



Strategic Carbon Accounting & Decarbonization Approaches for Serbia

Module 5

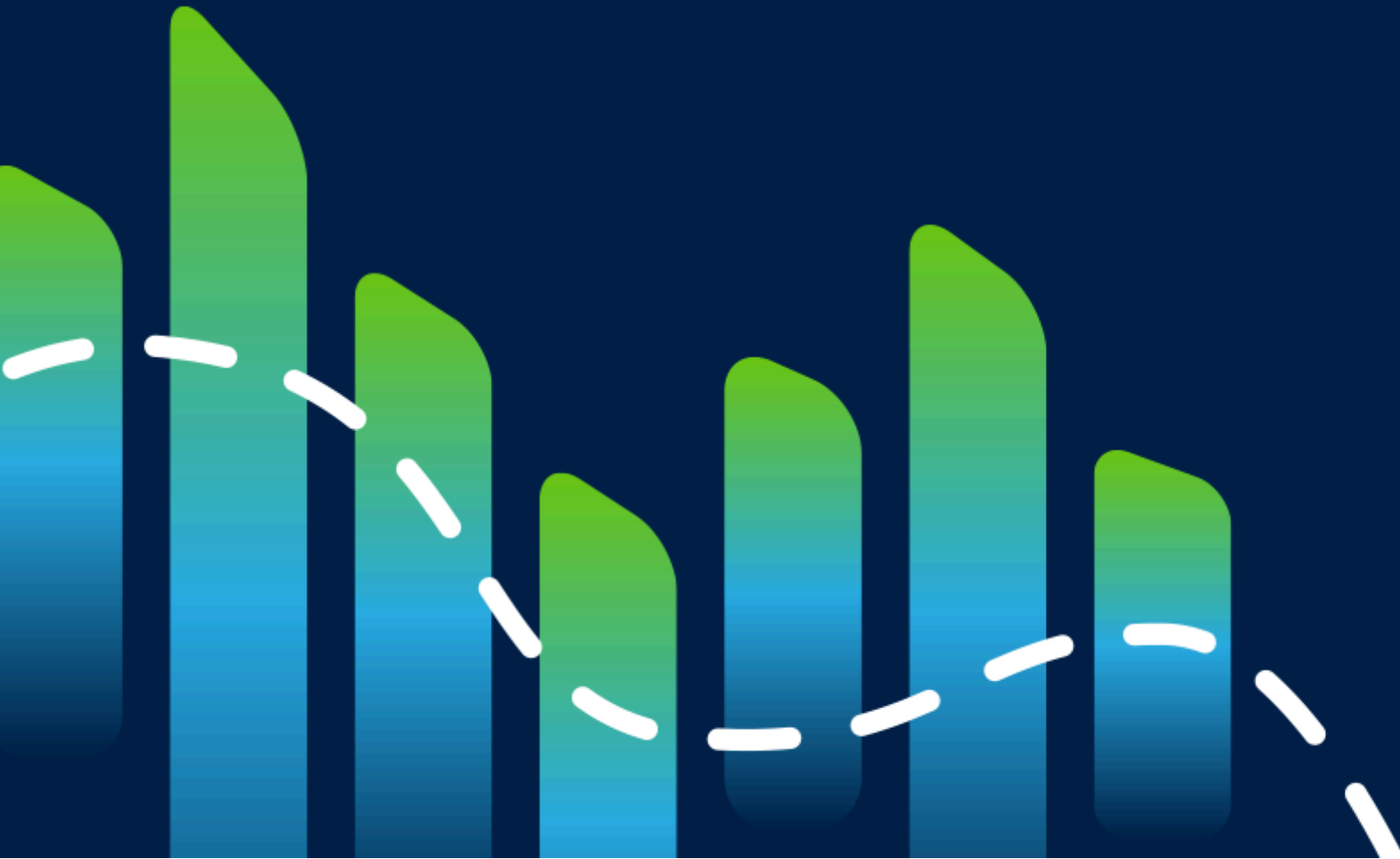
Content outline

- 01 **Module 1 - Importance of carbon accounting to achieve climate change mitigation**
- 02 **Module 2 - Emission sectors according to the International Panel on Climate Change**
- 03 **Module 3 - Key steps in carbon emissions accounting and reporting**
- 04 **Module 4 - Carbon accounting and reporting in practice**
- 05 **Module 5 - Tools for carbon accounting**
- 06 **Module 6 - Application of carbon accounting in business environment**



