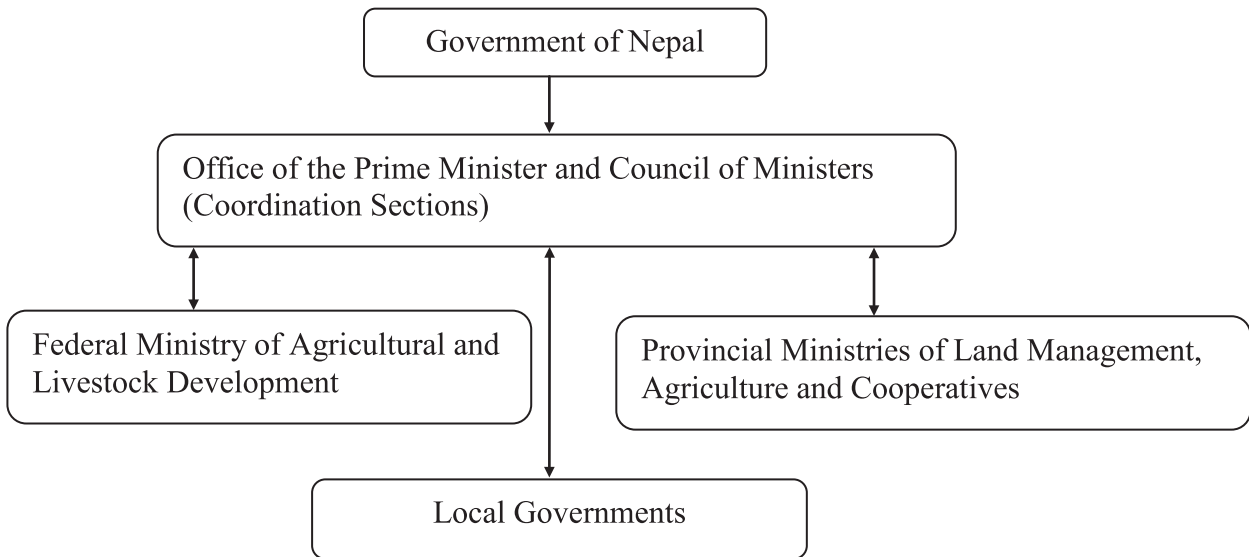


Figure 7. Links among federal, provincial and local government agencies in agriculture development .

# Progress assessment and gap analysis of integrating agriculture in adaptation planning

Between the two major milestones (launching of NAP formulation process in September 2015 and NAP-Ag project launching in February 2017), the NAP process<sup>7</sup> had formed working groups, prepared stocktaking reports and laid the groundwork for work preparation of the adaptation plan. After inception of the NAP-Ag Project, the project worked in close collaboration with the national NAP formulation team, in particular the Agriculture and Food Security (Nutrition) thematic group, in undertaking the activities and laying the groundwork (Element A) and preparatory works (Element B). The Project Technical Taskforce (Appendix 7.1) was formed under the NAP-Ag Project comprising the same members as the NAP TWG on AFSN, to build synergy and complementarity with the NAP process.

The national NAP process paused after May 2017, whereas the NAP-Ag Project continued its activities (Table 9) under *Preparation of implementation strategies (Element C)* and *monitoring, reporting and review of the process* (Element D). Implementation of its planned interventions covered i) developing technical capacity and institutions of agricultural ministries through tools and methods development on CC-VRA, identification of climate change adaptation measures and climate change adaptation M&E, knowledge material preparation and delivery of training, and ii) supporting in the sector planning and budgeting process through identification of ADS-based sector development pathways for integration of climate change adaptation, an M&E framework, budget coding and expenditure tracking tools and budget and project preparation guidelines as shown in Table 9. The NAP process is about to resume shortly.<sup>8</sup>

**Table 9. NAP-Ag Project planned interventions in Nepal**

Level	Intervention	Support
Goal	Climate change concerns as they affect agricultural sector-based livelihoods are integrated in associated national and sector planning	
Outcome	1.0 Technical capacity and institutions on NAPs strengthened	
Output	1.1 Training and institutional capacity building in adaptation-sensitive planning	
Activity	1.1.1 Develop methods for CCA and climate change vulnerability assessment and planning and budgeting for the agriculture sector in Nepal based on a synthesis of methods already applied or suitable for the Nepal context	FAO
Activity	1.1.2 Prepare climate change profiles for the agriculture sector in 3 target districts representing a cross-section of agro-ecological zones (e.g. Terai, Middle Mountain, High Mountain)	FAO
Activity	1.1.3 Conduct applied participatory vulnerability assessment and planning case studies and training exercises with support of project taskforce in the selected (rural) municipalities in 3 target districts	FAO
Activity	1.1.4 Identify and document lessons learned based on training application and demonstration activities on integrating CCA into national and local planning and budgeting processes	FAO
Activity	1.1.5 Conduct training of trainers on climate change adaptation and climate change vulnerability assessment and planning and budgeting for the agriculture sector in Nepal in provincial centres	FAO
Activity	1.1.6 Conduct national level training on climate change adaptation and climate change vulnerability assessment, risk management and planning and budgeting for the agriculture sector in Nepal	FAO
Output		

7 The NAP formulation process formerly coordinated by the then Ministry of Population and Environment (MoPE),

8 GCF supported NAP process led by the Ministry of Forests and Environment has recently started recruiting technical team to resume it.

Level	Intervention	Support
Activity	1.2.1 Identify methods/ approaches for evaluating priority CCA practices and programs in Nepal agricultural sector, using applied economic valuation of ecosystem support services and investment appraisal tools such as CBA and 'business models' to refine feasibility of bankable activities	UNDP
Activity	1.2.2 Conduct economic valuation of selected ecosystem services to the agriculture sector as applicable to the selected (rural) municipalities	UNDP
Activity	1.2.3 Conduct CBA for selected priority CCA measures/practices in the selected municipalities in the target districts.	UNDP
Activity	1.2.4 Conduct training of trainers on applied economic valuation of ecosystem support services to the agriculture sector and cost benefit analysis of agricultural adaptation practices in Nepal in provincial centres	UNDP
Activity	1.2.5 Conduct national level training on applied economic valuation of ecosystem services to the agriculture sector and cost benefit analysis of agricultural adaptation practices in Nepal	UNDP
Output		
Activity	1.3.1 Prepare instructional materials including a handbook for field extension officers on how to prioritize, promote, and mainstream CCA measures into planning processes for the agriculture sector	FAO
Activity	1.3.2 Prepare handbook/internal guidelines for relevant MOAD staff to improve economic appraisal of programs incorporating climate change costs and benefits of priority CCA practices	UNDP
Outcome		
Output		
Activity	2.1.1 Identify institutional gaps and elaborate planning road map with key entry points to better integrate CCA with priority to be given to ADS programs.	FAO
Activity	2.1.2 Technical assistance to improve existing climate change budget coding and expenditure tracking methods and mechanisms with priority on ADS.	UNDP
Output		
Activity	2.2.1 Technical assistance to integrate CCA into MOALD Budget Guidelines and Budget Proposals used to advocate to/through NPC/ local authorities.	UNDP
Activity	2.2.2 Integrate Climate Change Economic and Investment Appraisal Criteria (e.g., Cost-Benefit Analysis) into internal MOALD Project Preparation Guidelines. Priority to be given to ADS programs.	UNDP
Outcome		
Output		
Activity	3.1.1 Development of related M&E tools for based on a stock taking of existing indicators and data collection processes within MOALD.	FAO
Activity	3.1.2 Select 3 ongoing adaptation practices in target districts for developing adaptation impact case studies	FAO
Activity	3.1.3 Prepare a programme monitoring framework including KPIs for enhanced CCA that for field monitoring of ADS priority programs.	FAO
Output		
Activity	3.2.1 Train MOALD monitoring unit and on approaches to improve climate risk analysis and related data monitoring and management	UNDP
Activity	3.2.2 Prepare training modules and materials on CCA monitoring for central monitoring unit, local Planning Committees and training centres.	UNDP
Outcome		
Output		
Activity	4.1.1 Engage in broader NAP process in Nepal and MoFE (environment) -led meetings under agriculture TWG on NAPs.	FAO
Activity	4.1.2 Prepare contributions from agriculture sector to input into NAP for Nepal and contribute project knowledge and communications products to national scientific and technical workshops relevant for NAP development	FAO
Activity	4.1.3 CCA options and strategies more broadly understood and appreciated by national stakeholders	UNDP
Activity	4.1.4 Support engagement of Nepalese agricultural sector decision-makers in global NAP dialogues	UNDP

## ***Element A: Laying the groundwork and addressing gaps***

### ***Overview of Element A***

The focus of this element is on setting the scene for integrating the agriculture sector in NAPs and engaging agricultural stakeholders in formulating and implementing the NAP. First, it is crucial to understand the status and milestones of the NAP development and the interface between the national adaptation planning and agricultural planning processes. The gap analysis of capacities, knowledge and institutions is essential to reveal areas where additional work, including capacity development is required. Stocktaking of ongoing climate change and development activities and available data and information on climate change and its impacts, and a stakeholder analysis and identification of capacity gaps in the agriculture sector would lay the groundwork for any new or scaled up adaptation actions. Monitoring and evaluation needs should be considered throughout the element.

