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Lecture Notes of the Massive Open Online Course

National Adaptation Plans Climate Resilience in
Agriculture Building Climate Resilience in Agriculture

Module 5: Governance, coordination and finance

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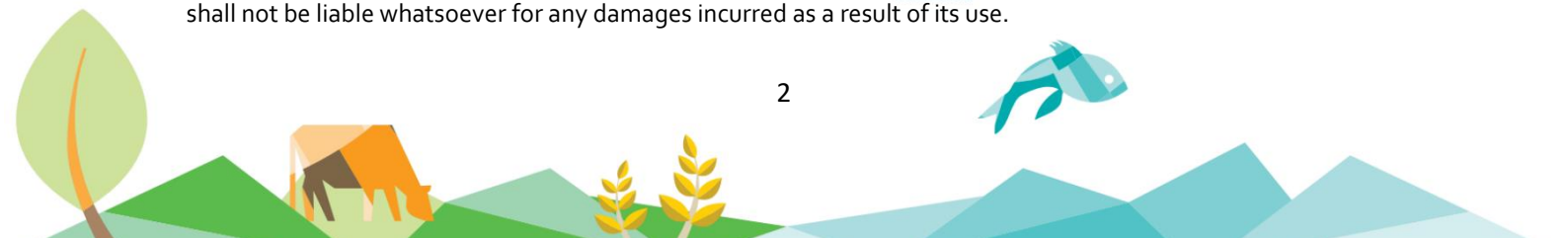
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Preface

This document presents a lecture note prepared for the National Adaptation Plans: Building Climate Resilience into Agriculture Massive Open Online Course (MOOC) which is one of the deliverables of the National Adaptation Plans (NAP-Ag) Programme.

The NAP-Ag Programme is a joint effort led by the United Nations Development Programme (UNDP) and the Food and Agriculture Organization of the United Nations (FAO) to support a set of developing countries to identify and integrate climate change adaptation measures in the agricultural sectors into relevant national planning and budgeting processes. Under this programme, UNITAR supported UNDP and FAO in developing a MOOC to raise awareness and increase the capacities of a wide range of interested stakeholders in climate change adaptation planning, specifically for the agriculture sectors.

This MOOC is structured around 6 thematic modules:

1. Introduction to climate change adaptation, agriculture and food security
2. International Frameworks and National Adaptation Planning
3. Identifying and assessing climate change impacts and risks
4. Identifying and prioritizing climate adaptation options
5. Governance, coordination and finance
6. Communications, monitoring and evaluation

The lecture notes include links to complementary lecture videos and additional resources.

The Module 5 focuses on institutional coordination, governance and financial challenges faced when integrating agriculture into adaptation planning and implementation. It builds on the previous discussion of institutional and individual competencies in national adaptation planning from Module 2. It provides valuable insights associated with national budgeting, as well as an overview of a range of options for financing adaptation action for agriculture and agriculture-based livelihoods, e.g. the use of climate/weather risk insurance mechanisms.

Learning Objectives

- (1) Distinguish coordination and governance aspects of implementing adaptation actions in agriculture sectors;
- (2) Recall opportunities and mechanisms for funding climate change adaptation and safeguarding livelihoods in agriculture.

Acknowledgements

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WEEK 5

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Part I

5.1.1 Institutional coordination & governance

Expert: Rohini Kohli

Key Messages

- 1) Coordination is a key function of the NAP process to ensure alignment of climate change adaptation, sectoral and other development priorities.
 - 2) Participatory mechanisms must be set up to ensure the ownership and the engagement of all stakeholders.
 - 3) To strengthen the enabling environment for adaptation planning, it is crucial that the institutional barriers and capacity gaps are assessed, long-term capacity development plans are established and institutional, regulatory and legal reforms are implemented at the onset of the process.
 - 4) National Adaptation Plans can provide the enabling and supporting environment necessary to garner political and institutional support and incentivize coordination between institutions.
-

Coordination is a key function of the NAP process. Effective coordination is largely determined and driven through policy, institutional arrangements and governance. These prongs help build the consensus required for a real integration of climate change adaptation and development.

Through policy making, institutional arrangements and governance mechanisms, decision-makers can engage with all stakeholders throughout the planning process. This is particularly important as a means to ensure the adequacy and alignment of priorities on climate change adaptation, sectoral priorities and national development goals, and to promote a real ownership by all the main stakeholders at different levels.

Institutional arrangements will vary from one country to another depending on the national context. The mandate to steer the NAP process and climate change adaptation usually lies within the ministry in charge of the environment, or sometimes at the Ministry of Planning or under the President or Prime Minister's Office. It is steered by a working group or committee responsible for the coordination of climate change, which involves a wide range of stakeholders from sectoral ministries, ministries of finance and planning, civil society organizations and other non-state actors. It is crucial that all relevant stakeholders are engaged, especially those representing the most vulnerable and most important sectors for the country's development, as is often the case for agriculture. These institutions should assign focal points to the NAP and other planning processes, building on their experience with the National Adaptation Programme of Action (NAPA). Ideally, these national-level mechanisms would also exist at sub-national level.

Figure 1 below shows a sample process for stakeholders' inclusion at different steps of the NAP and especially highlights the role of the agricultural sectors.