NEXT

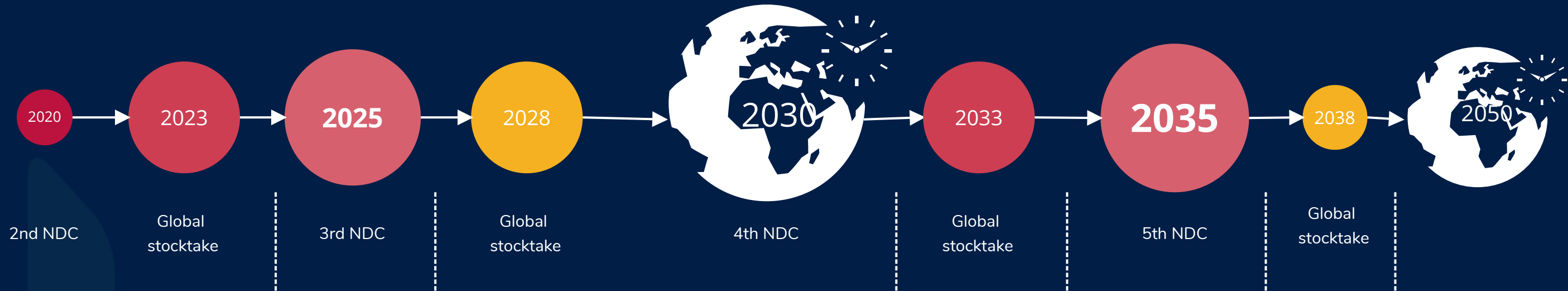
NATIONALLY
DETERMINED
CONTRIBUTION
EXPERT TOOL





Limit global warming
to well below 2°C,
and preferably 1.5°C

PA architecture



Every two years, a biennial transparency report (BTR), a national GHG inventory report, and an adaptation communication
Every four years, a national communication

A lot of GHG accounting tools but
developed prior to Paris Agreement...
needs of new generation of tool

FCCC/PA/CMA/2018/3/Add.2

Decision 18/CMA.1

Modalities, procedures and guidelines for the transparency
framework for action and support referred to in Article 13 of
the Paris Agreement

C. Methods

1. Methodologies, parameters and data

20. Each Party shall use the 2006 IPCC Guidelines, and shall use any subsequent version or refinement of the IPCC guidelines agreed upon by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA). Each Party is encouraged to use the 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands.

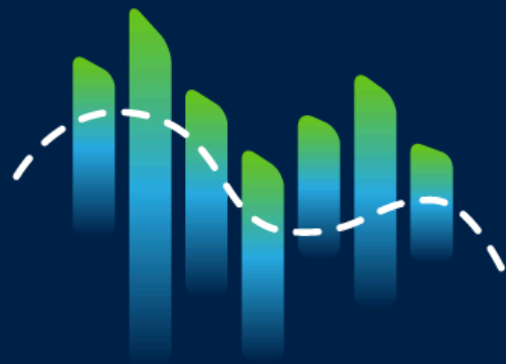
21. Each Party shall use methods from the IPCC guidelines referred to in paragraph 20 above. Each Party should make every effort to use a recommended method (tier level) for key categories in accordance with those IPCC guidelines.

22. Each Party may use nationally appropriate methodologies if they better reflect its national circumstances and are consistent with the IPCC guidelines referred to in paragraph 20 above. In these cases, each Party shall transparently explain national methods, data and/or parameters selected.

23. A Party may be unable to adopt a higher tier method for a particular key category owing to lack of resources. In such cases, the Party may use a tier 1 approach, and shall clearly document why the methodological choice was not in line with the corresponding decision tree of the IPCC guidelines referred to in paragraph 20 above. The Party should prioritize for future improvement any key categories for which the good practice method elaborated in the IPCC guidelines referred to in paragraph 20 above cannot be used.

24. Each Party is encouraged to use country-specific and regional emission factors and activity data, where available, or to propose plans to develop them, in accordance with the good practice elaborated in the IPCC guidelines referred to in paragraph 20 above.

