



EXECUTIVE SUMMARY

Preparing Low-Emission Climate-Resilient Development Strategies

A UNDP Guidebook — Version 1





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Preparing Low-Emission Climate-Resilient Development Strategies: A UNDP Guidebook

UNDP is assisting national and sub-national governments in developing countries to prepare low-emission climate-resilient development strategies (LECRDS). Working within relevant national, local, and regional planning and coordination frameworks, LECRDS are designed to build upon existing strategies and development plans. These strategies simultaneously address the threats, risks, vulnerabilities and uncertainties associated with global climate change and the pressing development needs countries face as they pursue sustainable development. LECRDS are based on a series of steps and various robust and integrated assessments (e.g. scientific, institutional, financial and socio-economic) such as climate change scenarios, current and projected sustainable development needs, and climate change response options. These assessments assist countries in identifying climate change efforts; they are country-driven and include the vast range of affected stakeholder groups and sectors throughout the assessment and implementation stages. They result in strategic and programmatic roadmaps for developing country governments to implement LECRDS and achieve more equitable sustainable development trajectories that are low emission and resilient to climate change.

Introduction

Climate change is predicted to have severe, if not catastrophic, consequences over the short to medium term across sectors (e.g. agriculture, industry, energy, water, etc.) if immediate action is not taken to reduce greenhouse gas (GHG) emissions 50 percent by 2050 from 1990 levels. Global warming will lead to erratic and extreme weather events, floods, droughts, and sea-level rise, which could adversely affect food and water supplies, human health, and ecosystems and biodiversity. Developing countries are the most vulnerable to the effects of climate change, and their sustainable development prospects the most compromised.

Climate change is clearly the greatest development challenge of the 21st Century. To date, narrowly-defined mitigation (lowering emissions) and adaptation (reducing vulnerability) projects have dominated climate change action policies taken by most countries. This has resulted in the accumulation of many efforts, isolated in nature, to respond to a crosscutting issue. New and innovative programmatic approaches are necessary to leverage existing experiences and place them into a comprehensive policy framework to support developing country governments in integrating climate and development planning, policies, and action across multiple sectors and levels (national, regional and local levels).

In order to meet the challenges and uncertainties of climate change, development processes must be rendered more climate resilient and lower in carbon emissions. The formulation and implementation of low-emission climate-resilient development strategies (LECRDS) will allow developing countries to respond more effectively to climate change. LECRDS will not only serve as the programmatic nexus for capturing conventional and innovative sources of sustainable development and climate financing, but will also assist sub-national and national governments in implementing, monitoring, and building upon existing low-emission climate-resilient development projects and programmes.

UNDP Technical Advisory Infrastructure to Support LECRDS

National project teams manage the preparation of low-emission climate-resilient development strategy (LECRDS) for country projects. UNDP Country Offices, UNDP Environment and Energy Technical Advisors based in Regional Service Centers (RSCs) in Bangkok, Bratislava, Dakar, Pretoria, and Panama, and the global UNDP Territorial Approach to Climate Change (TACC) Facility provide project oversight and quality assurance to national teams.

The TACC Facility is comprised of a global support team of technical advisors specializing in climate modeling, greenhouse gas inventories, mitigation analysis, vulnerability assessments, climate economics and finance. It operates with an international network of global and regional centers of excellence.

Climate/biophysical modeling and carbon accounting partners: ClimSAT/Brest Technopole, University of Cape Town, Columbia University and NASA/Goddard, among others.

Socio-economic modeling partners (under negotiation): Yale University, University of Pretoria, Economy and Environment Program for Southeast Asia (EEPSEA), and Fondazione Eni Enrico Mattei, and UNDP-GGCA cadres of gender-climate national experts.

The TACC Facility is complemented by the UNDP Partnership Bureau's Hub for Innovative Partnerships, which is dedicated to building partnerships and mobilizing resources to support the provision of LECRDS technical assistance to developing country governments.