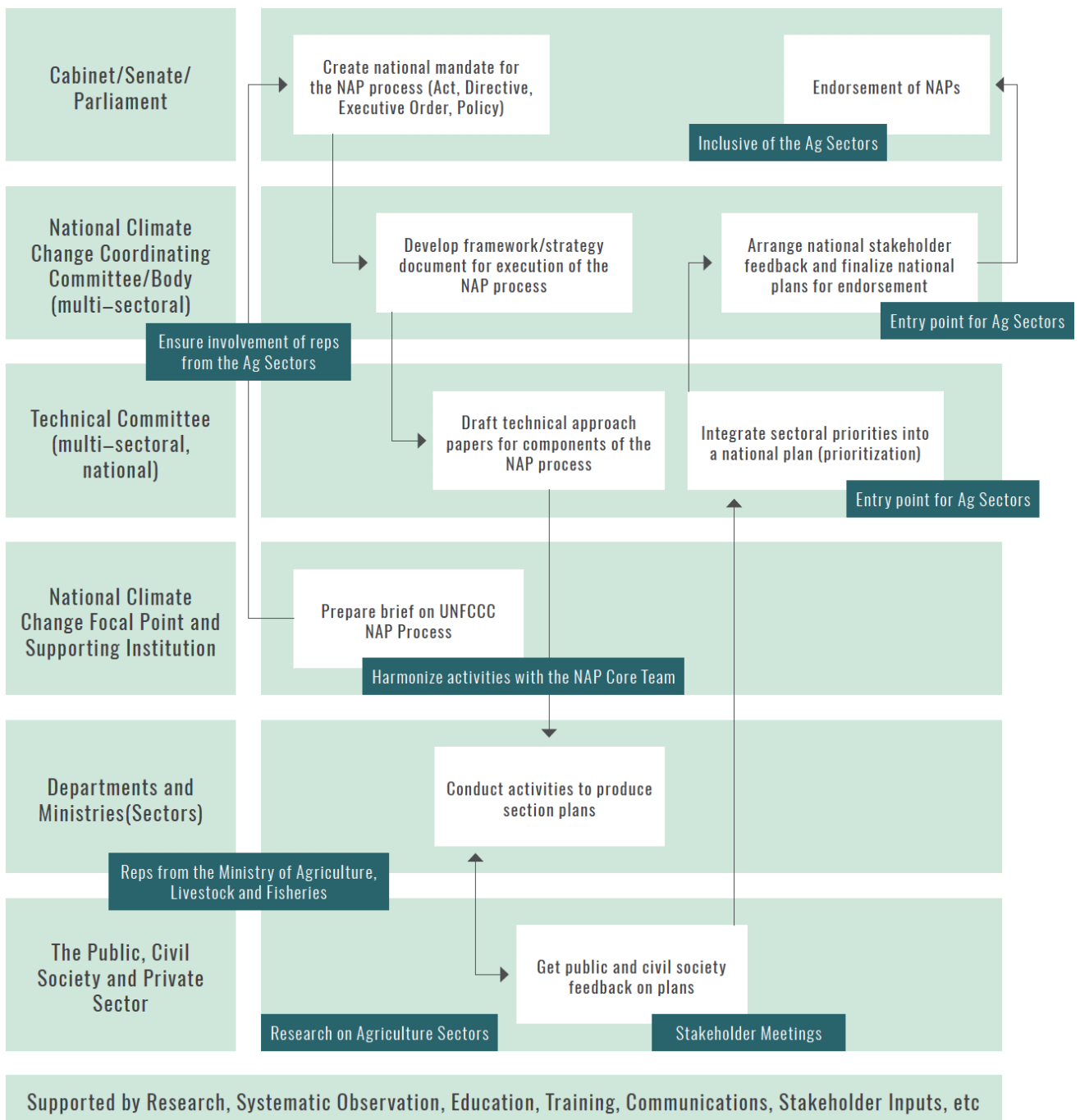


Figure 1 Adapted from the UNFCCC NAP Technical Guidelines (UNFCCC, 2012)

Institutional Barriers

The following institutional barriers might affect climate change adaptation:

- **Fragmented national mandates on climate change**

While the coordination of climate change often lies in the ministry of environment, issues related to climate change are addressed within sectors such as energy, industry, agriculture, and health, as well as planning ministries, which do not necessarily identify these actions as being climate change related; and which do not sufficiently coordinate their interventions. Ministries of Finance also play a key role in allocating budgets and assigning resources.

- **Limited communication and dialogue across government**

This does not only apply to climate change, but to many other policy issues. A whole-of-government approach is called for to ensure integration and policy coherence.

- **Uneven availability of technical skills and knowledge**

Ministries of environment, institutions in charge of disaster risk reduction, and meteorological offices, are often the main repository of climate change knowledge. Awareness and skills for climate change adaptation planning should be more widely disseminated across other stakeholders.

- **Perceived conflict between the climate change and development agendas**

The risks and opportunities linked to climate change are often overlooked and the synergies between climate change and development are not taken advantage of.

- **Restricted political support from key decision makers such as parliamentarians and thought leaders beyond the environmental arena**

Climate change is still often perceived as a sole environment issue. Political support from the wider decision-making community, arising from their awareness of the linkages between climate change and development, needs to be enhanced.

Capacity Assessment

These institutional barriers and capacity gaps must be assessed at an early stage of the NAP/adaptation planning process. The capacity assessments aim to identify capacity gaps and opportunities relating to knowledge, institutional mechanisms and policies. A variety of approaches exist but it is important that they evaluate capacities at several levels of intervention; namely policy, organizational and operational levels. At each of these levels there are functional or technical, managerial and participatory capacities that need to be put in place and sustained. Some of the key capacities needed include:

1. Policy level: to design and implement adaptation policy and regulatory frameworks, specifically as they relate to agriculture;
2. Organizational level: to bring together the human and financial resources necessary to integrate agriculture into NAP formulation and implementation stages; and
3. Operational level: to design, finance and plan the implementation of specific adaptation projects and programs.

The assessments would serve as a basis to design long-term capacity development plans, which are fully integrated into existing national and subnational learning systems, for example by using national training and academic institutions (such as civil service training institutes and/or agricultural research and training institutes). Strengthening the regulatory, legal and fiscal frameworks and the coordination mechanisms to foster an adequate enabling environment are also key to adaptation planning.



Resources for further learning

FAO, 2017. Addressing Agriculture, Forestry and Fisheries in National Adaptation Plans (Chapter 4.1). Available at: <http://www.fao.org/3/a-i6714e.pdf>

UNITAR, 2015. Skills Assessment for National Adaptation Planning: How countries can identify the gap. United Nations Institute for Training and Research, Geneva. Available at: <https://www.unclearn.org/sites/default/files/inventory/nap16o62o15.pdf>

UNDP, 2009. Capacity Development: A UNDP Primer. Available at: <http://www.undp.org/content/undp/en/home/librarypage/capacity-building/capacity-development-a-undp-primer.html>



5.1.2 Integrating adaptation actions into budget systems

Expert: Glenn Hodes

Key Messages

- 1) In many countries, national (and local) budgets are the most significant source of domestic finance for adaptation measures.
 - 2) Climate budgeting can help bridge the gap between adaptation planning and implementation and should be considered as part of long-term development strategies and goals.
 - 3) A range of tools and methods exist to help track domestic resources for adaptation responses. Climate finance tracking and tagging is a major step in raising awareness and advocacy.
-

National (and sectoral and local) budgets are critical for implementing adaptation plans and objectives, including those tied to National Adaptation Plans (NAPs). In many countries, budgets are the most significant source of domestic finance for adaptation measures and the most important documents to translate climate policy priorities into action.