Published in 2022
Peer-reviewed 3 times*



NEXT

NATIONALLY
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CONTRIBUTION
EXPERT TOOL

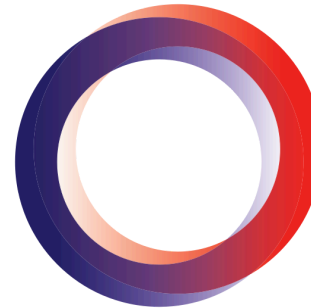
A 30-year time series of annual and cumulated estimates of carbon removal and greenhouse gas emission reductions from climate actions

Supporting countries and other actors to estimate and monitor past and on-going climate actions, and to think longer-term to plan & make decisions for climate change mitigation in the AFOLU sector

A collaboration of



Food and Agriculture
Organization of the
United Nations



AFD
AGENCE FRANÇAISE
DE DÉVELOPPEMENT



Bundesministerium
für Ernährung
und Landwirtschaft

NEXT | Excel-based tool for GHG accounting

ETF

Enhanced Transparency Framework



IPCC methodology

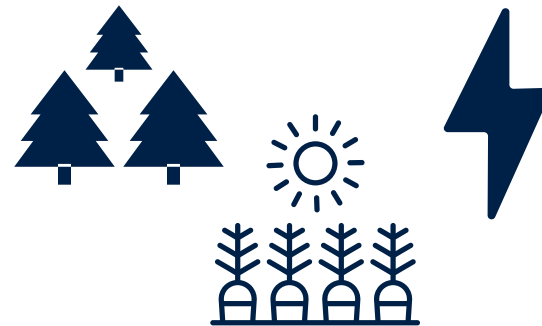
Global warming potential

FCCC/PA/CMA/2018/3/Add.2

Decision 18/CMA.1

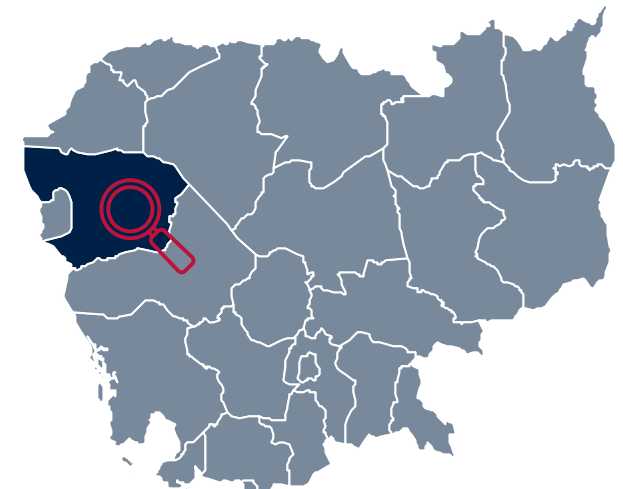
Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement

IPCC sectors covered



Agriculture, Forestry and Other land use
(AFOLU)
and Energy

Geographical scope



Project level

Applications



Classification of the applications

- NDC, LTS
- Capacity building
- GEF, GCF, WB, IFAD, others

Source: Adapted from United Nations World map, March 2023. The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of ITAC concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.



Food and Agriculture Organization
of the United Nations



OVERVIEW COUNTRY

Start entering the country name* in cell "D4" and
select it from the dropdown list

Cambodia

UN Regional Classification
Regional IPCC classification for livestock

South-Eastern Asia
East Asia and South-East Asia

Overall base year
Overall target year

2020
2050

Main methodologies
Global Warming Potential (100 years horizon)

IPCC 2006 & IPCC 2013
AR5 without climate-carbon feedback

Share of major soils categories (%)**

HAC - Soils 14.07%
LAC - Soils 67.2%
Wetland - Soils 17.12%
Water bodies 1.61%

* NEXT does not accept accent on country name

**According to the excel version, the list might not fully expand.

The list also contains the % of water bodies

Divided by IPCC chapter of Volume 4, but takes into
account land use changes, i.e. what are the carbon stock
changes and associated GHG emissions when shifting from
a forest to an annual cropland

ABOUT

HOME

FOREST LAND

CROP&GRASS

WETLAND

LIVESTOCK

NUTRIENT

HWP

ENERGY

USERS ACTIVITY DATA

DASHBOARD

RESULTS SUMMARY

LAND & SOC INDICATORS

HELP

D

...