This report, *Preparing Low-Emission Climate-Resilient Development Strategies: A UNDP Guidebook*, serves as the Executive Summary to a series of manuals and guidebooks of various lengths (see Box 1) that UNDP is offering in support of LECRDS. All of the manuals, guidebooks, and toolkits in this series draw upon the experience and information generated by UNDP's support for climate change adaptation and mitigation projects and National Communications to the United Nations Framework Convention on Climate Change (UNFCCC) in some 140 countries over the past decade. This guidebook is intended to enable project managers, UNDP Country Offices, and developing country government decision makers to acquaint themselves with a variety of methodologies most appropriate to their development contexts in support of the preparation of LECRDS. In a flexible and non-prescriptive manner, it offers detailed step-by-step guidance for the identification of key stakeholders and establishment of participatory planning and coordination frameworks; generation of climate change profiles and vulnerability scenarios; identification and prioritization of mitigation and adaptation option; assessment of financing requirements; and development of low-emission climate-resilient roadmaps for project development, policy instruments, and financial flows. This executive summary provides a brief outline of the approach and methodologies that these materials treat in detail. For additional information on LECRDS, please visit www.undp.org/energyandenvironment/climatestrategies.

Box 1: Low-Emission Climate-Resilient Development Strategy Materials Available or Under Development

This guidebook is part of a series of manuals, guidebooks, and toolkits that draw upon the experience and information generated by UNDP's support for climate change adaptation and mitigation projects and National Communications to the United Nations Framework Convention on Climate Change (UNFCCC) in some 140 countries over the past decade. The reports are intended to enable project managers, UNDP Country Offices, and developing country government decision makers to acquaint themselves with a variety of methodologies most appropriate to their development contexts in support of the preparation of low-emission climate-resilient development strategies (LECRDS). In a flexible and non-prescriptive manner, they offer detailed step-by-step guidance for the identification of key stakeholders and establishment of participatory planning and coordination frameworks; generation of climate change profiles and vulnerability scenarios; identification and prioritization of mitigation and adaptation options; assessment of financing requirements; and development of low-emission climate-resilient roadmaps for project development, policy instruments, and financial flows. This executive summary provides a brief outline of the approach and methodologies that these materials treat in detail.

LECRDS Approach

- Charting a New Carbon Route to Development
- Executive Summary – Preparing Low-Emission Climate-Resilient Development Strategies: A UNDP Guidebook

Step 1

- Establishing a Multi-Stakeholder Decision-Making Process for Low-Emission Climate-Resilient Development Strategies

Step 2

- Applying Climate Information for Adaptation Decision-Making: A Guidance and Resource Document
- Managing the National Greenhouse Gas Inventory Process
- Mapping Climate Change Vulnerability and Impact Scenarios: A Guidebook for Sub-National Planners
- Formulating Climate-Change Scenarios to Inform Climate-Resilient Development Strategies: A Guidebook for Practitioners
- Guidebook on Preparing a Greenhouse Gas Emissions Inventory at the Sub-National Level

Step 3

- Technology Needs Assessment Handbook
- Toolkit for Designing Climate Change Adaptation Initiatives
- Proceedings on Internalizing Climate Risks into Infrastructure Design
- Low-Emission Climate-Resilient Development Strategies and Green Employment

Step 4

- Engineering Climate Investibility
- Website on Climate Change Financing (jointly with World Bank)
- International Guidebook for Environmental Finance Tools

Step 5

- A Guidebook on Climate Change Measurement, Reporting, and Verification
- National Climate Fund Guidebook
- A Guidebook on Legal Climate Instruments

The reports are available for download on www.undp.org/energyandenvironment/climatestrategies.

Key Steps in Preparing a Low-Emission Climate-Resilient Development Strategy

Given the scope and complexity of the task, the LECRDS preparation process can take up to two years to complete. The exercise requires participation of multiple sectors, stakeholders, and levels of government, including high-level public and private authorities with decision-making authority. It also must ensure that planning activities and scientific assessments are coordinated and systematic. Each step is crucial to the success of the strategic planning exercise and resulting LECRDS roadmap, which identify climate-ready sustainable development projects. Once the LECRDS roadmap is in place, or even as it is being finalized, efforts can begin to identify sources of financing to implement projects conceived as a result of the LECRDS process.

The LECRDS process may be usefully broken down into the following five steps:



It is anticipated that the sub-national and national developing country governments that receive project funding will establish a project management team, including a project coordinator, to provide technical assistance and support throughout the LECRDS process.

Summary of Key Steps

Box 2: Sample LECRDS Roadmap**Introduction**

LECRDS objectives, participatory process followed, actors involved, and methodologies adopted, etc.

