UNITED NATIONS DEVELOPMENT PROGRAMME

GUIDEBOOK

on the methodology for financial assessments to address climate change

FINANCIAL ASSESSMENT TO ADDRESS CLIMATE CHANGE IN THE BIODIVERSITY SECTOR

Definition of the biodiversity sector

- “The variability among living organisms from all sources including, inter alia, terrestrial, marine, & other aquatic ecosystems & the ecological complexes of which they are part: this includes diversity within species, between species, and of ecosystems.”

  (Convention on Biological Diversity, Art. 2. United Nations Treaty series, 1993)

Step 1. Establish key parameters of assessment.

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Step 3. Define baseline scenario.

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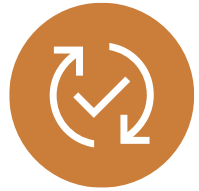

Step 8. Identify policy implications.

Step 9. Synthesize results and complete the report.

Step 1.

Establish key parameters of the assessment.

- Define scope and boundaries for the assessment
- Define the institutional framework
- Specify the time horizon for the assessment, matching the time horizon of national target being assessed
- Specify base year (latest year with data available)
- Build on existing model/analysis/tracking system as applicable

Define boundaries for the assessment

Examples of potential subsectors and their impact pathways

Ecosystem	Vulnerabilities	Impacts
Deserts	Desiccation, Drier & warmer conditions	More episodic climate events & inter-annual variability, more severe & persistent droughts
Grasslands & savannas	Warming, fire frequency, Increased rainfall variability	Vegetation affected Production & soil water balance
Mediterranean	Warming, Desertification	Desert & grassland expansion, fire frequency
Forests	Forest dieback, Drought	Potential reduction in resilience, Insect outbreaks
Tundra & Artic/Antartic	Species extinction, dryness	Threats to the livelihoods & food security
Mountains	Earlier snowmelt period	Genetic diversity reduction within species
Wetlands, lakes & rivers	Raising temperatures	Dependence on water availability controlled by outside factors, lower water quality
Oceans & shallow seas	Higher seawater temperatures	Sea level rise, loss of sea ice, increases in wave height & frequency, diseases in marine biota

Select analytical approach

- Development of simple speadsheets based on Excel sheets provided by this financial assessment methodology
- Building on existing transport models, tracking system, budget tagging as applicable
- Use sector projections/trends to determine projected demand and supply in the sector

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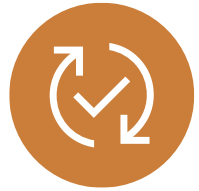

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Step 2.

Compile historical IF, FF and O&M cost data, subsidy cost data (if included explicitly), and other input data for scenarios.

- Gather disaggregated IF and FF data on investment types (e.g. wind energy facilities, biomass fired power plant, etc.), investment entities and funding sources for 3-10 years in the recent past
- Gather socio-economic information (demographic development, economic development etc.) for 3-10 years in the recent past

Data sources

Sources of data:

- Sectoral plans
- Development plans
- Energy sector/econometric models
- National budget tagging/tracking or transparency mechanisms
- Private sector reports
- GHG Inventories, National Communications etc.
- System of National Accounts (SNA), Systems of integrated environmental and economic accounts (SEEA)

Data collection

Examples of data to be collected

Examples of measures	IF US$	FF US$	O&M cost US$	Funding source
Effective conservation of Protected Areas • Effective management of protected areas. • Implementation of REDD demonstration projects				
Enhancement of degraded ecosystems & restoration • Decentralization of ecosystem management • Silviculture (natural regeneration, enrichment planting) • Ecological restoration				
Enhancing capacity of community groups • Protect rights of indigenous peoples				

Data collection

- Information should be disaggregated by:
  - Year (starting 10 years before the assessment's Base Year)
  - Source (by corporations and government)
  - Type (national funds, foreign direct investment, official development assistance)
- 3 principles of the Convention of Biological Diversity:
  - To conserve biological diversity
  - To use biological diversity in a sustainable fashion
  - To share the benefits of biological diversity fairly and equitably

Data collection

Examples of IF and FF data disaggregation in each subsector

Category of investment entity	Source of IF and FF	Investment Type 1 (IF, FF, Total)	Investment Type 2 (IF, FF, Total)	Investment Type 3 (IF, FF, Total)	Total investment
Households	Domestic				
Corporations	Domestic				
	Foreign				
	Total Corporation Funds				
Government	Domestic				
	Foreign				
	Total Government Funds				

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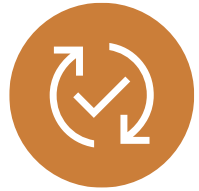

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Define a baseline scenario.