+

:

Deforestation															
Conditionality, climate and mineral soil type					Land uses				HWP	Analysis period		Deforested area (ha) at target year			
U/C	Climate	IPCC/HWSD	Type		F/P	Initial land use	Final land use	Final land use type		Base	Target	Reference	*	Target	*
FOR-1	U	Tropical Dry	IPCC	Sandy - Soils	F	Tropical shrubland	Annual cropland	Please select	No	2021	2031	15,406	L	0	L
FOR-2	U	Tropical Dry	IPCC	LAC - Soils	F	Tropical dry forest	Annual cropland	Please select	No	2025	2045	15,406	L	0	L
FOR-3	U	Tropical Moist	IPCC	LAC - Soils	F	Tropical moist forest	Annual cropland	Please select	No	2022	2038	15,406	L	0	L
FOR-4	U	Please select	IPCC	Please select	F	Please select	Please select	Please select	No			0	L	0	L
FOR-5	U	Please select	IPCC	Please select	F	Please select	Please select	Please select	No			0	L	0	L
FOR-6	U	Please select	IPCC	Please select	F	Please select	Please select	Please select	No			0	L	0	L
FOR-7	U	Please select	IPCC	Please select	F	Please select	Please select	Please select	No			0	L	0	L
FOR-8	U	Please select	IPCC	Please select	F	Please select	Please select	Please select	No			0	L	0	L
FOR-9	U	Please select	IPCC	Please select	F	Please select	Please select	Please select	No			0	L	0	L
FOR-10	U	Please select	IPCC	Please select	F	Please select	Please select	Please select	No			0	L	0	L
					F=Forest										
					P=Plantation										
					All management options are in tier 2 section										
					Trophic status for flooded land reservoirs										
										Total change in GHG emissions by 2050 compared to reference (tCO2-eq)					
										GHG emissions from HWP are accounted for in the HWP module					

[illegible]

Climate and soils are available from maps

Tier 2 is available for final and initial land

Very basic information to run a GHG accounting: climate, soil, hectares, duration of the implementation of each activity

FINAL LAND USE - CROPLAND ⁽¹⁾ & GRASSLAND TIER 2 & MANAGEMENT OPTIONS																													
Above and below-ground biomass growth rate					Soil management & Soil carbon stock (SOC)					Residue management				Yield cropland															
AGB (tC/ha/yr)		BGB (tC/ha/yr)*		Maturity		Soil		Soil		SOC (tC/ha)		Residue/Grass.		Residues** (tdm/ha/yr)		Burning		(t dm/ha/yr)											
Tier 1		Tier 2		Tier 1		Tier 2		Cycle (years)		Management		Input		Tier 1		Tier 2		Management		Tier 1		Tier 2		periodicity		Tier 1		Tier 2	
cropland	5.0			0.0			1			Please select	Please select	18.0			Please select	0.00			1		0.00								
cropland	5.0			0.0			1			Please select	Please select	20.3			Please select	0.00			1		0.00								
cropland	5.0			0.0			1			Please select	Please select	22.6			Please select	0.00			1		0.00								
	0.0			0.0			0			Please select	Please select	0.0			Please select	0.00			1		0.00								
	0.0			0.0			0			Please select	Please select	0.0			Please select	0.00			1		0.00								
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	0.0			0.0			0			Please select	Please select	0.0			Please select	0.00			1		0.00								
	0.0			0																									