1. Climate Profiles

- 1.1 Description of geographical context and general economic and demographic data on which analyses and scenarios will be built
- 1.2 Key development issues and priorities
- 1.3 Past and on-going climate change and related risk management actions
- 1.4 Projection of possible climate scenarios at relevant spatial and temporal scales (2050/2075/2100)

2. Vulnerability Assessments

- 2.1 Assessment of existing climate and socio-economic vulnerabilities
- 2.2 Simulation of the physical and economic impacts of future climate scenarios in the most vulnerable sectors (agriculture, water, coastal-zone management, health, tourism, etc.)
- 2.3 Assessment of impacts on most vulnerable groups
- 2.4 Present and future vulnerability maps

3. Greenhouse Gas Emissions

- 3.1 Assessment of existing GHG emissions by sector (energy, transport, buildings, industry, waste, agriculture and forestry)
- 3.2 Assessment of expected GHG emissions by 2020-2050 under a business-as-usual and alternative development scenarios

4. Mitigation and Adaptation Options Towards Low-Emission Climate-Resilient Development

- 4.1 Selection criteria and key sectors identified for low-emission climate-resilient development policies and measures
- 4.2 Description of main low-emission climate-resilient opportunities identified in each sector
- 4.3 Technical and social feasibility and cost-benefit analysis of the different options and comparison of these options
- 4.4 List of priority mitigation and adaptation options (no regrets/low regrets, negative cost, no cost, low cost, higher-cost options; short-term, medium-term, long-term; political and social acceptance, regulatory needs, capacity and financial requirements)

5. LECRDS Action Plan

- 5.1 Review of existing climate change policy/financial instruments and institutional implementation arrangements
- 5.2 For each priority option, description of matching policy/financing instruments to attract and drive direct investment towards lower-emission, climate resilient development activities — sectoral pathways
- 5.3 Detailed first portfolio of no-regrets actions identified in the early stages of the process and already under implementation by the time LECRDS is finalized
- 5.4 List of priority low-emission climate-resilient projects (public policies and investments) adopted by sector and highlighting those that cross sectors
- 5.5 LECRDS implementation, monitoring, MRV (Measurement, Reporting, and Verification), learning for feedback, evolving roles of different sectors and levels (national, regional, local authorities; private sector; civil society; etc.), including LECRDS steering committee and thematic working groups

STEP 1**DEVELOP A MULTI-STAKEHOLDER PLANNING PROCESS**

Step 1:

Develop a Multi-Stakeholder Planning Process

STEP 2**PREPARE CLIMATE CHANGE PROFILES AND VULNERABILITY SCENARIOS****STEP 3****IDENTIFY STRATEGIC OPTIONS LEADING TO LOW-EMISSION CLIMATE-RESILIENT DEVELOPMENT TRAJECTORIES****STEP 4****IDENTIFY POLICIES AND FINANCING OPTIONS TO IMPLEMENT PRIORITY CLIMATE CHANGE ACTIONS****STEP 5****PREPARE LOW-EMISSION CLIMATE-RESILIENT DEVELOPMENT ROADMAP**

The impacts of climate change cut across socio-economic sectors and administrative jurisdictions, and climate mitigation or adaptation actions taken in a given region can both jeopardize and facilitate development objectives in distant places. The need for efficient inter-sectoral dialogues that promote synergies and effectively resolve the potential trade-offs inherent in climate policy is well illustrated by the energy and water sectors. Water is necessary to generate electricity and electricity is necessary to generate water. On average 50 percent of the cost associated with water supply is related to energy; in turn, water restrictions can hamper solutions for generating more energy. Water and energy issues tend to be addressed by two distinct communities of professionals and agencies, often with limited contact. In some scenarios, this causes unnecessary competition or results in one resource being artificially boosted at the expense of the other.

To break through such institutional barriers, LECRDS, which are cross-sectoral by nature, cover both adaptation and mitigation activities, and consider both synergies and trade-offs between development and climate change. They incorporate the priorities of all stakeholders, including organizations and individuals outside the government. LECRDS should not be perceived as strategies that create rules and constraints to development, but rather as approaches that will continue to pursue social, gender equality, and economic objectives through more sustainable development paths.

Development of partnership and coordination structures at the national and sub-national levels puts in place a strong foundation for creating national ownership, capacity, and consensus about long-term sustainable development objectives and results; it is a key prerequisite for effective action to combat climate change. The importance of a partnership platform bringing together the principal climate stakeholders in a given region cannot be overstated as involving and securing the approval of high-level elected officials are essential to the LECRDS process. Therefore, the first activity in the LECRDS process is to identify key stakeholders and partners in different sectors (e.g. finance, agriculture, forestry, industry, energy, water, environment, transportation, etc.) both governmental and nongovernmental, and including community leaders, academic and technical experts, and the private sector.