Climate budgeting refers to the mainstreaming of climate change actions into all aspects of the budget cycle, including budget formulation, allocation and performance monitoring. Climate budgeting and stronger systems for tracking domestic climate finance can help developing countries bridge the gap between adaptation planning and implementation.

Integrating adaptation actions into budgeting cycles and systems is a long-term iterative process. This involves a series of stages, each with distinct entry points. Over time, as policy opportunities and technical reforms advance, institutional capacities become progressively more refined. This lecture note looks at a potential model for the stages of climate budgeting and the tools that can be used to address needs and gaps in developing countries. It offers insights and good practice from various countries.

The Climate Budgeting Process (Overview)

STEP 1: Measuring and tracking:

The first stage primarily serves to reveal the extent of existing expenditure, gaps in the adequacy of funding and gaps in alignment of the budget to policy priorities. This is particularly relevant to national level and line ministries, especially ministries of planning and finance. Entry points involve undertaking assessments to start to measure and track where current domestic expenditure is directed that can support climate action and how finance flows (including budget resources at different levels and through various channels) are being allocated in a way that can build climate resiliency.

Tools and approaches for STEP 1:

- **Climate Public Expenditure and Institutional Review (CPEIR):** this is a tool to help countries measure and track public finance and look at gaps in the budgeting system.
- **Private Climate Expenditure Review (PCER):** private sector tracking is primarily used for mitigation, but has also been used in some countries to help monitor and track private adaptation flows.

STEP 2: Prioritizing allocations:

Countries can then move on to a second stage that involves reforming their budget formulation and allocation processes to more systematically integrate tools such as budget tagging, expenditure reporting, revising planning templates for public investments, and institutionalizing other measures to reprioritize allocation including dedicated climate program budgets and virtual national climate funds. The main aim is to inform gaps and build an evidence base for scaling up effective adaptation responses, in terms of functional and geographical targets.

Tools and approaches for STEP2

- **Climate Budget tagging:** adding a dedicated climate change marker in national budget systems or Financial Management Information Systems.
- **Climate Change Financing Framework:** this is a more comprehensive public finance management reform, e.g. reform of planning templates, of budget call circulars – including at the sector level.

STEP 3: Vertical integration:

The next stage would be to downstream processes and systems at the central level to the local level. This is pivotal especially in decentralized governance systems where local development programs and planning frameworks (e.g., Local Adaptation Plans of Action LAPA and Environment Friendly Local Governance in Nepal) provide an opportunity to integrate adaptation measures into local budget priorities. These tools for prioritization, budget execution monitoring, and expenditure tracking help to ensure that climate financial flows can reach most vulnerable beneficiaries.

Tools and approaches for STEP3

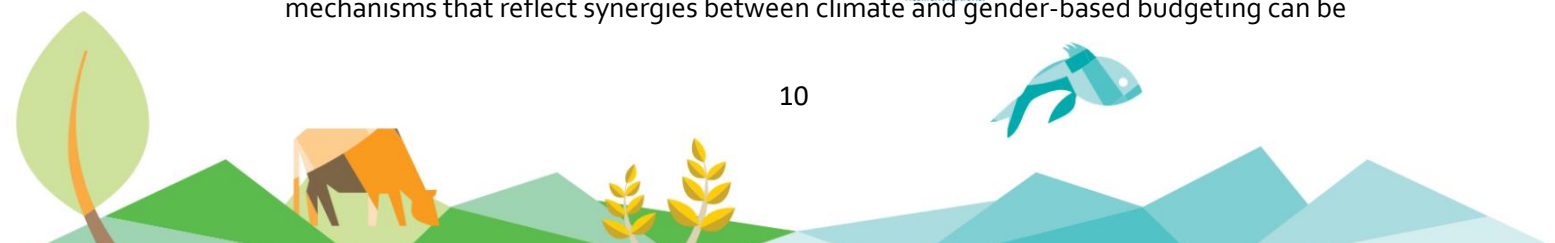
- This includes localized diagnostics from STEP 1 and 2 designed for sub-national government realities as well as accountability mechanisms such as community score cards, citizen's climate budgets, and Participatory Monitoring, Evaluation, Reflection and Learning (PMERL).

STEP 4: Integrating climate change adaptation with other budgeting:

The final frontier could be a stage whereby climate change budgeting (esp. adaptation) considerations are fully integrated together with other thematic approaches to budget planning and national SDG achievement (e.g., gender, food security, DRR considerations, etc.). For example, Viet Nam intends to pursue an integrated approach to provincial level budgeting and planning, by mapping climate mitigation, adaptation, and DRR considerations and using data to inform new public investments.

Tools and approaches for STEP 4

- Fully integrated budget formulation guidelines and monitoring or accountability mechanisms that reflect synergies between climate and gender-based budgeting can be



used here. Such guidelines and mechanisms can reflect actual disparities in rights, access to resources, and levels of vulnerability that exist between men and women at the local level. This is an emerging area, but some countries such as Kenya are beginning to reflect integrated approaches to their climate policy, backed by national laws. Viet Nam too, is revising its regulatory and budget guidelines to fully integrate disaster risk reduction, green growth, and climate adaptation into the design of public investments and sub-national budgeting, as part of its NAP process and NDC implementation strategy. It has started with piloting work and an integrated expenditure review in the Mekong Region in 2017.

Case studies

By developing climate budgeting capacity, governments can exercise more control over meeting their adaptation strategies and targets under the Paris Agreement through domestic resources, because national budget allocations are relatively more consistent. In Nepal and the Philippines for example, their experience with climate budget tagging goes back several years already. Insights as to how this has progressed and how the scope and the quality of budget data on climate adaptation expenditure has improved over time will be shared.

In Nepal, UNDP is enhancing project preparation guidelines, climate change budget coding and climate adaptation expenditure tracking capacities in the livestock and agricultural ministries. It is also working to align the country's medium-term expenditure framework and fiscal planning system to its climate policy goals and targets.

In the Philippines, climate change budget tagging has been consistently applied over at least four fiscal years building up recommendations of a CPEIR finalized in mid-2013. This has yielded improvements in the consistency and quality of expenditure data over time against which to make more informed allocative decisions. Revised budget guidelines and a further consolidation of budget reforms has served to leverage increased funding allocated to line agencies over time for routine service delivery that can build climate resiliency and disaster preparedness (e.g. agricultural extension, water management). In 2015, the Cabinet Cluster on Climate Change also formulated a Climate Change Program Budget Approach (PBA) which has been another pillar of a climate budgeting strategy to increase dedicated funding for climate adaptation. Finally, Local Government Units (LGU) have been capacitated to perform climate budget tagging to inform risk-based planning at decentralized levels.