(1) except flooded rice, see section to the right

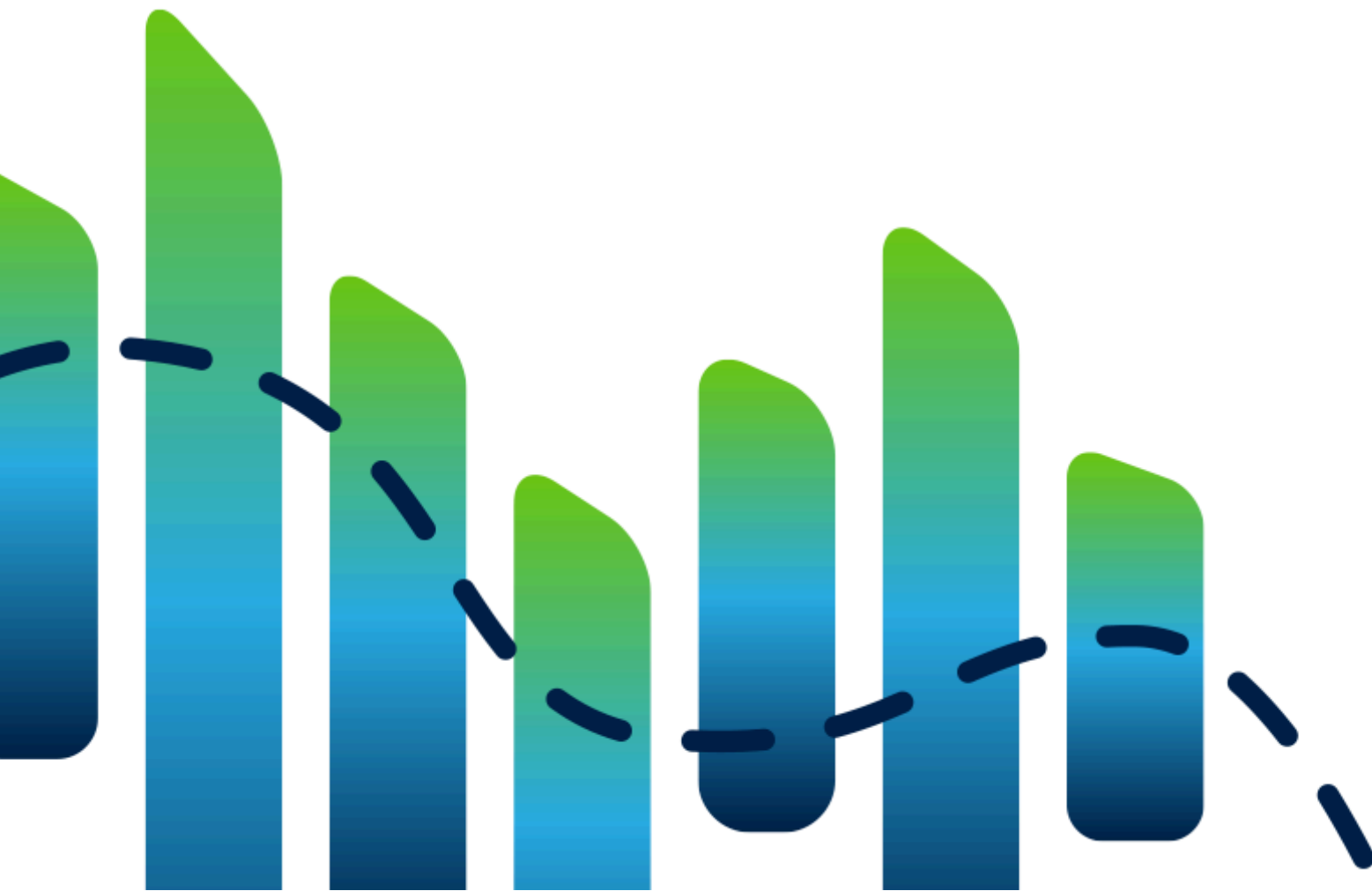
FOREST MANAGEMENT

GHG emissions from HWP are re

Conditionality, climate and mineral soil type					Global ecological zone (forest)		Management approach	Main management*	Analysis period		Forest area with at least one mngt* practice at target year, in ha					Cumulated results at the start	
U/C	Climate	IPCC/HWSD	Type	F/P					Base	Target	Initial	Reference	*	Target	*	Reference	Target
MOF-1	U	Tropical Dry	IPCC	HAC - Soils	F	Tropical desert	Stock difference approach	Please select	2021	2025	0	0	L	0	L	0	0
MOF-2	U	Tropical Moist	IPCC	LAC - Soils	F	Tropical dry forest	Gain & losses approach	Biomass regrowth	2025	2030	0	0	L	0	L	0	0
MOF-3	U	Tropical Moist	IPCC	Sandy - Soils	F	Tropical moist forest	Gain & losses approach	Wood removals &/or Fuelwood	2020	2040	0	0	L	0	L	0	0
MOF-4	U	Tropical Dry	IPCC	Wetland - Soils	F	Tropical shrubland	Gain & losses approach	Disturbance (fire, insects...)	2022	2032	0	0	L	0	L	0	0
MOF-5	U	Please select	IPCC	Please select	F	Please select	Please select	Please select			0	0	L	0	L	0	0
MOF-6	U	Please select	IPCC	Please select	F	Please select	Please select	Please select			0	0	L	0	L	0	0
MOF-7	U	Please select	IPCC	Please select	F	Please select	Please select	Please select			0	0	L	0	L	0	0
MOF-8	U	Please select	IPCC	Please select	F	Please select	Please select	Please select			0	0	L	0	L	0	0
MOF-9	U	Please select	IPCC	Please select	F	Please select	Please select	Please select			0	0	L	0	L	0	0
MOF-10	U	Please select	IPCC	Please select	F	Please select	Please select	Please select			0	0	L	0	L	0	0
* Dynamic of strategy's implementation																	
Total change in GHG emissions by 2050 compared to reference (tCO2-eq)																0	0
GHG emissions from HWP are accounted for in the HWP module																	