The next step is to put in place coordination structures to support a participatory planning approach. Wherever possible, existing committees and frameworks should be used to avoid the duplication of efforts and workloads. Participation in the process should include the broad range of key decision makers at national, regional and local levels and from different sectors. This will help to ensure coherence and consistency of the policies that underpin a given LECRDS, as well as support its implementation.

To facilitate this process, a mapping exercise is recommended to chart key climate issues, opportunities and stakeholders. As a result of this exercise, a number of thematic working groups are typically established to develop long-term GHG emission and vulnerability scenarios, and to identify priority mitigation and adaptation actions that build upon existing work undertaken. This initial mapping can be based on a review of existing materials prepared by developing countries for other climate- or development-related projects or strategic planning exercises. Such materials could include National Communications (NCs), National Adaptation Plans of Action (NAPAs), United Nations Development Assistance Frameworks (UNDAFs), Country Assistance Strategies (CAS), Nationally Appropriate Mitigation Actions (NAMAs), National Adaptation Plans (NAPs), National Implementation Plans (NIPs), National Biodiversity Strategies and Action Plans (NBSAPs), Synthesis and Assessment Products (SAPs), 5-year plans, National Environmental Plans, Poverty Reduction and MDG Strategies, Gender Equality Strategies, etc.

To ensure that key considerations such as green carbon, safe chemical and waste management, or ecosystem-based adaptation are not overlooked at the very beginning of this process, a simple map of the climate economy could be developed that can be readily understood by policy makers at the national and sub-national levels and guide their early efforts. In essence, the map sets the stage for the coordination, partnership, and consultation elements of the LECRDS process (see Box 3). It is understood, however, that each sub-national and national context is unique. Therefore, these elements would be adjusted and refined according to local and national needs and concerns.

Further information can be found in the methodological toolkit, *Establishing a Multi-Stakeholder Decision-Making Process for LECRDS* (see Box 1). The flowchart on page 14 clearly outlines the roles and responsibilities of the LECRDS steering committee, thematic working groups, project team and project coordinator in this and the next steps.

In summary form, this crucial first step in the LECRDS process includes the following activities:

- Establish LECRDS project team and project coordinator
- Review and compile information on existing climate assessments and plans, existing projects, policies, funding sources, key authorities and financial and technical experts, i.e. map key climate issues, opportunities and stakeholders¹
- Establish LECRDS steering committee (using existing committees and structures if possible) composed of high-level elected officials and civil servants in sectoral ministries to ensure appropriate level of policy and political involvement
- Identify and create policy and technical working groups (e.g. finance, energy, agriculture, forestry, water, urban development and transport, gender, etc.) composed of representatives from national/regional/local authorities, sectoral ministries, private sector, academia, non-governmental and community organizations, and other civil society entities
- Identify technical capacity needs and implement training
- Put in place communications and awareness-raising strategy directed towards a wide range of authorities, partners, and stakeholders

¹ Key documents include but are not limited to NCs, NAPAs, UNDAFs, CAS, NAMAs, NAPs, NIPs, NBSAPs, SAPs, 5-year plans, National Environmental Plans, etc.

**Box 3: Mapping the Climate Economy:
Low-Emission Climate-Resilient Development Strategies**

Towards a Low-Emission Economy²	Towards a Climate-Resilient Economy
<p>Low-Emission Energy System</p> <p>Renewable energy (e.g. wind, solar, biomass, mini-hydro, geothermal, ocean-based energy generation)</p> <p>Energy efficiency and management (e.g. housing and industrial energy efficiency, smart grids)</p>	<p>Infrastructure</p> <p>Hazard and climate-proofing construction (e.g. building design, water management, transport, energy, biodiversity corridor; commuting minimization)</p>
<p>Low-Emission Urban and Transport Systems</p> <p>Low/zero emission vehicles, multi-modal mass transit, urban planning, 3rd generation bio-fuels, etc.</p>	<p>Water</p> <p>Early warning systems, flood control, drought management, water storage, supply and sanitation, industrial usage, energy production, irrigation efficiency, watershed management, recreation patterns/tourism, etc.</p>
<p>Low-Emission Manufacturing of Products and Chemicals, and Waste Management</p> <p>Clean production of domestic, commercial and industrial equipment/appliances and manufactured goods (e.g. refrigeration and AC/appliances), waste avoidance and segregation, 3R, recycling and treatment, clean production, ODS banks collection and disposal, etc.</p>	<p>Health</p> <p>Heat waves, new disease vectors, air quality, food security and nutrition, etc.</p>
<p>Agriculture, Forestry and Ecosystems</p> <p>Low-emission agriculture, peatlands restoration, grazing land management, afforestation, forest management, coastal ecosystem management (e.g. 'blue carbon'), etc.</p>	<p>Agriculture, Natural Resource, Biodiversity and Ecosystems Management</p> <p>Landscape planning for climate resilience and maintaining ecosystem production (e.g. diverse matrixed landscapes with protected areas for biodiversity, coastal protection, incentives for on-farm diversity, climate resilient cultivars), risk and hazard insurance, etc.</p>
<p>Climate Change Management Capacity</p> <p>Existing financial flows; policy, institutional and legal preparedness; economic structures; social fabric; etc.</p>	