Key Definitions

Budget Tagging: This entails adding a dedicated climate change marker in national budget systems or Financial Management Information Systems.

Climate Finance: There is no agreed definition of climate finance. The term climate finance is applied both to the financial resources devoted to addressing climate change globally and to financial flows to developing countries to assist them in addressing climate change.

Climate Budgeting: Climate budgeting refers to the mainstreaming of climate change actions into all aspects of the budget cycle, including budget formulation, allocation, and performance monitoring.



Gender-based Budgeting: Gender-responsive budgeting or GRB is a method of determining the extent to which government expenditure has detracted from or come nearer to the goal of gender equality. A gender-responsive budget is not a separate budget for women, but rather a tool that analyzes budget allocations, public spending and taxation from a gender perspective and can be subsequently used to advocate for reallocation of budget line items to better respond to women's priorities as well as men's, making them, as the name suggests, gender-responsive.

Abbreviations

Climate Public Expenditure and Institutional Review (CPEIR)

Disaster Risk Reduction (DRR)

Participatory Monitoring, Evaluation, Reflection and Learning (PMERL)

Private Climate Expenditure Review (PCER)

Resources for further learning

Governance of Climate Change Finance website. Available at www.cfade.org/publications

PEI, 2017. Available at [Mainstreaming Environment and Climate for Poverty Reduction and Sustainable Development: The Interactive Handbook to Strengthen Planning and Budgeting Processes](#)

UNDP and TANGO, 2016. Community-Based Adaptation Bangkok. Available at [Making Local Government Fit for Purpose: A Framework for an Integrated Climate Change Response at the Local Level](#).

On Nepal:

<http://www.np.undp.org/content/nepal/en/home/presscenter/pressreleases/2017/08/09/nepal-s-climate-relevant-budget-continues-upward-trend/>

https://www.climatefinance-developmenteffectiveness.org/sites/default/files/documents/09_06_16/Charting%20New%20Territory%20-%20A%20Stocktake%20of%20Climate%20Change%20Financing%20Frameworks%20in%20Asia%20Pacific.pdf

On the Philippines:

<http://www.worldbank.org/en/country/philippines/publication/mobilizing-budget-for-climate-change-in-philippines>



Part II

5.2.1 Access to climate finance at international and national levels

Expert: Dr. Pradeep Kurukulasuriya

Key Messages

- 1) Under international climate agreements of the UNFCCC, developed countries continue to take the lead in mobilizing international climate finance from a wide variety of sources for adaptation.
 - 2) Public finance remains the key international source of funding for adaptation.
 - 3) Public funds can play an indispensable catalytic role in attracting private finance, by strengthening capacities of stakeholders, providing incentives and taking on board financial risks.
 - 4) National level public expenditure on adaptation is commonly quite high. Yet national governments can also play a critical role in strengthening institutional, legal, regulatory and fiscal frameworks required for encouraging private investment in adaptation.
 - 5) There is a significant gap in terms of adaptation finance availability and needs. Both public and private funds are required to bridge the gap.
 - 6) Micro- and small-sized enterprises are already investing in adaptation of their own accord so as to minimize risks arising from climate change and to harness potential opportunities. They can act as an initiator of adaptation actions, including in the agriculture sector.
-

Financing climate change adaptation and mitigation is going to require **public and private sources of finance, at both international and domestic levels**. Whilst climate change finance has traditionally come from the public sector, the scale of finance needed to address that growing climate change impacts will require resources from multiple sources. Public finance and supportive policy frameworks can act as catalysts for increased private sector engagement.

Public finance remains the primary source of adaptation, because adaptation is often considered a public good. For example, to protect coastal communities and business from climate change induced sea level rise and storm surges, government is likely to be the primary party interested in investing in a sea wall or an Ecosystem-based Adaptation (EbA) option, because the benefits would go to entire communities.

In addition, under the UNFCCC – including the goals outlined by the Paris Agreement – developed country parties should continue to take the lead in mobilizing climate finance from a wide variety of sources, instruments and channels, noting the significant role of public funds. The Agreement includes a commitment that by 2020, US\$100 billion per year be mobilized for adaptation and mitigation, and that the commitment be increased after 2025, considering the needs of developing countries, especially those that are particularly vulnerable to climate change.

However, we currently face an **adaptation finance gap**. Namely, the estimates for the costs of adaptation range from US\$140 billion to US\$300 billion by 2030. In 2014, total bilateral and multilateral finance for climate change adaptation reached US\$25 billion. To meet finance needs and to avoid an adaptation gap, the total finance for adaptation in 2030 would have to be



approximately 6 to 13 times greater than international public finance today. This is going to require both public and private financing.

International Public Climate Finance is available from three major sources: (i) Global climate funds such as Global Environment Facility (GEF), Climate Investment Fund (CIF), Adaptation Fund (AF) and Green Climate Fund (GCF); (ii) Governments and Agencies such as bilateral programs and (iii) Multilateral Development Banks (MDBs) such as the World Bank Group and regional MDBs such as Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD) and European Investment Bank (EIB), African Development Bank (AfDB), Inter-American Development Bank (IDB), and the most recent Asian Infrastructure Investment Bank (AIIB).

About 89% of global public finance for climate change adaptation and mitigation comes from MDBs, followed by 9% from governments and agencies, and 1% from global climate funds. More finance is available for mitigation than for adaptation. For adaptation, international public climate finance is disbursed as **concessional loans, market-rate loans and grants**. To ensure sustainability of a project supported by a grant, the grantor often looks for co-financing from other financing sources. In the case of adaptation, this is often co-financing provided by the receiving government and beneficiaries.

Investment in adaptation can increase financial returns. For example, a UNDP supported LDCF project in Ethiopia on investing in cash crops for climate resilience saw harvests double; whilst another LDCF project piloting drought- and flood-resistant rice varieties in Lao PDR saw profits increase on average to over 70%. Dedicated global climate funds can help break down barriers to investment, for adaptation projects, by playing a catalytic role in attracting a range of adaptation investments. This is done by strengthening capacities of stakeholders, providing incentives and taking on board financial risks that private investors are unlikely to take.

International Private Climate Finance sources include: (i) commercial financial institutions, (ii) project developers, (iii) corporations, (iv) institutional investors, infrastructure funds, private equity funds, and venture capital, and (v) households. Most of international private climate finance is being mobilized toward mitigation measures such as renewable energy, energy efficiency, land use and transport, which offer return on investment. Private climate finance options for adaptation include **debt, equity and climate insurance**.