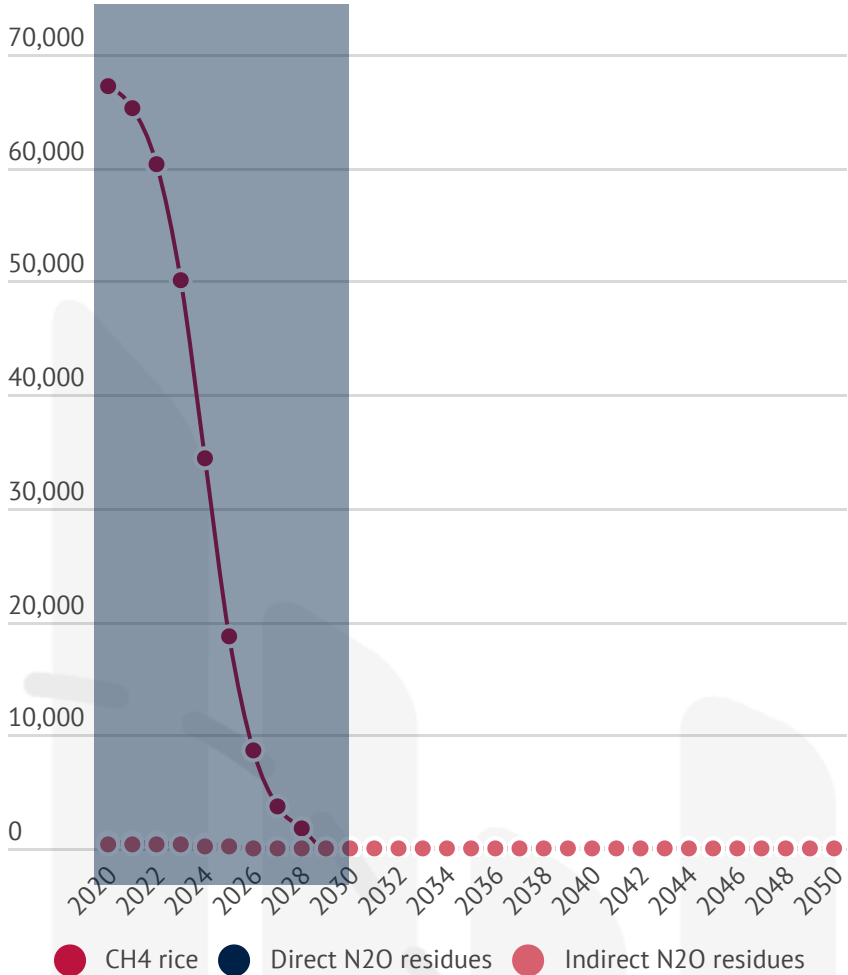
GAIN & LOSS APPROACH

Above-ground biomass available for HWP and disturbances					Reference	Target	Harvested wood product						Occurrence of the disturbance, %biomass affected at each periodicity						
Biomass available*, tC/ha		Max HWP available, tC **					Wood removal			Fuelwood removal			Type	Initial		Reference		Target	
Tier 1	Users	Initial	Reference	Target			Initial tC/yr	Ref. tC/yr	Target tC/yr	Initial tC/yr	Ref. tC/yr	Target tC/yr		Biomass %	Period. years	Biomass %	Period. years	Biomass %	Period. years
32.9		0	0	0							None	0%	1	0%	1	0%	1		
56.4		0	0	0							None	0%	1	0%	1	0%	1		
122.2		0	0	0							None	0%	1	0%	1	0%	1		
32.9		0	0	0							None	0%	1	0%	1	0%	1		
0.0		0	0	0							None	0%	1	0%	1	0%	1		
0.0		0	0	0							None	0%	1	0%	1	0%	1		
0.0		0	0	0							None	0%	1	0%	1	0%	1		
0.0		0	0	0							None	0%	1	0%	1	0%	1		
0.0		0	0	0							None	0%	1	0%	1	0%	1		
0.0		0	0	0							None	0%	1	0%	1	0%	1		
0.0		0	0	0							None	0%	1	0%	1	0%	1		
* for HWP and disturbances					** does not include the biomass loss by disturbances														