² To reduce current and future GHG emissions against established baseline.

Step 2: Prepare Climate Change Profiles and Vulnerability Scenarios

The generation of climate profiles and prospective climate scenarios involves identification of possible climate conditions in a given location as a function of different global GHG emission scenarios, and indicates current climate vulnerabilities and future variability and risks. These scenarios will help countries to map development trajectories resilient to a range of possible climate outcomes and to prepare for the uncertainties inherent in climate change.

Future climate scenarios are critical for the LECRDS roadmap. A prospective range of climate predictions is needed to inform investment strategies that will facilitate the transition to low-emission climate-resilient development. This is perhaps the most technically-sophisticated step of the LECRDS process and will require the participation of national climate experts with the support of the project team and TACC Facility.

- Develop climate scenarios (2050/ 2075/ 2100) by downscaling climate data available in Global Climate Models (GCM) to national and sub-national levels through a variety of methodologies based on historical, precipitation, and temperature information
- Establish business-as-usual (BAU) scenarios for GHG emissions and GHG emission inventories
- Project scenarios for future emissions based on existing and alternative development scenarios
- Assess current and future vulnerabilities of ecosystems and social and economic systems and related risks for development scenarios
- Produce current and future vulnerability maps

The LECRDS steering committee and technical working groups will need to assess the climate profiles and vulnerability scenarios in order to move on to the next steps.

Please see the flowchart on page 14 and reference materials in Box 1, in particular *Formulating Climate-Change Scenarios to Inform Climate-Resilient Strategies: A Guidebook for Practitioners*, *Vulnerability Mapping Guidebook*, and *Guidebook on Preparing a Greenhouse Gas Emissions Inventory at Sub-National Level*.

STEP 1

DEVELOP A MULTI-STAKEHOLDER PLANNING PROCESS

STEP 2

PREPARE CLIMATE CHANGE PROFILES AND VULNERABILITY SCENARIOS

STEP 3

IDENTIFY STRATEGIC OPTIONS LEADING TO LOW-EMISSION CLIMATE-RESILIENT DEVELOPMENT TRAJECTORIES

STEP 4

IDENTIFY POLICIES AND FINANCING OPTIONS TO IMPLEMENT PRIORITY CLIMATE CHANGE ACTIONS

STEP 5

PREPARE LOW-EMISSION CLIMATE-RESILIENT DEVELOPMENT ROADMAP

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STEP 5

PREPARE LOW-EMISSION CLIMATE-RESILIENT DEVELOPMENT ROADMAP

Step 3: Identify Strategic Options Leading to Low-Emission Climate-Resilient Development Trajectories

Based on an analysis of prospective climate scenarios and current climate vulnerability and future risks, as well as socio-economic trends and constraints, the objective is to identify priority options that will contribute to achieving low-emission climate-resilient development objectives.

The LECRDS steering committee will, with the support of the technical and policy working groups:

- Review climate profiles and vulnerability scenarios
- Determine emission reduction targets and identify the related opportunities and options to achieve them
- Develop different low-emission climate-resilient development scenarios for main sectors of a given region (e.g. energy, industry, transportation, agriculture, forestry and natural resources, water, etc.)
- Assess the impact of the different scenarios on the predicted vulnerability of given region
- Based on future emission scenarios and vulnerability, define comprehensive low-emission climate-resilient development objectives and identify the priority adaptation and mitigation options that may contribute to their achievement

The results of this work will be synthesized and made accessible, via the thematic working groups, to a broad range of governmental and non-governmental stakeholders (across sectors and at different levels) for further consultation towards building consensus on a LECRDS roadmap.

For further information, please see Box 1, particularly the *Executive Summary – Preparing Low-Emission Climate-Resilient Development Strategies: A UNDP Guidebook*, *Technology Needs Assessment Handbook*, and *Toolkit for Designing Climate Change Adaptation Initiatives*.