Risk transfer tools, such as climate risk insurance provides support against loss of lives, livelihoods, and assets caused by climate-related risks or disasters such as floods and droughts. Climate insurance is especially relevant for the agriculture sector. A small payment in terms of insurance premium is made periodically, for example by a farmer, to an insurer so that when the disaster occurs, an insurance claim and payout can be made to the policyholders. The premium can be born entirely by the beneficiaries or subsidized by government or climate funds.

Domestic level finance, from both public and private sources, is key. Developing countries are already incurring economic losses due to climate change and investing in adaptation, at national, sectoral and sub-national levels. Based on lessons learned from over twenty **Climate Public Expenditure and Institutional Reviews** (CPEIRs) that UNDP has supported in countries across Asia and Africa, domestic resources were identified as a significant part of climate change expenditure, in some cases exceeding 90% of climate expenditure. There was more expenditure on adaptation than on mitigation, although the balance is shifting. Agriculture was often found to be a top-spending Ministry in terms of climate expenditure.



Governments also play a key role in terms of unlocking national level **private finance** for adaptation. This can be done by strengthening institutional, legal and regulatory frameworks that are supportive of climate change planning in general, and that encourage fiscal changes targeted at climate investment. Public climate finance, from either national or international sources, can act as a catalyst in initiating the required changes and paving the road for increased private investment. Micro- and small-sized enterprises are an important stakeholder, often investing in adaptation measures of their own accord as to minimize risks arising from climate change and to harness potential opportunities. Agriculture enterprises are a case in point, as they provide for a significant number of resource-dependent livelihoods and can act as initiators of adaptation actions.

The costs of adaptation in developing countries are increasing, making the case for enhanced public and private climate finance investments. In addition, enhanced action on mitigation is required, given that adaptation costs increase under higher emissions scenarios. The Nationally Determined Contributions (NDCs), consolidated under the Paris Agreement, and National Adaptation Plans (NAPs) can provide a starting point for estimating adaptation costs, for tracking and for mobilizing financial flows for adaptation from both public and private sources for priority actions.

One thing is clear—neither the public sector nor public finance can do it alone. And given the shortage of public finance to address the scale of the climate challenges that the world confronts today and in the future, harnessing private climate finance for adaptation needs to become a priority.

Abbreviations

Climate Public Expenditure and Institutional Reviews (CPEIRs)

Resources for further learning

UNDP and WRI, 2015. Adapting from the ground up: Enabling Small Businesses in Developing Countries to Adapt to Climate Change. Available at <http://bit.ly/1Zcn4Jy>

UNDP, 2015. Budgeting for climate change: How governments have used national budgets to articulate a response to climate change. Available at <http://bit.ly/2zDUtts>

UNEP, 2016. Adaptation Finance Gap Report. Available at <http://bit.ly/1Xtmszq>



5.2.1a Unlocking international climate finance

Expert: Dr. Pradeep Kurukulasuriya

Key Messages

- 1) The Paris Agreement recognizes the significant need for adaptation and to scale up adaptation finance from all available sources, public and private. This can help fill the current adaptation finance gap.
 - 2) The Green Climate Fund (GCF) was created as part of the UNFCCC's financial mechanism. Its mandate is both to fund transformative interventions and to support countries in enhancing their ability to access climate finance, and in preparing low-emission development strategies or plans, including NAPs.
 - 3) The Green Climate Fund strives for a paradigm shift in the global response to climate change, through the following innovative approaches: i) using public investment to stimulate private finance; ii) aiming for a 50:50 balance in investment for adaptation and mitigation; and iii) being country-owned.
 - 4) Experiences are emerging from the ground on how GCF funding is being used to leverage all sources of finance to invest in public climate goods, such as Early Warning Systems (EWS), and catalyze private sector engagement in adaptation.
-

Scaling-up adaptation through the GCF

The Paris Agreement of the UNFCCC created a global goal for adaptation to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change. It recognizes the significant need for adaptation and the greater costs involved. It includes a commitment that by 2020, US\$100 billion per year be mobilized, from multiple sources, for adaptation and mitigation, with that commitment increasing after 2025.

There is a current adaptation finance gap, with estimates that the total finance for adaptation in 2030 would have to be approximately 6 to 13 times greater than international public finance available today. Funding this gap is going to require both public and private finance, including the use of innovative financing mechanisms. Currently, key sources of public finance for adaptation include: (i) Global climate funds such as Global Environment Facility (GEF), Climate Investment Funds (CIFs), Adaptation Fund (AF) and Green Climate Fund (GCF); (ii) Governments and Agencies such as bilateral programs; and (iii) Multilateral Development Banks (MDBs). The Green Climate Fund (GCF) has gained attention as a climate fund that uses public finance to catalyze private investment for both adaptation and mitigation.

The GCF was created in 2010 by the Parties to the UNFCCC, as part of the Convention's financial mechanism. The Fund's investments can be in the form of grants, loans, equity or guarantees. The GCF manages a project portfolio, which is implemented by its partner organizations, known as Accredited Entities, and which have been assessed to meet the Fund's fiduciary standards, environmental and social safeguards and gender policy. The GCF has established a direct access modality, meaning that national and sub-national organizations can also be Accredited Entities.

The GCF strives for a **paradigm shift in the global response to climate change** through the following innovative approaches:

1. The GCF plays a catalytic role in **using public investment (primarily from developed countries) to stimulate private finance** and open markets to new investments. The Private Sector Facility (PSF) of the GCF engages directly with the private sector. The GCF can take on board climate-related financial risk to leverage and attract private investment.
2. Unlike other climate funds, the GCF purposefully aims for a **50:50 balance in investment for adaptation and mitigation**. This is especially relevant given that, to date, the majority of public and private finance has been channeled to mitigation. This balance can help fill the **adaptation finance gap**. According to estimates, the total finance for adaptation in 2030 would have to be approximately 6 to 13 times greater than international public finance for adaptation today. In addition, to date it has been significantly easier to attract private finance for mitigation, than for adaptation. The GCF provides a means to shift this balance.
3. Given its establishment under the UNFCCC, the GCF follows a **country-driven and country-owned approach**, both in terms of funding and in terms of integrating the funding into national planning, in line with national priorities and planning processes (e.g. NAPs). A National Designated Authority (NDA) appointed in a country is the liaison between the government and the GCF, and approves all GCF projects.