- Define the physical basis for the baseline scenario
- **Baseline scenario:** description of what is likely to occur in the absence of ADDITIONAL policies to address climate change; expected socio-economic trends (e.g., population growth and migration, economic growth), technological change and expected business-as-usual investments in the sector.

Define baseline scenario

- Characterizing each relevant electricity supply and electricity end-use subsector over the assessment period
  - Assuming no new climate change policies are implemented
- Baseline scenario reflects:
  - Current sectoral and national plans
  - Expected socio-economic trends
  - Expected investments in the subsectors

Define physical basis for the baseline scenario

- Information should be disaggregated by:
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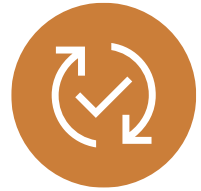

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Step 4.

Identify the annual IF, FF and O&M costs, and subsidy costs (if included explicitly), for baseline scenario.

- Compile annual data, disaggregated by investment entity, funding source, investment flow type, financial flow type
- Calculate the **total IF and FF** in real, unannualized terms over the planning period
- Define **annual IF and FF** of the baseline scenario

Identify current IF and FF

Examples of biodiversity measures

List of Investment types	IF	FF
Policies & measures Relocation allowances, fiscal incentives, emergency funds	X	X
Regulations Concessions, limits in the access to resources		
Land & water management Reforestation, sustainable forest management	X	
Integrated coastal fisheries management		X
Sustainable agricultural & rural development Agroforestry systems, reduce pesticides & herbicides		X
Moving species Reduce & manage stresses on species & ecosystems		X

Identify current IF and FF for the sector

Examples of biodiversity measures (continued)

List of Investment types	IF	FF
Water use efficiency		X
Physical barriers avoidance Natural protection, expansion of reserve systems	X	
“Precautionary” activities Enforcement of building setback, land use regulation	X	
Controlled burning & other techniques		X
Training Job diversification, use of new technologies, management		
Research Forecasting, risk analysis, resource monitoring		X

Define and project annual IF and FF

Funding entity category	Source of funds	Cumulative IF and FF* 2025-2050 (billion 2025 $)	
		IF	FF
Households	Domestic		
Corporations	Domestic equity		
	Foreign investment		
	Domestic debt		
	Foreign borrowing		
	Government support		
	Foreign aid (ODA)		
Government	Domestic funds (budgetary)		
	Foreign borrowing (loans)		
	Foreign aid (ODA)		
	Total		

*Ecosystem conservation, Species conservation, Genetic diversity conservation…

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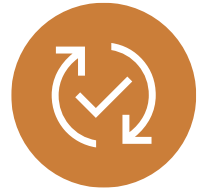

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Step 5.

Define the target scenario.

- **Target scenario:** incorporates new and scaled-up measures to address climate change
- The target scenario should describe expected socio-economic trends, technological change, relevant measures to increase resilience and the expected investments in the biodiversity sector to implement those measures

Define physical basis for target scenario

Examples of adaptation activities

Category of adaptation measure	Measure
Integrated land & water management	Removing policy distortions
Integrated approach to coastal fisheries management	Aqua & mariculture to reduce impact on remaining coastal systems, best as integrated approach
Integrated approaches to enhance sustainable agriculture	Appropriate management of agricultural production systems
Moving species to adapt to changing climate zones	Assistance for species by natural migration corridors

Define physical basis for target scenario

Examples of adaptation activities (continued)

Category of adaptation measure	Measure
Reduction of use of pesticides & herbicides	Avoid damage to existing plant and animal communities, water quality and to human health
Water-use efficiency	In response to increasing demand for water use due to socio-economic conditions and warmer temperatures
Avoid physical barriers to cope with climate variability	Enhancement and preservation of natural protection
“Precautionary” approaches	Enforcement of building setbacks

Two approaches to define target scenario

- Approach #1: assume an end point for electricity supply emissions:
  - E.g. Set a target in 2030 for emissions from the electricity sector
- Approach #2: assume a set of technologies for electricity supply:
  - E.g. Articulate a set of technological options to meet future energy demand

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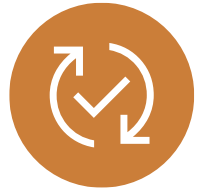

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Step 6.

Identify annual IF, FF and O&M costs (and subsidy costs if included) for the target scenario.