Step 4:

Identify Policies and Financing Options to Implement Priority Climate Change Actions

Following an assessment of socio-economic impacts and cost-benefit analysis of the priority mitigation and adaptation options, financing and policy instruments are identified to enable the magnitude of investment and financial flows required for implementation of these options. The objective is to establish an appropriate policy environment to attract and drive investments towards the priority climate actions identified through the multi-stakeholder decision-making process.

The sheer number of possible climate change policy options to catalyze capital towards green technologies can be overwhelming. For example, there are 55 different types of policy mechanisms currently in use for supporting renewable energy alternatives around the world. Climate change finance is also vast and complex. Moreover, the players involved are numerous, dispersed, and answer to different interests; some 50 international public funds, 60 carbon markets, and 6,000 private investment funds are active in this area. However, the key is to enable sub-national and national developing country governments to identify and access potential available funding that is appropriate for national purposes and to become familiar with the new financial instruments under development.

This step involves bringing together potential public and private partners, supported by relevant technical and financial experts, to jointly assess and develop the priority options identified. This will enable governments to identify the optimum mix of policy and public financing instruments required to attract catalytic financial flows toward low-emission climate-resilient development.

Once again, the results of this work will be made available via the thematic working groups to a broad range of government and non-governmental actors at different levels to enable multi-stakeholder, multi-sectoral consensus and decisions on the LECRDS roadmap.

The activities envisioned through multi-sectoral and multi-stakeholder consultations are listed below.

- Perform technical and social feasibility and cost-benefit analysis of priority options
- Analyse barriers to implementation of mitigation and adaptation options and identify those that can be addressed
- Evaluate existing policies and local and national financing opportunities for priority options
- Identify required investment and financial flows, and make recommendations by sector for short-, medium-, and long-term scenarios
- Identify public policy and innovative financing instruments to secure investments and financial flows for low-emission climate-resilient development options

For further information on this topic, see Box 1, particularly the *Engineering Climate Investibility* publication.

STEP 1

DEVELOP A MULTI-STAKEHOLDER PLANNING PROCESS

STEP 2

PREPARE CLIMATE CHANGE PROFILES AND VULNERABILITY SCENARIOS

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STEP 5

PREPARE LOW-EMISSION CLIMATE-RESILIENT DEVELOPMENT ROADMAP

Step 5:

Prepare Low-Emission Climate-Resilient Development Roadmap

A comprehensive low-emission climate-resilient roadmap is developed to guide formulation of projects and policy instruments, and to secure investment and financial flows for implementation of priority integrated climate and sustainable development activities by governmental and nongovernmental (NGOs) actors and agencies. In sum, a set of agreed sectoral pathways that are low-emission climate-resilient will be traced. The aim should be to complete the roadmap document within two years, although the development strategies and projects would be implemented by a wide variety of actors over different time periods stretching into the future.

- Project team compiles and synthesizes the contributions and results of previous steps and prepares roadmap draft (short-/medium-/and long-term priorities, associated public policies and financing strategies, and institutional and operational framework for implementation and monitoring and evaluation), clearly outlining sectoral pathways
- LECRDS steering committee reviews and approves draft roadmap
- Climate coordination committee facilitates multi-sectoral, multi-stakeholder, multi-level review and validation
- Finalized LECRDS roadmap in agreed upon sectors is made available widely and specifically presented to key public and private financial actors

The roadmap consolidates the results of the foregoing steps into a low-emission climate-resilient development strategy and action plan. The action plan covers the implementation of LECRDS sectoral pathways, including institutional arrangements, financing strategy, roles for different sectors and levels (national, regional, local authorities; private sector; civil society; etc.), and monitoring and evaluation, including MRV reporting and learning for feedback into the re-design of strategies and projects. Please refer to Box 2 for indicative contents.

LECRDS are necessarily iterative exercises. Our understanding of the impacts of and responses to climate change as well as the efficacy of different climate and development finance mechanisms is constantly evolving. Therefore, long-term planning exercises such as LECRDS need to be reviewed and updated on a regular basis with data from current climate impact scenarios and monitoring of low-emission and climate-resilient sustainable development activities. A key decision will be whether to institutionalize the LECRDS steering committee and thematic working groups to ensure implementation oversight over the medium and long term, or to mainstream LECRDS coordination and implementation responsibilities within the existing administration. How the partnership and coordination platform may evolve over time and envisioning its roles, responsibilities, and activities in the future should be incorporated into the LECRDS roadmap.