UNDP, as an Accredited Entity, has supported the Government of **Malawi** in accessing GCF funding for scaling up the use of modernized climate information and Early Warning Systems (EWS). The project focuses on non-revenue generating investments, such as enhancing hydro-meteorological capacity for early warnings and forecasting; and the development of demand-based products, including those for farmers – with the specific aim of catalyzing private finance.

Specific activities are designed to promote private sector engagement, develop markets and stimulate private investment. The ICT and mobile sector will be engaged to provide and disseminate crop advisories and information regarding markets to farmers and farming enterprises. Micro and small enterprises (MSEs) such as small-holder farmers, agribusinesses, commercial fishers and fish processors will receive demand-based, value-added products. Initial investments in climate information and EWS are expected to save assets by an average of USD 5 million and to enhance agricultural productivity to an annual benefit of USD 3.8 million.

The GCF is creating a paradigm shift in addressing climate change impacts by unlocking and crowding in private sector finance, using its Private Sector Facility, providing financial resources to implement projects and influencing public policies to transform markets and services to better respond to climate change impacts. The GCF has also enabled scaling up adaptation experiences previously funded by bilateral donors and global environmental funds, whilst aiming to engage the private sector in these adaptation initiatives.

Section 2 – Accessing GCF for NAPs

Adaptation planning, and the NAP process in particular, is crucial to scale up adaptation interventions. The financial instruments to support the NAPs are multi-fold given the complexity and flexibility of adaptation planning. At the UNFCCC COP 18 in Doha, the Global Environment Facility (GEF) was especially mandated to fund activities related to the NAP process through the



Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF). Subsequently at the COP21 in Paris, Parties requested the GCF to expedite support for the formulation and implementation of NAPs. In response to the COP Decision, the GCF Board decided to allocate financial support for the formulation of NAPs in June 2016. The GCF governing instrument highlights the importance of climate change strategies and plans, including national adaptation plans, to guide investments.

The scaling up of support for NAPs and other adaptation planning processes through the GCF is now underway. Many agencies, including UNDP and UN Environment, have been supporting countries to develop or strengthen their NAP roadmaps and identify their priorities with regards to adaptation planning.

For instance, the GCF has recently released funds to Liberia for a UNDP-supported project "[to advance the National Adaptation Plans \(NAP\) process for medium-term investment planning in climate-sensitive sectors \(i.e. agriculture, energy, waste management, forestry and health\) and coastal areas in Liberia](#)". This project will work to strengthen institutional frameworks and coordination for the implementation of the NAP process, expand the knowledge base for scaling up adaptation, build capacity for mainstreaming climate change adaptation into planning, and budgeting processes and systems, and formulate financing mechanisms for scaling-up adaptation, from public, private, national and international sources.

Liberia will use the GCF funds to kick-start a cross-government approach to integrate climate change adaptation throughout key ministries, agencies and authorities, and to develop corresponding strategies. The focus area of the grant was identified by the government following a national stocktaking exercise. It found limited inclusion of climate adaptation considerations in coastal planning and key sectors like agriculture, energy, forestry and health that would be adversely affected by climate change.

Many other countries have submitted proposals to the GCF to provide support to their NAP and other planning processes, which shows the importance they place in the NAP to address their medium- and long-term needs. By November 2017, 10 proposals were approved or endorsed.

Abbreviations

Climate Investment Funds (CIFs)
Green Climate Fund (GCF)
Information and Communication Technology (ICT)
Least Developed Countries Fund (LDCF)
Private Sector Facility (PSF)

Resources for further learning

GCF, 2017. GCF Guidebook. Accessing the GCF Readiness and Preparatory Support Programme: An introduction and how-to guide. Available at <http://bit.ly/2uzWW5h>



GCF. GCF 101 Guide. Available at <http://www.greenclimate.fund/gcf101>

UNDP. Climate Change Adaptation: Malawi project. Available at <http://bit.ly/zzqhixO>



5.2.1b Investing in smallholder farmers

Expert: Paxina Chileshe-Toe

Key Messages

- 1) Comprehensive risk and vulnerability assessments are important to inform the design of projects that seek to support adaptation for smallholder farming.
 - 2) Targeted climate change adaptation measures for smallholders should take cognizance of their existing productive asset base and be built on current knowledge.
 - 3) Effective M&E systems in projects are essential to document the successes and failures in climate resilient agriculture for smallholders, linked to knowledge management systems to ensure wide dissemination.
 - 4) Building resilience into the agriculture sector will need a combination of innovative approaches and scaled up proven technologies. It is not an 'either-or' situation.
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The Adaptation for Smallholder Agriculture Programme (ASAP) directs climate finance to smallholder farmers to enable them to access the information, tools and technologies needed to build their resilience to climate change. ASAP was launched by the **International Fund for Agricultural Development (IFAD)** in 2012. It is now the largest global financing source for the adaptation of poor smallholder farmers to climate change.

The thematic areas to be covered include the economic benefits of investing in adaptation for smallholders, use of indigenous knowledge, gender and policy level entry points.

ASAP invests in countries that have clear policy priorities for climate change adaptation, have agriculture sectors that are highly vulnerable to climate change and have low-income levels. The question of vulnerability is highlighted in national communications to the UNFCCC, immediate priority National Adaptation Programmes of Action (NAPA), more long term National Adaptation Plans and recently in (Intended) Nationally Determined Contributions (NDCs).

These policies and strategies provide a starting point for determining the engagement from IFAD and shaping the support for building climate resilience of the smallholders, by strengthening the environmental sustainability and climate resilience of poor rural people's economic activities. ASAP funded activities are blended in with IFAD loan or grant financed activities, through a five-step process¹. IFAD's E-Learning course on smallholder agriculture, environment and climate change can be found on https://www.ifad.org/topic/resource/tags/climate_change/1937682.

At the core of this process is the importance of analyzing, in a systematic way, for climate change risks. The comprehensive risk and vulnerability assessments inform the targeting of the project activities both at the geographic level and the selection of measures to support adaptation of smallholders.

In Kyrgyzstan one of the most vulnerable countries to the impacts of climate change in Central Asia, a vulnerability assessment (Climate Change Impact on Pastures and Livestock Systems) showed the

¹ The five-step process is initiated by a Concept Note, which is followed by an in country early design mission, quality enhancement review, a final in-country design mission, quality assurance review before the financing is negotiated and presented to the IFAD Board for approval.



effect of climate change on the seasons and on different types of spring, summer and winter pastures. Pasture growing cycles are highly sensitive to climatic events; if these are delayed or come early they often have important implications on the quality and quantity of production. The vulnerability assessment recommended:

- installation of an early warning system to provide policymakers, technicians, pasture committees and farmers with up-to-date and accurate information on climate hazards;
- strengthening the robustness of rural infrastructure;
- restoring pastures to increase productivity and prevent soil degradation; and
- developing institutional capacities to build resilience to climate change.

