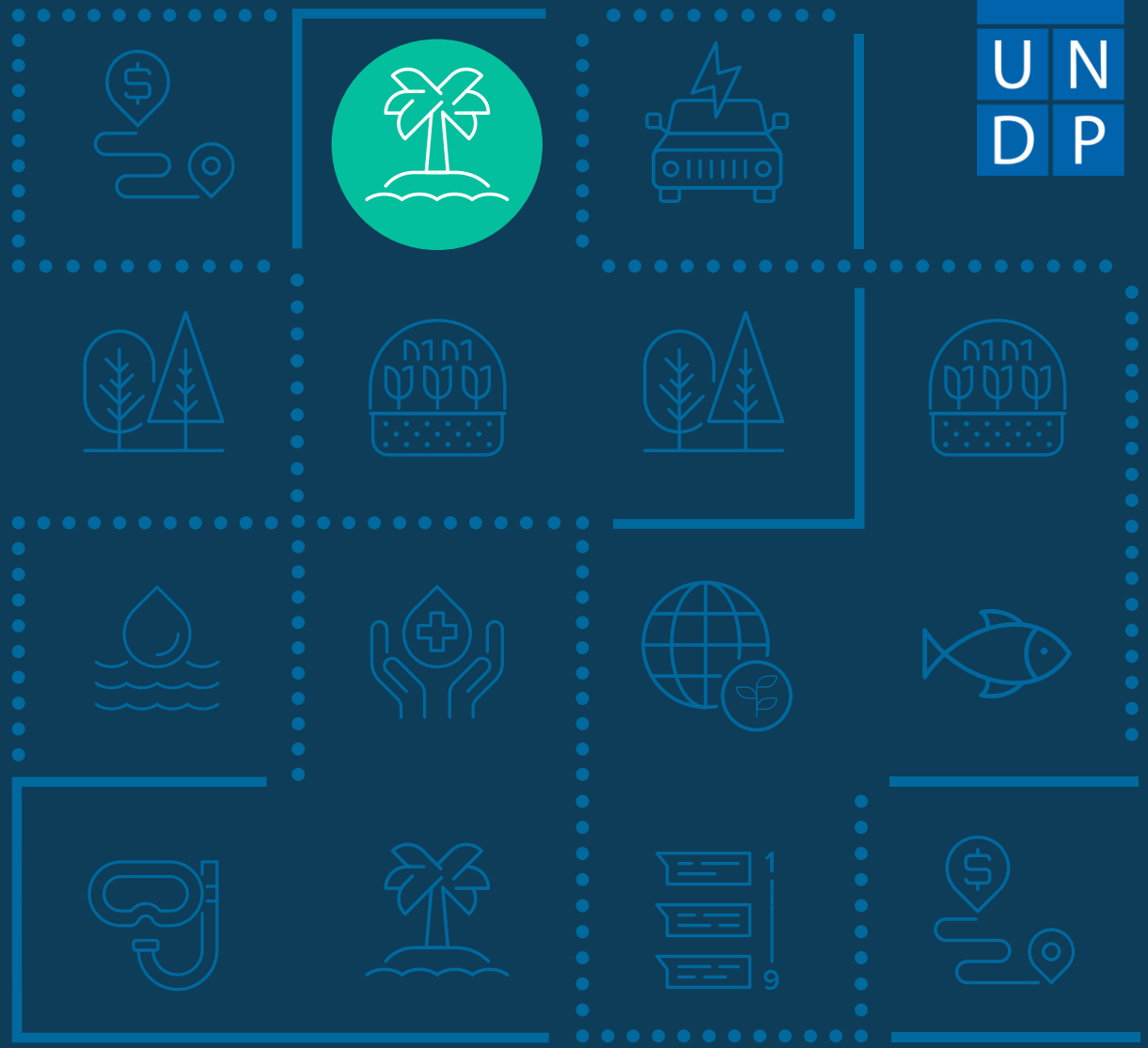
UNITED NATIONS DEVELOPMENT PROGRAMME

GUIDEBOOK

on the methodology for financial assessments to address climate change

FINANCIAL ASSESSMENT TO ADDRESS CLIMATE CHANGE IN THE COASTAL ZONES SECTOR



Climate change impacts on the coastal zones sector

Biophysical effects:

- Increased flood-frequency
- Erosion
- Inundation
- Rising water tables
- Saltwater intrusion
- Biological effects

Sea-level rise socio-economic effects:

- Loss of economic, ecological, cultural and subsistence values through loss of land, infrastructure and coastal habitats
- Increased flood risk to people, land and infrastructure
- Changes in water management, salinity and biological activity, loss of tourism, coastal habitats and effects on agriculture/ aquaculture

Step 1. Establish key parameters of assessment.

Step 2. Compile historical IF, FF and O&M cost data (and subsidy cost data if included explicitly) and other input data for scenarios.

Step 3. Define baseline scenario.