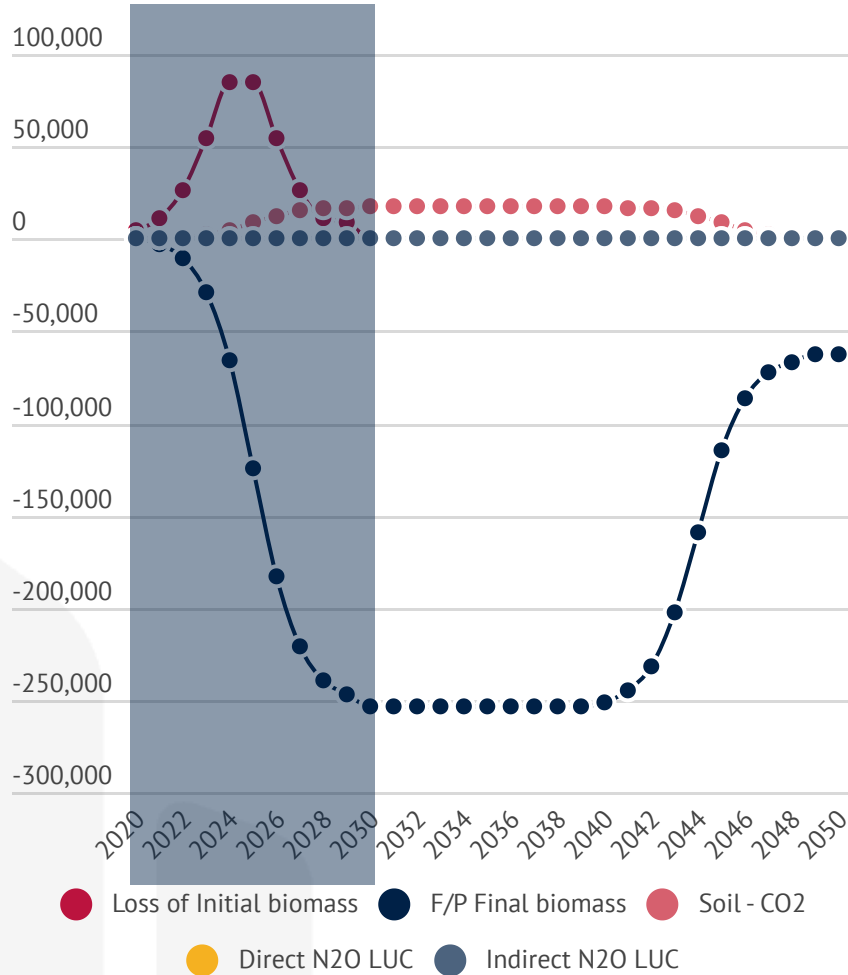


**Logical
approach**

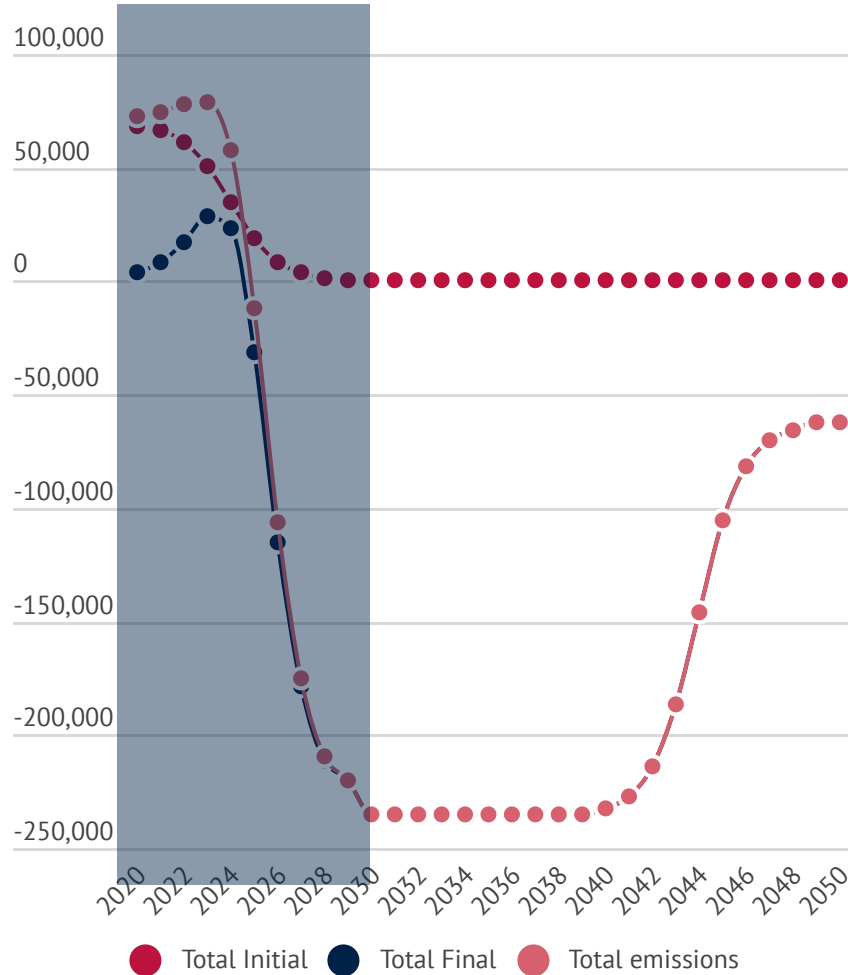