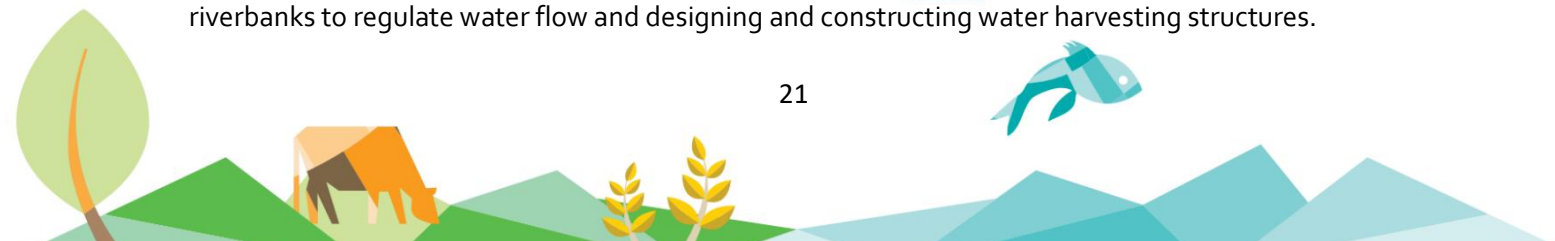
The IFAD-financed Livestock and Market Development Programme (LMDP II) will boost economic growth in pasture communities by improving climate resilience and livestock productivity. It will make available: more productive and resilient pastures; supplementary feed for community livestock; healthier livestock with lower mortality levels; increased revenue from additional income-generating activities for households; and communities vulnerable to climate change among others.

The vulnerability assessments also take cognizance of existing climate risk management strategies of target beneficiaries and as such the recommended adaptation measures build on existing knowledge, productive assets and practices. In Bolivia some of the most vulnerable communities are concentrated in the south-west of the country, characterized by extreme climatic conditions and an increasing aridity due to climate change.

The Economic Inclusion Programme for Families and Rural Communities in the Territory of the Plurinational State of Bolivia (ACCESOS) project is recovering indigenous peoples' traditional knowledge and technologies associated with the agricultural cycle and integrating these practices in its activities. An indigenous climatic information system called the Pachagrama, which is a register that catalogues "bio-indicators" – i.e. the behavior of plants and animals, is compiled and shared by communities to know when to plant, when the rains are expected to begin and how long they will last. This system supports management processes of agro-climatic information. Due to the weak meteorological reporting system, the Pachagrama is a cost-effective and reliable system, which has proved to coincide with scientific data and helped to reduce agricultural losses. In addition to adopting indigenous peoples' systems, the project is introducing new techniques compatible with local practices such as the quthañas, a water harvesting system used by the Aymara people, which collects water by means of small dams.

The project is integrating the quthañas in a larger scheme that includes the construction of basins, ponds and small and medium dams at family/group level in watersheds, intended as an adaptation measure to overcome the negative effects of climate change on water availability. The ACCESOS-ASAP is also building on traditional agroecosystems, such as the aynokas (vertical sections of the watershed in which each year a different crop is communally grown) and the sayanas (family lands usually close to the houses used by the families to complement the production of the aynokas), to promote and develop home gardens that include local horticultural and medicinal plant species, and communal seed banks to be used and exchanged between families. The project is also promoting composting using totora reeds and other local plants in order to fertilize the soil and is employing the ali Chamachiri, an organic fertilizer, to strengthen it.

Additionally, ACCESOS-ASAP is reforesting soils affected by a high degree of erosion, building riverbanks to regulate water flow and designing and constructing water harvesting structures.



In Vietnam the Mekong Delta, a major crop-producing area in the south of the country, is one of the most endangered places with regard to rising sea levels, which are leading to more tidal saltwater intrusion further inland; disrupting the supply of potable water to thousands of households, increasing soil salinity and constraining agricultural production.

The IFAD financed Adaptation in the Mekong Delta (AMD) project seeks to build the adaptive capacity of communities, institutions and smallholder farmers to help them cope with the impacts of climate change and expand into sustainable, profit-making enterprises. The project finances automated salinity monitoring sensors to compute salinity concentrations at given points along the river system for provision of salinity forecasts, enabling farmers to understand how salinity in soils and groundwater evolves over time.

Research is undertaken on saline-tolerant rice varieties and other saline-tolerant crops that have good market value and are suitable for cultivation. The project is also developing a striped catfish variety that is capable of tolerating between 12 and 18 per cent water salinity (currently farmed varieties can withstand only three– five per cent salinity) without compromising its growth, fillet quality and disease-resistance traits. These activities fill gaps in knowledge, expand climate-resilient economic options for smallholder farmers and provide them with choices that suit their specific contexts and capacities, such as shifting from rice to vegetable crops, coconut or other salt-tolerant crop varieties and engaging in sustainable shrimp farming and livestock production.

The AMD also supports the design and construction of mostly small-scale, climate-resilient public investments in areas such as rainwater collection and treatment of brackish water, salinity barriers and water management structures, soil works (enabling conversion to other crop systems) and improvement of irrigation canal systems.

Climate related shocks can have impacts at various points along the agriculture value chain including the post-harvest stages (How to do climate risk assessments in value chain projects <https://www.ifad.org/documents/10180/30b467a1-d00d-49af-b36b-be2b075c85d2>). Therefore, a menu of options is required to address the different risks faced and adaptation measures need to be tailored to both the specific risks being faced and prioritized accordingly, considering different time horizons. The results need to be well captured through effective monitoring and evaluation systems and the accrued knowledge disseminated. The effective monitoring and evaluation will also allow for an iterative climate risk management approach, which starts with analysis of the impacts of current climate variability and extremes and then considers the risks of future climate change, including uncertainty.