- Compile annual data, disaggregated by investment entity, funding source, investment flow type, and financial flow type
- Calculate the **total IF and FF** in real, unannualized terms over the planning period.
- Define **annual IF and FF** of the target scenario

Project IF and FF of target scenario

Facility/Technology	Cumulative infrastructure (2015-2030)	Unit cost
Aqua & mariculture	(# sites)	(2025 $/site)
Moving species to adapt	(# activities)	(2025 $/activity)
Reduction of use of herbicides and pesticides	(# kg reduced)	(2025 $/kg reduced)
Total		

Projecting investments

Funding entity category	Source of funds	Cumulative IF and FF 2025-2050 (billion 2025 $) IF	FF
Households	Domestic		
Corporations	Domestic equity		
	Foreign investment		
	Domestic debt		
	Foreign borrowing		
	Government support		
	Foreign aid (ODA)		
Government	Domestic funds (budgetary)		
	Foreign borrowing (loans)		
	Foreign aid (ODA)		
	Total		

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Calculate the changes in IF, FF and O&M costs (and in subsidy costs if included explicitly) needed to implement target scenario.

- Subtract the annual IF and FF of the baseline scenario, by entity and funding source, from the annual IF and FF of the target scenario, by entity and funding source
- Sum incremental amounts over all years, by entity and funding source

Determine changes in IF and FF

IF and FF of target scenario

minus

IF and FF of baseline scenario

= Additional IF and FF

- For each adaptation option the assessment must identify the additional IF and FF by source (national funds, etc.) throughout the assessment period to implement the national target being assessed.

Calculate incremental IF and FF

Funding entity category	Source of funds	Investment (billion 2025 $)		
		Cumulative (2025-2050)		
		Baseline scenario	Target scenario	Incremental
Households	Equity & debt	Baseline value	Target value	Target minus Baseline value
Corporations	Domestic equity	…	…	…
	Foreign investment			
	Domestic debt			
	Foreign borrowing			
	Government support			
	Foreign aid (ODA)			
Government	Domestic funds (budgetary)			
	Foreign borrowing (loans)			
	Foreign aid (ODA)			
	Total	Sum (Baseline)	Sum (Target)	Sum (Target minus Baseline)

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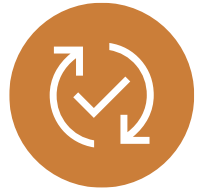

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Identify policy implications.

- Identify the entities responsible for the significant incremental changes in investment and financial flows
- Determine the predominant sources of their funds
- Determine policy instruments and incentives to induce the required changes in investment and financial flows

Identify policy implications

- Identify entities responsible for the most significant incremental changes in investment and financial flows
- Determine the predominant sources of their funds
- Determine policy instruments and incentives to encourage changes in investment and financial flows
- Consider social, economic an environmental benefits of policy options

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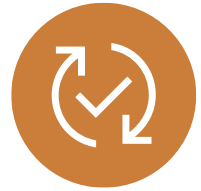

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Synthesize results and complete report.

- Reporting takes place throughout the assessment, does not start at the end of the assessment
- Capturing information and data, decisions and assumptions completely and transparently
- Ensuring credibility of the assessment and enabling follow-up on the assessment results
- The Reporting Guidelines contain key tables required. Excel spreadsheets are available to organize and calculate data.

Q&A
Clarifications

About UNDP

UNDP is the leading United Nations organization fighting to end the injustice of poverty, inequality, and climate change. Working with our broad network of experts and partners in 170 countries, we help nations to build integrated, lasting solutions for people and planet. Learn more at undp.org or follow at @UNDP.

About UNDP's Climate Promise

UNDP's Climate Promise is the UN system's largest portfolio of support on climate action, working with more than 140 countries and territories and directly benefiting 37 million people. This portfolio implements over US$2.45 billion in grant financing and draws on UNDP's expertise in adaptation, mitigation, carbon markets, climate and forests, climate risk and security, and climate strategies and policy. Visit our website at climatepromise.undp.org and follow us at @UNDPplanet.

About this publication

This methodology is an update to the first financial assessment methodology, which was released in 2009. The objective of this methodology is to support countries to implement their climate targets and to identify, reallocate, mobilize and manage the required financial resources and to create a fiscal framework conducive for climate action.

The update to this methodology was developed under UNDP's Climate Promise by the *Pledge to Impact* Programme. Delivered in collaboration with a wide variety of partners, the initiative has supported over 120 countries to enhance and implement Nationally Determined Contributions (NDCs) under the Paris Agreement. From Pledge to Impact is generously supported by the governments of Germany, Japan, United Kingdom, Sweden, Belgium, Spain, Iceland, the Netherlands, Portugal and other UNDP core contributors. This programme underpins UNDP's contribution to the NDC Partnership.

UN disclaimer

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