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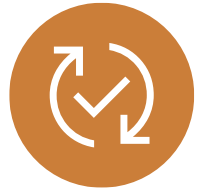

Step 8. Identify policy implications.

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

Scoping the coastal zones sector

- Can include:
  - Tourism
  - Human settlements
  - Agriculture, fisheries
  - Water supply, water ways
  - Financial services
  - Human health

Examples of potential impact pathways

Climate factor	Direction of change	Bio-geophysical effects	Potential impacts
Wave climate	Temporal & spatial variability expected	Changed patterns of erosion & accretion; changed storm impacts	Sediment supply, wave & storm climate
Storm track, frequency, & intensity	Temporal & spatial variability expected	Changed occurrence of storm flooding & storm damage	Wave & storm climate, morphological changes, Sediment supply, flood management, morphological changes, land claim Catchment management & land use
Precipitation intensity / runoff	Intensified hydrological cycle, with wide regional variations	Changed fluvial sediment supply; changed flood risk in coastal lowlands, catchment management	CO_2 fertilization, sediment supply Sediment supply, migration space, direct destruction

Define boundaries for the assessment

Three basic adaptation strategies in the coastal zones sector:

- **Protect**: to reduce the risk of an event by decreasing the probability of its occurrence
- **Accommodate**: to increase society's ability to cope with the effects of the event
- **Retreat**: to reduce the risk of the event by limiting its potential effects

Define boundaries for the assessment

Example list of subsectors for screening and prioritization

Subsectors	Data availability	Investment (baseline & prior 10 years)	Priority in adaptation scenario			
			High	Medium	Low	Rank
Protect: to reduce the risk of an event by decreasing the probability of its occurrence						
Accommodate: to increase society's ability to cope with the effects of the event						
Retreat: to reduce the risk of the event by limiting its potential effects						

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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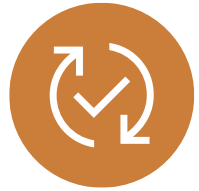

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Step 2.

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)
- National Oceanographic Data Centre (http://www.nodc.noaa.gov)

Data collection

Examples of investment types (for the year 2013)

List of Investment types	IF (2013 US$)	FF (2013 US$)
Policies & measures	X	X
Regulations		X
Infrastructure	X	X
Training		X
Insurance		X
Research		X

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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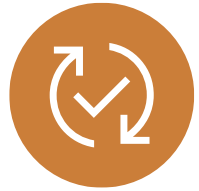

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Define a baseline scenario.

- 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 & migration, economic growth), technological change and expected business-as-usual investments in the sector.

Define baseline scenario

- Characterizing each relevant forestry 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:
  - Year (starting 10 years before the assessment's Base Year)
  - Source (by corporations & government)
  - Type (national funds, foreign direct investment, official development assistance)

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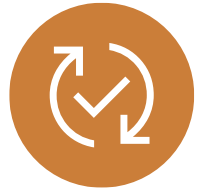

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Step 4.

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

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		

*Storm walls (2025 $/meter), hotels (2025 $/site), tourist centre (2025 $/site), beach nourishment (2025 $/kg), coastline monitoring services (2025 $/site) …

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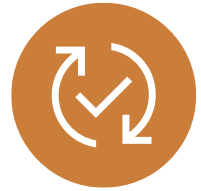

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Step 5.

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 tourism sector to implement those measures

Define the target scenario

Possible adaptation measures in the coastal zones sector

Category of adaptation measure	Measure
Land conservation	Reclaiming land in front of the coast to allow new freshwater lenses to develop
Water	Extracting saline groundwater to reduce inflow & seepage
Estuary	Empoldering estuary closure
Infrastructure	Constructing flood proof buildings
Freshwater supply	Infiltrating fresh surface water
Wetland	Restoring wetlands, inundating low-lying areas

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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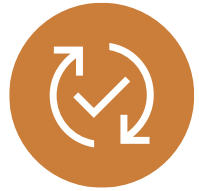

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Step 6.

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
Storm walls	(#meters installed)	(2025 $/meter)
Hotels	(# buildings)	(2025 $/site)
Beach nourishment	(# kg sand)	(2025 $/kg)
Coastline monitoring services	(# extension sites)	(2025 $/site)
Early warning systems	(# modules)	(2025 $/module)

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		

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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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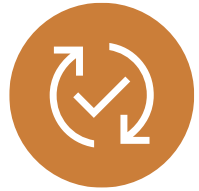

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Step 8.

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 & incentives to encourage changes in investment and financial flows
- Consider social, economic and environmental benefits of policy options

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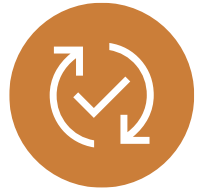

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Synthesize results and complete report.

- 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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Supported by: Federal Ministry for Economic Affairs and Climate Action on the basis of a decision by the German Bundestag

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