In Rwanda IFAD is providing support through the interventions of the Climate Resilient Post-Harvest and Agribusiness Support Project (PASP) that makes investments targeting mainly farmer cooperative organization in the post-harvest management of the national priority commodity crops: maize, beans, potatoes, cassava and milk in selected districts. PASP covers incremental costs for investments in low-carbon and efficient energy and water supplies, post-harvest infrastructure including climate resilient buildings, the required technical training as identified in viable Business Plans prepared by farmer cooperatives and individual agribusiness entrepreneurs and improved access to climate information. Post-harvest losses for key commodities amounted to about 30% of harvested products at the time of the project design but these losses were expected to increase given the country's reliance on rain-fed agriculture and its vulnerability to climate change. For example cumulative losses in 2016 throughout the potato value chain were 35.8%, whilst for maize it varied with season A or season B, and the quality of drying. Successful post-harvest interventions

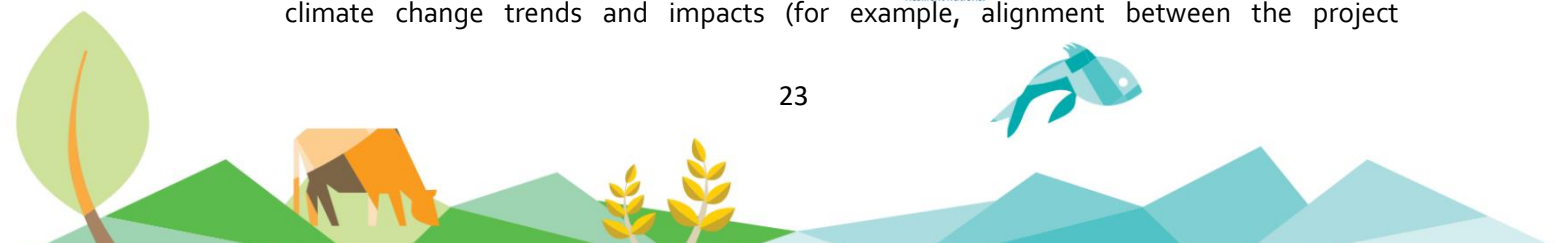


depend on reliable crop surpluses being produced by the farmers operating in each value chain, taking account of both current and changing climate pressures.

As a result of the recent El Nino and La Nina events, Rwanda has experienced heavier rains and severe flooding in 2016 and 2017 that generated severe runoff causing landslides and infrastructure damages. Thus the project supports Rwanda Agricultural Board's adaptive research on drought tolerance and early maturation to ensure availability of suitable crop varieties. From nine maize varieties tested in the season 'A' farmers have shown a preference for RHM104 and 1407; and from the two tested in season 'B' RHM 1409. Several varieties of disease tolerant cassava are tested in the research station and their progress monitored as appropriate. Germ plasm development and variety multiplication are also conducted before on-farm trials using the appropriate participatory approaches. Farmers who receive forage seeds in consecutive seasons are monitored regularly and advised on germ plasm maintenance, seed harvesting and hay production. Design specifications for climate-resilient warehouses developed as part of the project have been incorporated in Rwanda's Building Code as a national standard. PASP design specifications for climate smart covered drying grounds have also been adopted as standard. However, further work is required to institutionalize the appropriate building codes or standards, build the capacity of local contractors to adhere to these standards and construct post-harvest structures that are resilient to natural disasters, adapted to climate change and make the best use of low carbon green technologies. By April 2017, 5456 farmers were in receipt of daily weather information and seasonal forecasts, which are perceived as generally valuable in helping plan farming operations, particularly when to plant, when to harvest and good drying days. As one potato farmer from the COAPAI cooperative said, 'The Climate Information SMS tells me when it is dry enough to harvest, and if I should recruit casual labor or not'.

The desired result to build the resilience of smallholders to climate related shocks requires scaling-up of proven technologies in combination with the introduction of innovative approaches. In Mali, one of the Sahelian countries hardest hit by climate change, specific impacts on rain-fed farming systems, especially cotton and maize in the Sikasso and Kayes regions, include late rains and shortened growing seasons. Even though average annual rainfall is decreasing overall, episodes of heavier rains following longer dry periods cause floods, soil erosion and destruction of rural infrastructure, including irrigation schemes and roads. Intense droughts in the north intensify migration of people and animals to the south, where human-induced pressure on natural resources then increases. This leads to deforestation, clearing of land for agriculture, overuse of soil and loss of biodiversity. A further consequence of this dynamic is lower yields, a reduced availability of wild food, the disruption of production methods and an overall increase in household poverty and food insecurity. Conflicts for access to natural resources are becoming more common. The IFAD financed Fostering Agricultural Productivity Project (PAPAM) with ASAP additional financing, provides smallholders with complementary adaptation technologies and services such as:

- access to renewable energy sources (various types of biogas digesters, with or without solar equipment) to reduce pressure on forest areas and reduce women's workload;
- capacity development of civil society and government institutions to use climate information and planning tools resulting in communal adaptation plans and community-based climate change adaptation projects, which will reforest degraded watersheds, protect irrigated areas from flooding and regenerate low groundwater tables;
- support to the creation and training of land tenure committees and local 'meteorological assistance groups' in partnership with Mali Météo;
- an institutional environment at the national level that facilitates access to information on climate change trends and impacts (for example, alignment between the project



- environmental monitoring system and the national forest information system and support for the development and updating of policies and strategies in the area of climate change);
- facilitating training of relevant actors and institutions and data collection for the monitoring of climate change impacts on agricultural productivity and food security.

The project will increase the availability of adaptation assets and knowledge, which will enable target households to cope with the changing climate situation. The project helps smallholder farmers to get involved in decision-making processes at the national and regional levels, specifically in environmental and climate change policies and strategies, such as the National Adaptation Plan. This has the double benefit of improving farmers' access to information and enhancing the quality of policy processes. The systematic involvement of small producers enables policy processes to capitalize on local knowledge and strengthen the evidence base for decision-making.

Abbreviations

The Adaptation for Smallholder Agriculture Programme (ASAP)
International Fund for Agricultural Development (IFAD)
Social Environment and Climate Assessment Procedures (SECAP)

Resources for further learning

IFAD website. List of ASAP Resources. Available at
https://www.ifad.org/topic/asap/resource/tags/asap#anchor_5

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<https://www.ifad.org/topic/asap/overview/tags/asap>



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MOOC videos

Week 5 Part 1 - Governance, Coordination and Finance. Watch here:

<https://www.youtube.com/watch?v=2l18kVgjd4&list=PLyBRsrYRs7YfwMYIxKbV41CPwMgeC1e-h&index=9>

Week 5 Part 2 - Climate Finance for Adaptation. Watch here:

<https://www.youtube.com/watch?v=MOrV2g4ojQ8&index=10&list=PLyBRsrYRs7YfwMYIxKbV41CPwMgeC1e-h>

Climate Action | Investing in agriculture (Astrid Agostini). Watch here:

<https://youtu.be/BB6EJOIqTRU>