Various materials to support Step 5 are under development, as indicated in Box 1.



Low-Emission Climate-Resilient Development Strategy Flowchart

Low-Emission Climate-Resilient Development Strategy Flowchart

STEP 1: Develop Partnership and Coordination Platform and Multi-Stakeholder Participatory Planning Process

Objective	Who?	How? (activities)	What? (products)
To identify and establish a multi-sectoral, multi-level, multi-stakeholder governance framework making it possible to ensure stronger coordination between decision-making levels (international, national, local) and stakeholders in given region	Implementing agency Supported by elected officials responsible for project	1. Organize project coordination structure <ul style="list-style-type: none"> ■ Project Team Coordinator ■ Project Team composed of sectoral representatives 	?? Project coordination structure established
	Project team Supported by elected officials	2. Mobilize actors and stakeholders towards partnership and coordination platform <ul style="list-style-type: none"> ■ Map key climate issues, opportunities and stakeholders ■ Ensure high-level policy and political involvement ■ Involve different decision-making levels ■ Identify and mobilize key actors in each sector ■ Train elected officials, agencies, and key actors as necessary ■ Prepare communications and awareness raising strategy 	?? LECRDS process presented to different sectors and partners ?? Communication campaign launched
	Project team Supported by elected officials	3. Define multi-stakeholder participatory process at national/regional/municipal level <ul style="list-style-type: none"> ■ LECRDS steering committee <ul style="list-style-type: none"> □ Comprised of key elected officials and high-level civil servants with objective of policy creation and approval ■ Thematic policy and technical working groups <ul style="list-style-type: none"> □ Assess required and existing expertise □ Determine prospective composition of thematic working groups: finance; energy; agriculture; forest and natural resources; water; urban infrastructure; transport; gender; etc. □ Include local/regional/national authorities, sectoral agencies/ministries, private sector, academia, research institutes, NGOs, community organizations, etc. 	?? Process of multi-stakeholder participation involving a given region's decision-makers, actors, and stakeholders defined
	LECRDS steering committee Supported by project team	4. Establish LECRDS multi-stakeholder, multi-sectoral, multi-level process <ul style="list-style-type: none"> ■ Define objectives and scope ■ Define operational and organizational structure, roles and responsibilities, and budget ■ Define steps, methods, and timetable ■ Presentation of multi-stakeholder process to all stakeholders, partners, actors in region 	?? Partnership and coordination platform and multi-stakeholder process validated

Project team in place, actors and stakeholders mobilized, and partnership and coordination platform prepared and mapped

STEP 2: PREPARE CLIMATE CHANGE PROFILES AND VULNERABILITY SCENARIOS

STEP 2: Prepare Climate Change Profiles and Vulnerability Scenarios

Objective	Who?	How? (activities)	What? (products)
To assess GHG emissions and identify points of vulnerability within given region over medium to long term, based on a reference scenario involving a business as usual and alternative development trajectories	National climate experts (national communications team, research institutes, learned societies, etc.)	1. Develop climate scenarios (2050/ 2075/ 2100) <ul style="list-style-type: none"> ■ Collect existing climate data and acquire the missing data ■ Define objectives, scope of exercise, and choice of downscaling methodology ■ Produce two sets of climate scenarios based on scenarios for high and low emissions 	<ul style="list-style-type: none"> ■ Exercise in climate forecasting making it possible to describe range of possible future climate change
	Supported by project team and consultants	2. Establish BAU scenarios for GHG emissions <ul style="list-style-type: none"> ■ Define objectives, scope of exercise, and choice of methodological approach ■ Quantify and assess current emissions (by sector/usage; by GHG or energy) ■ Projected scenarios for future emissions based on existing business as usual development scenario 	<ul style="list-style-type: none"> ■ Current emissions diagnosis ■ Projected scenarios for future emissions
	Thematic working groups Supported by project team	3. Assessment of current and future vulnerabilities <ul style="list-style-type: none"> ■ Study of current vulnerability (observed climate variability) and points of vulnerability ■ On the basis of the climate scenarios and business as usual development scenario, assessment of future vulnerabilities 	<ul style="list-style-type: none"> ■ Study of current vulnerability ■ Assessment and future vulnerability map

Based on business as usual scenario with existing development trajectory, current and future GHG emissions and vulnerabilities are identified

STEP 3: IDENTIFY STRATEGIC OPTIONS LEADING TO LOW-EMISSION CLIMATE-RESILIENT DEVELOPMENT TRAJECTORIES

STEP 3: Identify Strategic Options Leading to Low-Emission Climate-Resilient Development Trajectories