The groundwork and addressing gaps relevant to implementation of the project activities for integrating the agriculture sector into the NAP and climate change adaptation into the sector development planning and budgeting, and engaging agriculture sector stakeholders in the process involved: forming focal points and implementing structures (PSC, PTT, taskforces and service providers); review of policy matters, NAPA, LAPA, NAP tools and methods, state institutional arrangements (statutes, frameworks, directives and guidelines), organizational structures, the project pilot district profiles, and the NAP process reports on its approaches, strategies and stocktaking for necessary synergies.

### ***Element A Outputs***

The main outputs of this element include:

- Initiating climate change adaptation planning in the agriculture sector as part of the national process to formulate and implement the NAP.
- Nomination of focal points and the establishment of the task forces or multistakeholder thematic and cross-cutting working groups for all the agriculture sector with clear mandates.
- Preparation of stocktaking report with reviews including report regarding ongoing climate change and DRR activities; the main agricultural development policies and investment projects and programmes; the results of gender analysis of climate activities in the agriculture sector; the available knowledge (including conducted assessments), and methodologies for assessing climate risks, impacts, vulnerabilities and adaptation options; and an analysis of stakeholder and institutional capacities in the agriculture sector.
- Formation of the project baselines.

## ***Element A - Summary of Progress***

### ***Achievements***

This project supported the NAP process through strategic engagement with the national NAP team and its Working Group on Agriculture and Food Security Theme, the then ministries of Agricultural and Livestock Development and other stakeholders in agriculture sector planning and development. Major activities of the NAP-Ag Project included: the project inception; capacity and needs assessment of the ministries engaged in agriculture sector development; identifying focal points, taskforces, service providers, consultant, and their mandates for implementation of NAP-Ag at different levels; forming project implementation structures; and stocktaking information (Table 10 and Table 11).

### ***Gaps Remaining***

As the country was embarking on federalism, it was frequently necessary to consider possible changes whilst planning and implementing the NAP-Ag Project. With the new governance structure in place, ample opportunities along with some challenges emerged that needed to be addressed. These included frequently changing government structures, some support structures being terminated, frequent transfer of focal points,

and phased elections at local, provincial and federal levels. Frequent transfers and changes of focal points required repeated sensitization and refreshing of professionals on NAP-Ag Project adaptation interventions. Besides this, institutional capacity and gaps had to be assessed along with the links with the other ongoing national and international processes such as the Paris Agreement, the Sendai Framework on Disaster Risk Reduction, NDCs, NAPA and LAPAs. Agriculture has been listed as concurrent rights of federal, provincial and local governments (Schedule 9, Constitutions of Nepal), and thus involvement of all tiers of government in the NAP process was imperative. This indicated that the stakeholders at the provincial and local governments should be engaged in the adaptation planning, and a comprehensive bottom-up approach facilitated. In addition, while initiating work with the national NAP team, the process supported by Action on Climate Today (ACT), Oxford Policy Management and Practical Action terminated midway without formation of a NAP, leaving the NAP-Ag Project to restructure and continue with planned interventions. Therefore, the project is complete except for periodic readjustments plan, and integrating parts of the sector at a later date by the focal and sector ministries.

### Support Provided by the NAP-Ag Project

Initially, the NAP-Ag Project worked in coordination with the thematic working group of the NAP process for Agriculture and Food Security (Nutrition), while the NAP process was in its preparatory phase. Following a midway halt of the NAP process in May 2017 in light of the forthcoming federalisation, the NAP-Ag Project focused on capacity building for climate change adaptation into the sector development planning, devising agriculture sector VRAs based on NAPA and ecosystem-based adaptation (EBA) approaches; identification and appraisal of climate change adaptation options; an ADS-based roadmap, M&E framework and planning and budget coding guidelines; and the sector's capacity building through delivery of knowledge materials and training.

**Table 10. NAP-Ag Project progress summary aligned to LEG NAP-guideline.**

<p>Element D: Reporting, monitoring and review</p> <ul style="list-style-type: none"> <li>● Prepare the sector for monitoring climate change adaptation</li> <li>● Data collection arrangement</li> <li>● Review the process</li> <li>● Monitor and update the process</li> <li>● Outreach and report on the sector climate change adaptation</li> </ul>	<p>Element A: Laying groundwork and addressing gaps</p> <ul style="list-style-type: none"> <li>● Capacity and needs assessment of the ministries engaged in agriculture sector development</li> <li>● The project inception</li> <li>● Identify focal points and necessary service providers</li> <li>● Form project implementation structures</li> <li>● Reviews and stocktaking of information               <ul style="list-style-type: none"> <li>○ Baselines</li> <li>○ Policies, plans, programmes, statutes, frameworks, directives and guidelines</li> <li>○ NAPA/ LAPA tools and methods</li> <li>○ NAP approaches, strategies and stocktaking</li> <li>○ Institutional mechanisms and supports</li> <li>○ Project pilot districts profiles</li> </ul> </li> </ul>
<p>Element C: Implementation strategies</p> <ul style="list-style-type: none"> <li>● Identify climate change adaptation priorities for the agriculture sector</li> <li>● Develop long-term climate change adaptation strategies for the sector through necessary readjustments in the ADS</li> <li>● Develop sector specific tools and methods for CC-VRA, appraisal of climate change adaptation options and climate change adaptation M&amp;E</li> <li>● Prepare training materials and deliver training to build sector capacity on climate change adaptation planning and implementation</li> <li>● Promote coordination and synergy at national and subnational level</li> </ul>	<p>Element B: Preparatory elements</p> <ul style="list-style-type: none"> <li>● Review integration of climate change adaptation in the national and subnational sector development planning and the sector in NAPs</li> <li>● Plan and prepare for service providers to bring on board to:               <ul style="list-style-type: none"> <li>○ Analyse climate trends and scenarios from agri-perspectives</li> <li>○ Assess climate impacts, conduct VRA and identify climate change adaptation options</li> <li>○ Select and appraise adaptation options</li> <li>○ Compile agricultural perspectives for NAPs</li> <li>○ Explore opportunities to integrate climate change adaptation into agri-dev</li> <li>○ Prepare roadmap, M&amp;E-FW and guidelines for the integration</li> <li>○ Design VRA, CBA, M&amp;E and budget coding tools for the sector</li> <li>○ Prepare tools and materials for institutional capacity development</li> </ul> </li> </ul>

**Table 11. Overview of achievements and identified gaps.**

A. Laying the groundwork and addressing gaps	Achievements	Gaps
<b>A1:</b> Initiate and launch agriculture sectors participation in national adaptation planning, including clarifying mandates and engaging subsectors	<ul style="list-style-type: none"> <li>NAP process launched by MoPE involving various stakeholders</li> <li>Ag sector identified as a major theme for the NAP, and the theme led by MOAD</li> <li>NAP Thematic Working Group for the sector instated as PTT for the NAP-Ag Project</li> </ul>	<ul style="list-style-type: none"> <li>Limited women and indigenous group participation in the adaptation planning</li> <li>Limited representation from local governments</li> <li>Coordination with provincial and local government in the planning of agriculture sector climate change adaptation not clear</li> </ul>
<b>A2:</b> Take stock of existing vulnerability and risk assessments, knowledge, methodologies, and possible capacity and institutional gaps, policies, plans and investment frameworks in the agriculture sector	<ul style="list-style-type: none"> <li>Stocktaking report that includes country context, development priorities, climate change concerns of the sector, climate change impacts and vulnerability, stakeholder and institutions, policy and programmes developed</li> <li>Mapping sector stakeholders completed</li> </ul>	<ul style="list-style-type: none"> <li>Weak stakeholders coordination, further intensified with federal development</li> </ul>
<b>A3:</b> Address capacity gaps and weaknesses in adaptation planning in the agriculture sector	<ul style="list-style-type: none"> <li>Capacity gaps and need assessment</li> <li>Plan to develop training manual on adaptation planning including VRA, CBA, M&amp;E and climate change adaptation planning guidelines</li> <li>Preparation of a comprehensive human and institutional capacity development plan with cost implications based on assessed needs and actionable recommendations by the stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Institutional capacity gaps and need assessment is based on the desk review only</li> <li>Limited women participation in the training workshops</li> </ul>
<b>A4:</b> Assess and identify links between adaptation needs and development goals in the agriculture sector	<ul style="list-style-type: none"> <li>Identification of agriculture sector development pathways based on context of policy and programmes (ADS) and climate change adaptation needs</li> </ul>	<ul style="list-style-type: none"> <li>Contextualizing development pathways of agriculture sector with new federal structure, policies and programmes</li> </ul>

## Element B: Preparatory elements

### Overview of Element B

The focus of this element is on analyzing climate trends and future scenarios, assessing climate impacts, risks and vulnerabilities in the agriculture sector, and identifying, selecting and prioritizing medium to long-term climate adaptation options. Expertise procured from three independent service providers<sup>9</sup> in association with the project team generated information that was consolidated into the sector development strategy (ADS), and compiled as a sector specific component to feed into the upcoming NAP. In addition, some consultants and service providers expert teams, in association with the project team, planned to frame knowledge products such as training manuals, handbooks, guidelines and frameworks to use in guiding the sector in climate change adaptation integrated planning, institutional development and capacity development training.

<sup>9</sup> Namely ADAPT-Nepal for CC-VRA, adaptation planning and CCA roadmap for ADS; PwC for EBA based VRA, CCA-options prioritisation through economic appraisal (eCBA) and climate change investment appraisal; and DEVTEC-Nepal for CCA Monitoring and Evaluation framework development for Agriculture Development Strategy of the sector.

## Element B Outputs

The main outputs of this element include:

- An assessment of climate change impacts on agricultural sector based on climate change scenarios.
- Tools and approaches for conducting studies on: agriculture sector CC-VRA, appraisal of climate change adaptation options through CBA, climate change adaptation M&E and budget coding, and capacity development.
- The team engaged in developing a set of indicators and finalizing the VRA framework.
- Conducted CC-VRA of systems in the sector including their ranking.
- Identification of climate change adaptation options for the agriculture sector based on VRA, and their appraisal and prioritization using consultations, multicriteria analysis, CBA and other tools.
- Agricultural adaptation perspectives compiled to feed into the NAP.
- Initiate processes for ADS-based sector development pathways, M&E framework, planning and investment guidelines and budget coding and integrating climate change adaptation into the sector development plans and programmes and capacity strengthening at national and subnational levels.
- Explored and documented opportunities and practical steps integrating climate change adaptation into agricultural development, as recommended in various technical reports of the project.
- Prepared a comprehensive human and institutional capacity development plan with cost implications based on assessed needs and actionable recommendations by the stakeholders.

## Element B - Summary of Progress

### Key Achievements

The NAP process produced a report on *Observed Climate Trends* involving Department of Hydrology and Meteorology (DHM, 2017) that gives a picture of temperature and precipitation trends in Nepal from 1971 to 2014, and a report on *Climate Change Scenarios for Nepal (MoFE, 2018b)*. In addition, available from the NAP process are *Synthesis of the Stocktaking Report for the National Adaptation Plan (NAP) Formulation Process in Nepal (MoPE, 2017a)* and *Vulnerability and Risk Assessment Framework and Indicators for National Adaptation Plan (NAP) Formulation Process in Nepal (MoPE, 2017b)*. After the preparatory work, the NAP process stalled and the remainder of the activities are waiting to be carried out. The NAP-Ag expert teams, while planning and preparing for the outputs have reviewed the NAP documents, contextualized them to the agriculture sector and tested them in three physiographic regions of Nepal as represented by three project pilot districts (Mugu, Dailkeh and Bardiya). Assessments of climate change impacts in the sector, vulnerabilities and risks of the exposed systems and planning tools with a selected list of adaptation measures were planned and implemented using NAP, NAPA and LAPA approaches by ADAPT-Nepal, and ecosystem-based adaptation (EBA) (AEZs) and eCBA approaches by PwC. DEVTEC Nepal planned and developed a climate change adaptation M&E framework for the sector and the ADS-based on reviews of the M&E system and earlier stocktaking and assessments on climate change adaptation information (Table 12).

### Gaps Remaining

Localizing climate change scenarios and their implications on agriculture remains a daunting task in Nepal, where there is high microclimatic variation across short distances and requires collective and comprehensive efforts. Because the NAP process stopped, conducting the sector specific studies and assessments in association with the NAP process team and integration of the sector adaptation perspectives into NAP formulation was no longer practical.

### Support Provided by the NAP-Ag Project

The NAP-Ag Project piloted and tested climate change vulnerability and risk assessment and adaptation appraisal in the sector in the project pilot districts that represent three ecological (physiographic) zones of Nepal.



**Table 12. Overview of key achievements and identified gaps.**

B. Preparatory elements	Achievements	Gaps
<b>B1:</b> Analyse current and future climate scenarios for production and sustainability	<ul style="list-style-type: none"> <li>Reviewed and developed observed climate trend analyses to apply in sector-specific approaches.</li> <li>Climate change scenarios developed for Nepal with 11 extreme climate indices applied to sector-specific analyses and appraisals.</li> </ul>	<ul style="list-style-type: none"> <li>The climate trend and scenario information available from the NAP process preparatory work is up to the district level. Districts are no longer formal units of development planning in the country. Downscaling the information to local levels would be relevant for climate change adaptation planning, where available.</li> </ul>
<b>B2:</b> Assess climate vulnerabilities, risks and impacts, and identify adaptation options for the agriculture sector	<ul style="list-style-type: none"> <li>CC-VRA framework devised by the NAP and NAP processes localized to municipality and ward levels, and agro-ecological zones within watersheds. ADAPT-Nepal piloted the approach in eight municipalities (classified wards), and PwC in three watersheds (classified AEZs).</li> <li>Medium to long-term climate change adaptation options generated for high mountain (Mugu/Mugu-Karnali WS), middle mountain (Dailekh/ Lohare WS) and terai (Bardiya/ Babai WS).</li> </ul>	<ul style="list-style-type: none"> <li>CC-VRA of the entire country was not possible due to size and scope of the NAP-Ag Project. Its application in association with development planning at province level was not considered a process of federalism. However, the project established useful information to develop and apply at wider scale.</li> </ul>
<b>B3:</b> Select and appraise adaptation options in the agriculture sector <sup>1</sup>	<ul style="list-style-type: none"> <li>Adaptation options identified based on VRA and consultations at local levels that can be replicated to analogous planning and agro-ecological zones.</li> <li>Developed procedures to appraise and integrate climate change adaptation options into development planning and using extended cost benefit analysis (eCBA).</li> <li>Participatory approaches applied and demonstrated to local planning units using adaptation planning cases.</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive list of adaptation options per subsector is missing</li> <li>Priority placed on gender and social group participation and wider consultation during the CC-VRA and adaptation planning case studies; however, preparation of gender and social group disaggregated data set to fit in climate change adaptation planning was weaker.</li> </ul>
<b>B4:</b> Compile and communicate agricultural perspectives for NAPs	<ul style="list-style-type: none"> <li>Tools and methods development and identification of climate change adaptation options for the sector compiled and communicated to representatives of local governments, sector agencies and NAP stakeholders.</li> <li>Through case studies, local governments assisted in climate change adaptation planning (hands-on training).</li> </ul>	<ul style="list-style-type: none"> <li>Detail agricultural perspectives of CC-VRA and adaptation planning are produced in NAP-Ag reports and knowledge products; however, integration of the sector adaptation perspectives into NAP formulation was not possible.</li> </ul>
<b>B5:</b> Reviewing integration of climate change adaptation in the agriculture sector in development planning, including national, subnational and sectoral plans	<ul style="list-style-type: none"> <li>Some of local governments observed adopting climate change adaptation planning approach in development planning process and climate change adaptation options in annual programmes and budgets.</li> <li>Reviewed ADS and local development planning process from climate change adaptation integration perspectives; pathways identified with entry points to integrate climate change adaptation into the ADS and sector development planning.</li> </ul>	<ul style="list-style-type: none"> <li>Such integration is limited to piloted municipalities; it has not yet been shared to other municipalities for greater buy-in that would be possible through integration into national strategy.</li> <li>The ADS is approaching midterm review; analyses from a climate change perspective including the pathways and climate change adaptation M&amp;E would be considered.</li> </ul>