Objective	Who?	How? (activities)	What? (products)
To collectively identify options for transforming the development trajectory	LECRDS steering committee Supported by project team	1. Presentation of results of region's climate analysis <ul style="list-style-type: none"> ■ LECRDS steering committee reviews findings and analysis 	<ul style="list-style-type: none"> ■ Climate scenarios and vulnerability mapping shared and appropriated by national/regional/municipal actors and stakeholders
	Thematic working groups Supported by project team	2. Develop sectoral scenarios for low-emission development that are more climate change resilient <ul style="list-style-type: none"> ■ Identify several energy development scenarios ■ Develop different models for socio-economic development and management that are more climate change resilient ■ Assess their impact on region's vulnerability 	<ul style="list-style-type: none"> ■ Different sectoral scenarios with low GHG emissions ■ Studies of impact of different sectoral development scenarios on region's vulnerability
	LECRDS steering committee Supported by thematic working groups and project team	3. Determine common strategy for low-emission development that is more climate change resilient <ul style="list-style-type: none"> ■ Identify various mitigation and adaptation options ■ Identify priority action areas that could redefine development trajectory ■ Build consensus regarding priorities ■ Recommend sectoral and cross-sectoral development strategies ■ Consolidate and synthesize deliberations and decisions 	<ul style="list-style-type: none"> ■ A common strategy for low-emission and climate change resilient development ■ Synthetic analysis bringing together all paths of action considered and recommended

Strategic options and sectoral/transversal development scenarios are identified and summarized in synthesis report

STEP 4: IDENTIFY POLICIES AND FINANCING OPTIONS TO IMPLEMENT PRIORITY CLIMATE CHANGE ACTIONS

STEP 4: Identify Policies and Financing Options to Implement Priority Climate Change Actions

Objective	Who?	How? (activities)	What? (products)
To prioritize options based on technical, social, and financial feasibility over short, medium, and long term	Project team	1. Organise technical, social, and financial feasibility and cost-benefit analysis <ul style="list-style-type: none"> Analyse recommendations of synthetic report Consultations with sectoral agencies/ministries 	? ? Work plan for prioritizing options
	Thematic working groups	2. Prioritize adaptation and mitigation options <ul style="list-style-type: none"> Analyse barriers for each option (political, gender, and social feasibility, cost-benefit, capital required, etc.) Definition of prioritization criteria 	? ? List of priority actions for adaptation and mitigation
	LECRDS steering committee Supported by thematic working groups and project team	3. Assessment by sector of public policies and investments required for implementing options <ul style="list-style-type: none"> Identification of public policy instruments and investments required and selection of optimal combination Selection of the most appropriate financing mechanisms Short-/medium-/long-term recommendations 	? ? Technical mandates by sector, accompanied by implementation and financing recommendations

Strategic adaptation and mitigation options are placed in order of priority and implementation mandated

STEP 5: PREPARE LOW-EMISSION CLIMATE-RESILIENT DEVELOPMENT ROADMAP

STEP 5: Prepare Low-Emission Climate-Resilient Development Roadmap

Objective	Who?	How? (activities)	What? (products)
To establish an integrated roadmap bringing together short-, medium-, and long-term actions and implementation strategies	Project team and LECRDS steering committee Supported by thematic working groups	1. Formulating LECRDS roadmap <ul style="list-style-type: none"> ■ Consolidate contributions of all sectors <ul style="list-style-type: none"> □ Reviews and consolidation of sectoral work in order to define an integrated roadmap ■ Definition of the different components of roadmap <ul style="list-style-type: none"> □ Short-/medium-/and long-term priorities and associated public policies □ Investments required and Financing Plan — sectoral pathways □ Institutional and operational framework for implementation ■ Definition of monitoring and evaluation mechanisms <ul style="list-style-type: none"> □ Monitoring indicators □ MRV 	■ LECRDS Roadmap
	Project team and LECRDS steering committee Supported by thematic working groups	2. Preparing for policy decisions and implementation <ul style="list-style-type: none"> ■ Plan submitted to Parliament (national, regional, or municipal) for approval ■ Approval for setting up public-private partnerships ■ Presentation of LECRDS roadmap to stakeholders ■ Preparation with private sector and civil society of first generation public policy and investment projects ■ Distribution of LECRDS Roadmap to key public and private financial actors (international/regional/national) 	■ Vote by Parliament

LECRDS Roadmap is launched for implementation by national/regional/local actors with support of financial partners





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