## Element C: Implementation strategies

### Overview of Element C

The focus of this element is on developing an implementation strategy, enhancing long-term capacities to implement adaptation actions in the agriculture sector, and implementing concrete adaptation measures. One of the main goals is to ensure that agricultural adaptation priorities are prioritized in agriculture planning

and the agriculture components of the NAP. New work on adaptation should be based on existing adaptation and agricultural development activities. Ongoing projects should be expanded and new adaptation projects and programmes could be formulated and financing sought from national and international climate and development funds. Coordination across sectors and subsectors and capacity development are essential elements of planning and implementing adaptation. The monitoring and evaluation needs should be considered throughout the element.

### **Element C Outputs**

The main outputs of this element could include:

- The agriculture sector priorities and their implementation included and prioritised in the NAP.
- A completed strategy<sup>10</sup> planned for implementing adaptation actions in the agriculture sector.
- Plans for mainstreaming climate change adaptation in the sector policies and programmes and accessing financial resources.
- Cost estimates for the main adaptation projects and programmes (expanded or new).
- Capacity development actions for planning and implementing adaptation.
- Institutional coordination mechanisms, both horizontal and vertical, across the agriculture sector.

### **Element C – Summary of Progress**

#### **Key achievements**

Agriculture sector development in Nepal is guided by the Agriculture Development Strategy (ADS) with medium and long-term goals for 2015 to 2035. The strategy defines goals based on targets articulated in other sector policies, plans and programmes. The strategy has partially addressed mainstreaming climate change adaptation into sector development plans and programmes. Sector roadmap, budget coding and expenditure tracking guideline and M&E framework has been prepared from climate change adaptation perspectives and through extensive reviews on the ADS, entry points identified for mainstreaming climate change adaptation in the ADS as well as annual and periodic sector development plans. As part of mainstreaming climate change adaptation into agriculture sector planning and budgeting and promoting stakeholder engagement, a budget coding task force has been established at MOALD to review criteria<sup>11</sup> developed by the National Planning Commission (NPC) and Ministry of Finance (MoF). The agriculture sector will pilot the review and integration of climate budget coding into the country's Public Finance Management System through the Line Ministry Budget Information System.

Agriculture professionals in federal, provincial and local governments were sensitized and their capacity built through Training-of-Trainers (ToT) on agriculture sector Integration of Climate Change Adaptation. One national and four provincial<sup>12</sup> ToTs were conducted and 157 agriculture professionals across three tiers of government were trained. The key beneficiaries were the agriculture professionals engaged in agriculture development planning, monitoring and evaluation and human resource development working at federal, provincial and local government units. Two training sessions were conducted at federal and provincial level covering the project pilot districts which trained 30 government officials on economic appraisal of climate change adaptation options (eCBA) and climate investment planning, and a federal gender training session organized in association with NAP-Ag Project global team that trained 28 government and NAP-Ag team professionals. In addition, the learning and experience from the piloting work at three districts are being used to further harness resources for agriculture sector adaptation integration<sup>13</sup>.

10 Associated such as with climate changes budget coding and capacity development

11 NPC and Ministry of Finance in 2013 with the support of UNDP in Nepal formulated 11 criteria to develop climate change budget codes.

12 Five ToTs distributed to federal level (#32), Province 1(#30), and Province 2 and 3(#32), Province Gandaki and 5(#36) and Province Karnali and Sudurpashchim(#26) combined.

13 Details in 'Final report on planning, preparation and delivery of ToTs' available at: <https://drive.google.com/open?id=19A8U9HF8nKWSmpbGhC5zof2PueNGimn>

In addition, procedure manuals and handbooks for undertaking training on agriculture sector CC-VRA, climate change adaptation M&E, the sector budget coding and expenditure tracking and eCBA in appraisal of climate change adaptation measures have been prepared. These documents, including detailed technical reports from service providers in the NAP-Ag Project, are important outputs useful in the overall NAP process. They have all been shared with the training participants and agriculture sector training institutes in the country, and with agriculture sector agencies in federal, provincial and local governments and national and international NAP stakeholders. Altogether, agriculture sector agencies in the federal, provincial and local governments were brought together despite a chaotic situation of coordination among state agencies in the organization of the ToTs. This is an example of success in climate change adaptation integration. Following the ToTs, the federal and provincial sector ministries with their information and training components have developed the training materials and incorporated climate change adaptation training in their regular programmes and budgets. Moreover, FAO and UNDP in Nepal, in coordination with federal line ministries and support by NAP-Ag Project team, have formulated and submitted new climate change adaptation projects seeking financial support from GCF.

The NAP process in Nepal focuses on enhancing coordination among different line ministries to foster NAP formulation and its implementation. It is supported by nine technical working groups across seven climate impact and two cross-cutting areas that have been sustained since the period of the NAPA process. Joint secretaries from line ministries led the thematic working groups, and the groups included wider representation of stakeholders based on a leave-no-one-behind strategy. The NAP-Ag Project adopted the NAP TWG for Agriculture and Food Security (Nutrition) as its Project Technical Taskforce so the thematic working group members would be kept informed of the NAP-Ag outputs and the agriculture sector outputs can be sustained and applied in NAP formulation.

### ***Gaps Remaining***

NAP implementation strategies have not been prepared as the NAP process supported by the NAP Global Network, Action on Climate Today (ACT) and Practical Action Nepal concluded in May 2017 without formulation of a NAP and the process with GCF support is yet to be initiated. However, NAP-Ag Project has formulated sector tools methods, pathways, frameworks and guidelines to support integration of climate change adaptation into the sector development planning processes at national and subnational levels that, upon reinstatement of the NAP process, would be incorporated as agricultural sector components in the NAP to come. In the recent context of federalized governance, the conventional mechanisms of vertical linkages among development agencies have been upset, resulting in a feeble coordination across federal, provincial and local agencies. Coordinated development planning process would be instituted through readjustments in the ADS implementation arrangements as suggested in the ADS-based sector development pathways for climate change adaptation integration and country's governance structure.

### ***Support Provided by the NAP-Ag Project***

The NAP-Ag Project produced its technical and financial support on adaptation planning and implementation, capacity development (delivery of training), and development of tools and methods for assessment of sector vulnerabilities and risks to climate change impacts, prioritisation of adaptation options, climate change adaptation planning and appraisal of climate investments, climate change adaptation M&E framework and integration pathways for ADS, climate budget coding guidelines for the sector and training manuals and handbooks supporting sector training on climate change adaptation integrated development planning.

**Table 13. Overview of key achievements and identified gaps.**

C. Implementation strategy	Achievements	Gaps
<b>C1:</b> Ensure appropriate priorities for the agriculture sector in national adaptation planning and the NAP	The groundwork and the preparatory work has set a strong foundation for ensuring adaptation priorities for the agriculture sector. The case studies relevant to CC-VRA, climate change adaptation planning, economic appraisal of adaptation options and roadmap/ framework/ guidelines development at different ecological regions provide opportunities to ensure priorities for the agriculture sector in the NAP and at sector level.	NAP process grounded for a while leaving gaps for informed NAP process based on learning of the NAP-Ag Project.
<b>C2:</b> Develop a long-term adaptation implementation strategy	Agriculture Development Strategy is reviewed with a climate change lens to develop a sector roadmap and a climate change adaptation M&E framework as part of a long-term sectoral adaptation implementation strategy.	Detailed implementation plan is not prepared. Adaptation priorities are not yet financed or being implemented.
<b>C3:</b> Improve capacity for planning and implementing adaptation in the agriculture sector	One federal and four provincial ToTs on agriculture sector integration of climate change adaptation, hands-on training of local planning units through CC-VRA and adaptation planning case studies, one federal and one provincial (Karnali and province 5 combined) training on economic appraisal of climate change adaptation options and climate investments, and a federal gender training.	Limited involvement of local government officials.
<b>C4:</b> Promote coordination and synergy at the national and subnational levels	Budget Code Revision Task Force in place. Thematic Working Group on Agriculture & Food Security (conversely the PTT) in place.	Subnational coordination on adaptation in the agriculture sector needs to be enhanced.

## Element D: Reporting, monitoring and review

### Overview of Element D

The focus of Element D is on building effective monitoring and review systems to assess the progress, the effectiveness and the gaps in identifying and prioritizing adaptation options for the agriculture sector; the integration of agricultural issues in formulating and implementing NAPs; and the success in implementing agricultural adaptation actions, with a possibility for evidence-based learning and revisions. The groundwork for the monitoring and review system was laid in Elements A, B and C. Sharing information on the NAP with sector, national and subnational stakeholders will enhance transparency and commitment.

### Element D Outputs

The main outputs of this element include:

- The Focus areas for climate change adaptation monitoring and evaluation and related indicators and data collection methods for the agriculture sector identified.
- Monitoring to formulate and implement NAPs with special focus on the level of integration and prioritization of agricultural perspectives; this included coordination with UNFCCC focal points and NAP team and sharing NAP-Ag products.
- Mechanisms for monitoring and evaluation of the climate change adaptation in the agriculture sector, including data collection and reporting related to climate change adaptation.
- Milestones for evidence-based learning and revising the NAP-Ag documentation.
- Active information sharing among stakeholders.

## **Element D – Summary of Progress**

### **Key achievements**

The ADS-Based Sector Development Pathways for Integration of climate change adaptation reviewed the ADS (strengths, weaknesses, opportunities and threats); identified gaps in the strategy from climate change adaptation perspectives; and recommended interventions through locating entry points at different stages of the ADS results chain including implementation responsibilities and timeline. Major improvements are suggested in the improved-governance pillar of the strategy. Including climate resilience and necessary settings of its indicators and targets incorporated from the vision statement, and CC-VRA climate change adaptation-mainstreaming and climate-lens applied while formulating federal, provincial and local agricultural policies and development programmes, it recommends (Table 14):

- Climate change adaptation related GESI at federal, provincial and local levels included in the agriculture sector GESI strategy (MOAD, 2017).
- Focus on application of community and agro-ecological needs based CC-VRA approach and sectors integrated CC adaptation planning at all levels.
- Improvement in climate resilience of farmers viewed from natural resources management and agricultural system perspectives.
- Agriculture research restructured to cover CC needs, and technology generation and dissemination programmes and activities viewed from CC-perspectives instead of setting separate CC-related outputs and targets.
- Decentralized extension system imparting knowledge on CC-VRA, and identification, prioritization and implementation of adaptation options.
- Climate change adaptation considered at all stages of agricultural product value chain including rural and urban market infrastructure, input supply and agribusiness promotion and diversification.
- Climate related funds at provincial and local levels with more funding for vulnerable sectors and access to climate change adaptation finance ensured and CBA considered while choosing adaptation measures.
- A need to establish intergovernmental coordination mechanisms with provincial ADS coordination committees and thematic technical groups formed and provincial representation in the National ADS Coordination Committee (NADSCC) and Central Agriculture Development Implementation Committee (CADIC).
- Climate change adaptation programs and projects assigned to local, provincial and federal governments.
- An integrated climate change adaptation M&E framework with baseline and clear terms of reference for stakeholders in data collection and reporting developed and adopted by three levels of government.
- Enhanced resilience of agriculture sector to climate change, a new dimension, added in the impact assessment of the strategy.
- Capacity building of public and private sectors at all levels on CC-V/RA and adaptation planning.

The climate change adaptation M&E framework developed for the ADS has identified its activities relevant to climate change adaptation and indicators at output, outcome and impact level to monitor and evaluate climate change adaptation integration. NAP-Ag Project has given high emphasis on implementation of adaptation actions in the agriculture sector through development of human and institutional capacities. The indicators and data collection methods suggested in the framework provide a mechanism for monitoring climate change adaptation implementation.

As the NAP formulation process is currently stalled, a sector ministry as a lead in the NAP Thematic Working Group on Agriculture and Food Security would be taking care of the process to formulate and implement NAP integration of agricultural sector.

Federal Ministry of Agricultural and Livestock Development is revisiting the ADS. The ADS tried formulating an M&E framework for monitoring and evaluation of its implementation. The climate change adaptation pathways and the proposed climate change adaptation M&E framework for the ADS prepared by the NAP-Ag Project would be valuable assets to start with while revisiting the ADS and framing a more detailed M&E framework. Agriculture Information and Training Centre (AITC) in the Ministry of Agricultural and Livestock Development engaged in coordination and organization of the ToTs on agriculture sector integration of climate change adaptation at federal and provincial levels and, following that, has come up with a process to develop the training materials and internalize the training packages into its regular programme.

### Gaps Remaining

The climate change adaptation M&E framework is still in draft form.

### Support Provided by the NAP-Ag Project

The NAP-Ag Project produced its technical and financial support to prepare a climate change adaptation roadmap and M&E framework for the ADS, develop climate change adaptation training package (manual, handbook and presentations) for the sector and deliver training for human resource development in the sector.

**Table 14. Overview of key achievements and identified gaps.**

D. Reporting, monitoring and review	Achievements	Gaps
<b>D1:</b> Prepare for monitoring adaptation planning and implementation in the agriculture sector	The climate change adaptation pathways and climate change adaptation M&E framework for the ADS, and tools and methods for climate change adaptation integrated sector planning are in place.	The climate change adaptation M&E framework is in draft version. The ADS should be revised and a detailed M&E framework, including climate change adaptation for its implementation formulated by the government with incorporation from the project prepared ADS gap analyses and the climate change adaptation M&E framework, and readjustments to fit with the changed context of governance.
<b>D2:</b> Review the national planning process assessing how all the agriculture sector are addressed	Technical reports of NAP-Ag Project implementation produced as targeted; the sector has been supported for integrating climate change adaptation through tools, methods, guidelines and frameworks relevant to sector planning; integration of agriculture sector into NAP not possible as the process halted.	MOALD as lead ministry in the NAP TWG on Agriculture and Food Security would be implementing ADS climate change adaptation M&E framework and working with the NAP process for integration of agricultural sector.
<b>D3:</b> Monitor and iteratively update the process of adaptation planning and implementation in the agriculture sector	Through delivery of training, strengthened institutions and human resource capacity specifically on sector based CC-VRA and climate change adaptation M&E including others associated with climate change adaptation planning to enhance capacity to monitor and evaluate adaptation and update the processes in the sector under ADS and linked to NAP implementation.	Agriculture training institutions in the federal and provincial ministries will keep updating training materials and incorporate training into regular programmes.
<b>D4:</b> Outreach on the process and report on progress and effectiveness	Reporting progress and effectiveness of climate change adaptation integration into agriculture sector mainstreamed into ADS provisions as contained in the proposed climate change adaptation M&E framework.	MOALD will revisit ADS with incorporations and readjustments specifically on data collection and reporting related to climate change adaptation.

# Roadmap to address identified adaptation planning gaps in the agriculture sector

## Roadmap implementation process

### *Roadmap Process Overview*

The roadmap is a tool to ensure the agriculture sector is reflected in Nepal National Adaptation Plan. It provides information regarding steps and actions, responsible lead and support agencies, and necessary timelines, resources and support arrangements such as policy, governance and processes to address the gaps identified in the section 3.

Following completion of the NAP-Ag Project, the NAP Thematic Working Group for Agriculture and Food Security (Nutrition)<sup>14</sup> is central to further develop on and making use of NAP-Ag knowledge products and coordinating integration of the agriculture sector into NAP components. Conversely, the NAP outcomes are integrated into the ADS including sector's strategies and programmes. The roadmap and the other NAP-Ag products will provide guidance towards devising agriculture sector adaptation plans as a component in as the NAP process resumes, and to the planning units in the MOALD, MoLMACs and municipalities towards formulating short and medium term agriculture development plans with consideration of the sector's risks to climate change impacts.

Following the institutionalization of federalism in the country, policies and statutes are being revised or new ones formulated that may have implications for implementing the roadmap. For example, Climate Change Policy, Environment Protection Act, Agriculture Development Strategy (2015-2035) and Nationally Determined Contributions are under revision, and 15<sup>th</sup> Periodic Plan and some other policies, plans and statutes at provincial and local levels are under formulation. The MOALD, in association with the NAP TWG on AFS(N), will lead implementation of the roadmap with supporting roles of the focal ministry for climate change.

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14 The team of NAP-TWG on AFS(N) constituted the PTT.

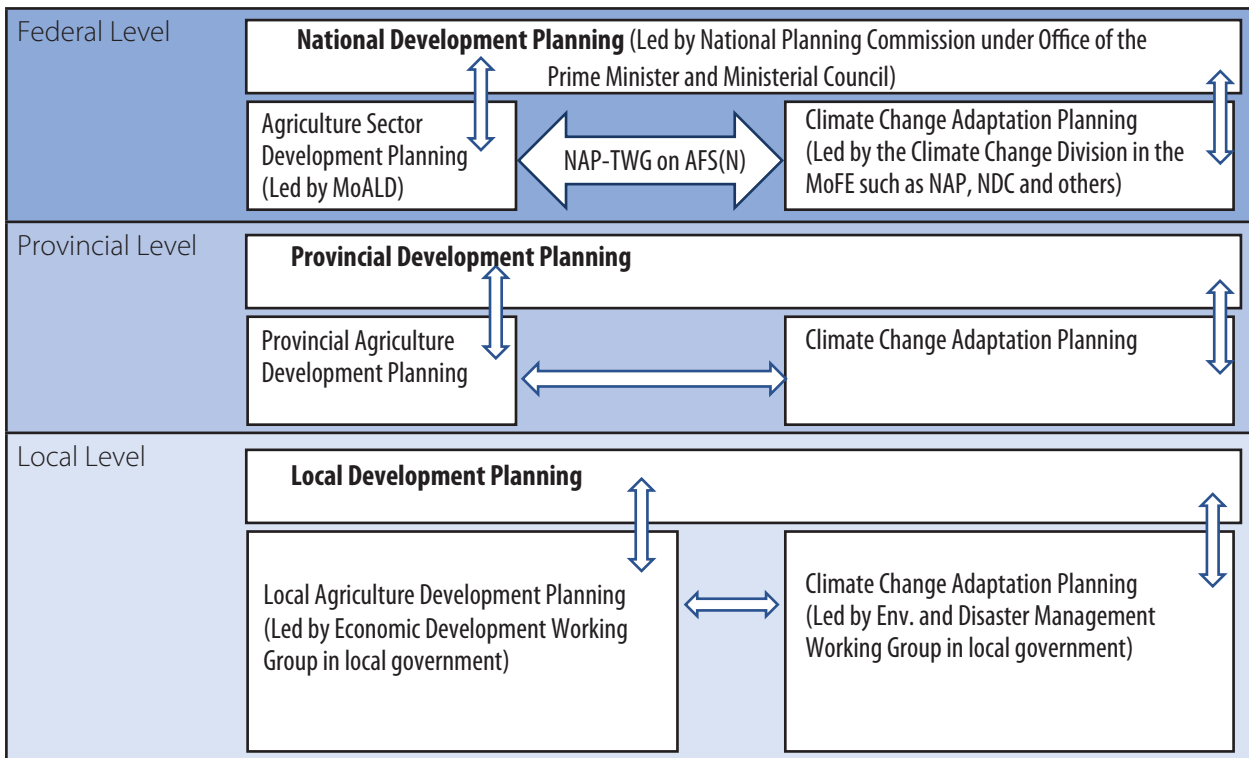


Figure 8. Planning structures and coordination within and between three tiers of government.

Climate change adaptation planning is a three-tier process: 1) the NAP process led by the Climate Change Division in the federal Ministry of Forests and Environment (the UNFCCC focal ministry); 2) the agriculture sector planning and budgeting processes with integration of climate change adaptation; and 3) federal, provincial and local development planning processes recently initiated as part of the federal system (Figure 8).

The NAP process provides a TWG on AFS N) that will articulate agriculture sector components into the NAP. The TWG includes sector stakeholders from public and private domains and works in coordination with the UNFCCC focal ministry and sector ministries. The TWG is coordinated by MOALD with its Joint Secretary for Food Security and Food Technology Division as coordinator and is mandated to translate sector needs into NAP components and the NAP outcomes into sector development planning.

A major part of the work by the NAP-Ag Project over the last two years relates to integrating climate change adaptation into the agriculture sector planning and budgeting processes at federal and piloted local levels, and covers key elements of adaptation planning defined in the NAP process such as CC-VRA, CBA, prioritisation on climate change adaptation measures, budgeting, implementation, and climate change adaptation M&E in the sectoral planning cycle. Beyond the adaptation elements specified in the NAP process, the project covered revision of the formulation and implementation of the sector development strategy (ADS) and sector budget coding from climate change adaptation integration and climate change adaptation M&E perspectives elaborating pathways and entry points.

In the context of the federal structure, the pathways to integrate climate change adaptation into the planning and budgeting cycles of the provincial and local tiers are unclear. However, there are still avenues within federal ministries to guide provincial and local governments to integrate climate change adaptation and incorporate adaptation planning steps (VRA, CBA, prioritisation, budgeting, implementation, and M&E) into their planning cycle specifically through policy, strategy and capacity development.



### Issues Requiring Special Consideration

Issues identified as requiring special consideration and the pathways that could be appropriately addressed in the roadmap implementation are summarized in Table 15.

**Table 15. Key issues for consideration and addresses in implementation of the roadmap.**

Planning step	Issues	Addresses
Laying the groundwork	Participation by provincial and local stakeholders and women and social groups in the earlier part of the NAP process and the NAP-Ag Project implementation remained scanty. Weak stakeholder coordination (especially at provincial and local level) following institutionalization of federalism in the country.	Such can be improved through revision on the NAP approach, where roles of provincial and local planning units and social and gender groups would be seen in local consultations during NAP formulation, identification and prioritization of adaptation options during NAP implementation and solicitation of information during reporting. Ways of increased participation by local and provincial stakeholders in the ADS implementation are recommended in the ADS-based sector development pathways for integration of climate change adaptation.
	On-time integration of the sector adaptation perspectives into NAP formulation was not possible.	NAP TWG for AFS(N), informed of NAP-Ag knowledge outcomes, given leading role for such integration to NAP, NDC, Sendai Framework for Disaster Risk Reduction, ADS and sector development plans at all levels.
	The ADS is in line for midterm review.	Analyses from climate change perspectives informed of NAP-Ag produced ADS-based sector development pathways for integration of climate change adaptation M&E framework recommendations.
Preparatory elements	Climate trend and scenario information available up to district level.	Approach to downscale the information to local levels would be relevant for climate change adaptation planning.
	CC-VRA of entire country was not possible. CC-VRA application in provincial and local development planning is not thought through in detail.	Considering resources limitation, a detail sector-based CC-VRA can be carried out at country level for the whole sector and, based on the assessment, the provincial and local levels would elaborate and update it for application into their adaptation planning.
	Detailed preparation of comprehensive list of adaptation options covering wider agriculture subsectors and gender and social group disintegrated data set lacking.	Appropriate tools and methods (such as CBA in prioritization of the options) should be contained in NAP approach to apply while implementing NAP and integrating adaptation into sector policies, programmes and plans.

Planning step	Issues	Addresses
Implementation strategy	Sector adaptation priorities have not been identified in detail at national, sector, provincial or local level as the project was implemented on a pilot basis.	Sector adaptation priorities to be identified at sector, province and local levels. Alignment of adaptation priorities, and integration with ADS. Sectoral subnational coordination on climate change adaptation needs to be enhanced.
	Implementation strategies, and financing frameworks have not been developed for priority adaptation options at national, sectoral, provincial and local levels depending on the size and scope of the project.	Implementation strategies, and financing frameworks, to be developed for priority adaptation options at national, sectoral, provincial and local levels. Identification of domestic finance sources and piloting of budget coding. Identification, where relevant, of additional financing sources.
	Strengthened institutions and human resource capacity development.	Agriculture training institutions in the federal and provincial ministries will work to update training materials and incorporate training into regular programme.
Reporting, monitoring and review	Data collection and reporting of climate change adaptation integration into the sector as contained in the ADS M&E framework.	MOALD will revisit ADS, formulate M&E framework for ADS with incorporations of data collection and reporting for climate change adaptation.
	Adaptation planning processes need to be updated based on lessons learned.	M&E results feed into local, provincial, sectoral and national planning processes and updated frameworks, including NAP.

## Element A: Laying the groundwork and addressing gaps

**Table 16. Roadmap of next steps to address identified gaps.**

A. Laying the groundwork and address gaps	Outputs to address identified gaps	Responsible stakeholders	Timeline & Priority	Potential source of funding
<b>A1:</b> Initiate and launch the agriculture sector participation in national adaptation planning, including clarifying mandates and engaging subsectors	<ul style="list-style-type: none"> <li>Stakeholder mapping for agriculture sector, initiating development of agriculture related NAP components, with the stakeholders involvement strategy including provincial and local planning units and gender and social groups.</li> <li>Devise increased participation especially by local and provincial stakeholders in developing NAP-Agriculture component and ADS implementation.</li> <li>Review and update the Terms of Reference for the broader NAP-TWGs to reflect an advisory role, identifying key points where inputs are needed (linked to the core group deliverables).</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD with the NAP TWG for AFS(N) led by the joint secretary in MOALD and coordinated by the MoFE</li> <li>Support: NARC, Departments of Agricultural and Livestock Development and divisions under MOALD (federal), ministries of agriculture, land management and Cooperatives (provincial government), Local farmer associations</li> </ul>	Mid 2019 High	GCF funded NAP Project implemented by the Ministry of Forests and Environment (MoFE)
<b>A2:</b> Take stock of existing vulnerability and risk assessments, knowledge, methodologies, and possible capacity and institutional gaps, policies, plans and investment frameworks in the agriculture sector	<ul style="list-style-type: none"> <li>Revisit stocktaking report considering latest information.</li> <li>Revisit indicators and data sources for agriculture sector CC-VRA.</li> <li>Revisit agriculture sector CC-VRA framework with integration of agro-ecological zones and for sub sectors and subnational levels.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD with the NAP TWG for AFS(N) led by the joint secretary in MOALD</li> <li>Support: NARC, Department of Agriculture and Livestock Development and divisions under MOALD, MoLMAC, Municipalities, Farmers' Association, development partners, private sector</li> </ul>	Mid 2019 High	GCF funded NAP project implemented by (MoFE)
<b>A3:</b> Address capacity gaps and weaknesses in adaptation planning in the agriculture sector	<ul style="list-style-type: none"> <li>Assessment of Institutional capacity gaps and needs of the sector including subsectors, provinces and local levels.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: NAP TWG for AFS(N) led by joint secretary in MOALD</li> <li>Support: Agriculture Information and Training Centre (AITC) and Departments Of Agricultural and Livestock Development</li> </ul>	Mid 2019 High	<ul style="list-style-type: none"> <li>MOALD annual budget</li> <li>GCF funded NAP project (MoFE)</li> </ul>
<b>A4:</b> Assess and identify links between adaptation needs and development goals in the agriculture sector	<ul style="list-style-type: none"> <li>Revisit ADS and climate change adaptation integrated development pathways contextualized with new federal structure, policies and programmes.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: Ministry of Agriculture and Livestock Development</li> <li>Support: NAP TWG for AFS(N) led by joint secretary in MOALD</li> </ul>	2019 High	<ul style="list-style-type: none"> <li>MOALD annual budget</li> <li>GCF funded NAP project (MoFE)</li> </ul>

## Element B: Preparatory elements

Table 17. Summary of next steps to address identified gaps.

B. Preparatory elements	Outputs to address identified gaps	Responsible stakeholders	Timeline/ Priority	Potential source of funding
<b>B1:</b> Analyse current and future climate scenarios for production and sustainability	<ul style="list-style-type: none"> <li>Review information to understand prevailing climate trends and scenarios.</li> <li>Develop approaches to downscale climate trend and scenario information to local levels.</li> <li>Analyse climate trend and scenario implications on sector production and development.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD with the NAP TWG for AFS(N)</li> <li>Support: NARC, departments in MOALD, DHM, provincial/local governments, development partners, I/NGOs and experts</li> </ul>	Mid 2019 High	GCF funded NAP project implemented by MoFE
<b>B2:</b> Assess climate vulnerabilities, risks and impacts, and identify adaptation options for the agriculture sector	<ul style="list-style-type: none"> <li>Assessment of agriculture sector CC-VRA for the entire country, where subsectors and provincial or local levels can elaborate, update and base their sector planning for climate change adaptation.</li> <li>Prepare comprehensive list of adaptation options for agriculture subsector and AEZs.2</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD and MoFE with NAP TWG for AFS(N)</li> <li>Collaborator: NARC, departments in MOALD, DHM, provincial/local government development partners and I/NGOs</li> </ul>	Mid 2020 High	GCF funded NAP project implemented by MoFE
<b>B3:</b> Select and appraise adaptation options in the agriculture sector	<ul style="list-style-type: none"> <li>Prioritize adaptation options based on the best tools (eCBA tools).</li> <li>Develop approaches to integrate the CC-VRA and the adaptation measures into the sector development planning at federal, provincial and local levels.</li> <li>Provincial and local levels have frameworks, knowledge products and training.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD</li> <li>Support: MoLMACs (provincial), municipalities and Farmer's Association</li> </ul>	Mid 2020 High	MOALD annual budget GCF funded NAP project (MoFE)
<b>B4:</b> Compile and communicate agricultural perspectives for NAPs and integrate adaptation perspectives into agriculture sector planning	<ul style="list-style-type: none"> <li>Integrate agricultural perspectives into components in NAP and climate change adaptation perspectives into sector strategy (ADS) and development planning processes, including budgeting processes, at federal, provincial and local levels.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD with NAP TWG for AFS(N)</li> <li>Support: MOALD divisions and departments (federal), MoLMACs (provincial) and local government</li> </ul>	Mid 2020 High	MOALD annual budget GCF funded NAP project (MoFE)
<b>B5:</b> Review integration of climate change adaptation in the agriculture sector in development planning, including national, subnational and sectoral plans	<ul style="list-style-type: none"> <li>Implement agriculture sector budget coding framework.</li> <li>Complete climate change adaptation integrated revision on ADS and climate change adaptation M&amp;E framework development for ADS implementation.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD and MoLMAC</li> <li>Support: UNDP and FAO</li> </ul>	Mid to end 2019 High	MOALD annual budget

**Element C: Implementation strategies**

**Table 18. Summary of next steps to address identified gaps.**

C. Implementation strategy	Outputs to address identified gaps	Responsible stakeholders	Timeline/ Priority	Potential source of funding
<ul style="list-style-type: none"> <li>C1: Ensure appropriate priorities for the agriculture sector in national adaptation planning and the NAP and integrate adaptation perspectives into agriculture sector planning</li> </ul>	<ul style="list-style-type: none"> <li>Agriculture sector priorities identified through sectoral VRA, taking stock from sector policies and programmes, adaptation needs assessment and prioritization.</li> <li>Sector priorities integrated into the agriculture component of NAP.</li> <li>Integrate climate change adaptation in implementation of ADS, and sectoral, federal, provincial, and local level planning and budgeting cycles through active involvement of planning, M&amp;E and HR development agencies at all levels.</li> <li>Allocate financial resources for implementation of prioritised climate change adaptation options at sector, province and local levels.</li> <li>Pilot climate budget coding and expenditure tracking.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD with NAP TWG for AFS(N), Ministry of Finance (MoF) and NPC</li> <li>Support: Divisions and departments. in MOALD, MoLMACs, municipalities, private sectors, development partners and I/NGOs</li> </ul>	<ul style="list-style-type: none"> <li>Mid 2020</li> <li>High</li> </ul>	<ul style="list-style-type: none"> <li>Annual sector budget</li> <li>Provincial and local government budget</li> <li>Private sector investment</li> <li>GCF funded NAP project</li> </ul>
<ul style="list-style-type: none"> <li>C2: Develop a long-term adaptation implementation strategy</li> </ul>	<ul style="list-style-type: none"> <li>Prepare NAP implementation strategy, sector adaptation strategy linked to ADS and local implementation strategies linked to LAPA and local planning statutes and guidelines, and financing frameworks that include agricultural sector adaptation options.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD with NAP TWG for AFS(N), MoFE and MoF</li> <li>Support: Divisions and departments in MOALD, MoLMACs, municipalities, private sector and development partners</li> </ul>	<ul style="list-style-type: none"> <li>Mid 2020</li> <li>High</li> </ul>	<ul style="list-style-type: none"> <li>GCF funded NAP project</li> <li>Annual sector budget</li> <li>Provincial and local government budget</li> </ul>
<ul style="list-style-type: none"> <li>C3: Improve capacity for planning and implementing adaptation in the agriculture sector</li> </ul>	<ul style="list-style-type: none"> <li>Internalize training materials and programmes on climate change adaptation planning and implementation in the agriculture sector at federal and provincial levels.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD and MoLMACs</li> <li>Support: AITC, information and training agencies in MoLMACs, FAO and UNDP</li> </ul>	<ul style="list-style-type: none"> <li>Mid 2019</li> <li>High</li> </ul>	<ul style="list-style-type: none"> <li>Annual sector budget</li> </ul>
<ul style="list-style-type: none"> <li>C4: Promote coordination and synergy at the national and subnational levels</li> </ul>	<ul style="list-style-type: none"> <li>Redefine coordination mechanisms considering the federal structure of the country.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD with NAP TWG for AFS (N), MoLMACs and municipalities</li> <li>Support: FAO and UNDP</li> </ul>	<ul style="list-style-type: none"> <li>Mid 2019</li> <li>High</li> </ul>	<ul style="list-style-type: none"> <li>Annual sector budget</li> <li>GCF funded NAP project</li> </ul>

## Element D: Reporting, monitoring and review

Table 19. Summary of next steps to address identified gaps.

D. Reporting, monitoring and review	Outputs to address identified gaps	Responsible stakeholders	Timeline/ Priority	Potential source of funding
<b>D1:</b> Prepare for monitoring adaptation planning and implementation in the agriculture sector	<ul style="list-style-type: none"> <li>Finalize and implement climate change adaptation integrated ADS M&amp;E framework.</li> <li>Structural readjustment in implementation of the ADS .</li> <li>Develop NAP M&amp;E framework for adaptation planning and implementation.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD and MoFE</li> <li>Support: MoLMAC, Municipalities, UNEP, FAO and UNDP</li> </ul>	<ul style="list-style-type: none"> <li>End of 2019</li> <li>High</li> </ul>	<ul style="list-style-type: none"> <li>MOALD annual budget</li> <li>GCF-funded NAP project</li> </ul>
<b>D2:</b> Review the national planning process assessing how all the agriculture subsectors are addressed	<ul style="list-style-type: none"> <li>Implement ADS M&amp;E framework.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD</li> <li>Support: MoLMAC, Municipalities</li> </ul>	<ul style="list-style-type: none"> <li>End of 2020</li> <li>Moderate</li> </ul>	<ul style="list-style-type: none"> <li>Annual sector budget</li> </ul>
<b>D3:</b> Monitor and update the process of adaptation planning and implementation in the agriculture sector	<ul style="list-style-type: none"> <li>Strengthen Institutions (planning, M&amp;E and HR development) and capacity of the sector professionals at federal, provincial and local levels.</li> <li>Update training materials and incorporate climate change adaptation training into sector programmes in MOALD and MoLMACs.</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD</li> <li>Support: MoLMAC, Municipalities</li> </ul>	<ul style="list-style-type: none"> <li>Mid 2019</li> <li>High</li> </ul>	<ul style="list-style-type: none"> <li>Annual sector budget</li> </ul>
<b>D4:</b> Outreach on the process and report on progress and effectiveness	<ul style="list-style-type: none"> <li>Implement sector climate change adaptation M&amp;E framework with data collection and reporting provisions.</li> <li>M&amp;E results feed into local, sectoral and national planning processes and updated frameworks, including NAP .</li> </ul>	<ul style="list-style-type: none"> <li>Lead: MOALD, NPC, MoFE and MoF</li> <li>Support: MoLMAC, Municipalities</li> </ul>	<ul style="list-style-type: none"> <li>Mid 2019 to mid 2021</li> <li>Moderate</li> </ul>	<ul style="list-style-type: none"> <li>Annual sector budget</li> </ul>



**Table 21. Implementation timeline for integrating climate change adaptation into ADS and sector planning and budgeting cycle at federal, provincial and local levels.**

Output	2019				2020				2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
A1: Initiating and launching stakeholder mapping and engagement of wider stakeholders including provincial and local planning units and gender and social groups.																				
A2: Taking stock Revisit stocktake report; indicators and data sources for CC-VRA and CC-VRA framework																				
A3: Addressing gaps/ weaknesses Assess institutional capacity gaps and needs of the sector including subsectors, provinces and local levels.																				
A4: Linking adaptation and development Revisit ADS and climate change adaptation integrated development pathways contextualized with new federal structure, policies and programmes.																				
B1: Assessing climate scenarios Review climate trend/scenario and analyse sector implications																				
B2: Assessing impacts and vulnerability Countrywide sector CC-VRA and comprehensive list of adaptation options																				
B3: Selecting adaptation options Prioritize adaptation options; develop approaches to integrate into sector planning; capacity development.																				
B4: Compiling and communicating priorities Integrate climate change adaptation perspectives into sector strategy ADS and development planning processes at all levels.																				
B5: Reviewing integration Implement budget coding framework; climate change adaptation integrated revision on ADS and climate change adaptation M&E framework development.																				
C1: Addressing climate change adaptation in sector planning Prioritize climate change adaptation options, integrate into sector planning at all levels and allocate financial resources for implementation.																				
C2: Planning implementation Prepare sector adaptation strategy and financial framework linked to sector planning at all levels.																				



Output	2019				2020				2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	C3: Developing implementation capacities Internalize training package on climate change adaptation planning and implement at federal and provincial levels.																			
C4: Promoting coordination and collaboration Redefine coordination mechanisms considering the federal structure																				
D1: Preparing for monitoring Finalize and implement climate change adaptation integrated ADS M&E framework; structural readjustment in implementation of the ADS.																				
D2: Monitoring the planning Implement the ADS M&E framework																				
D3: Monitoring the implementation Strengthen relevant institutions and capacity of professionals at all levels; update training materials; incorporate climate change adaptation M&E training into sector programmes.																				
D4: Disseminating information Feed M&E results into local, sectoral and national planning processes and update framework.																				

Implementation of the NAP-Ag Project activities, as targeted in Nepal, are completed by 31 March 2019. Implementation of the activities were aligned in line to integrating climate change adaptation into agriculture sector development planning and budgeting processes at national and subnational levels as the process of NAP formulation in the country is at a halt since May 2017. The process with GCF fund support is still not resumed; however, Climate Change Adaptation Division in the Ministry of Forest and Environment in association with UNEP is seen reinstating and taking over the process in the country very soon. Therefore, integrating agriculture sector into components in the NAP to formulate is still a due to be completed by the process in association with its TWG for Agriculture and Food Security (Nutrition)<sup>15</sup> taking perspectives of NAP-Ag Project outcomes. This part is contained in the timeline elaborated in Table 20 that considers only the addresses to the issues, gaps and recommended outputs complementing agriculture sector's integration into the NAP. The Process identifies agriculture sector as important component in the NAP being formulated, and the TWG on AFS (N) is exclusively mandated to work with agriculture sector for its integration. The TWG on AFS (N) sustains as a permanent institution in MOALD since the NAPA process, and it can equally contribute to mainstream agricultural priorities into the sector policy, strategy, programme and planning/budgeting cycle following NAP formulation. Formulation of the NAP is still under process; finalization of a NAP document and setting up of agriculture component priorities in it will expose further avenues.

Continued with the NAP-Ag developed tools, approaches, frameworks, guidelines and knowledge products, the MOALD should engage in revisiting sector policies, strategies, programme and plans from climate change perspective, and mainstream climate change adaptation into sectoral planning and budgeting processes and integrate the sector needs into the upcoming NAP. This part is elaborately and separately contained in Table 21.

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15 Which is the Project's Technical Taskforce as well.

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