Initial land/management



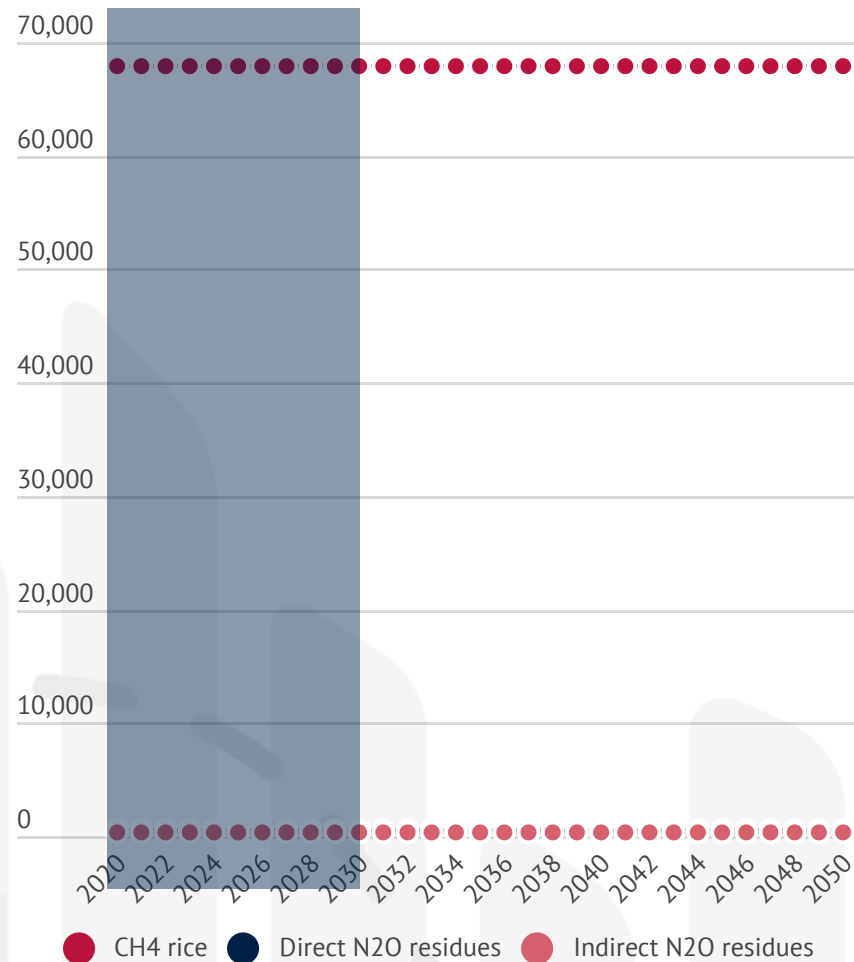
Final land/management



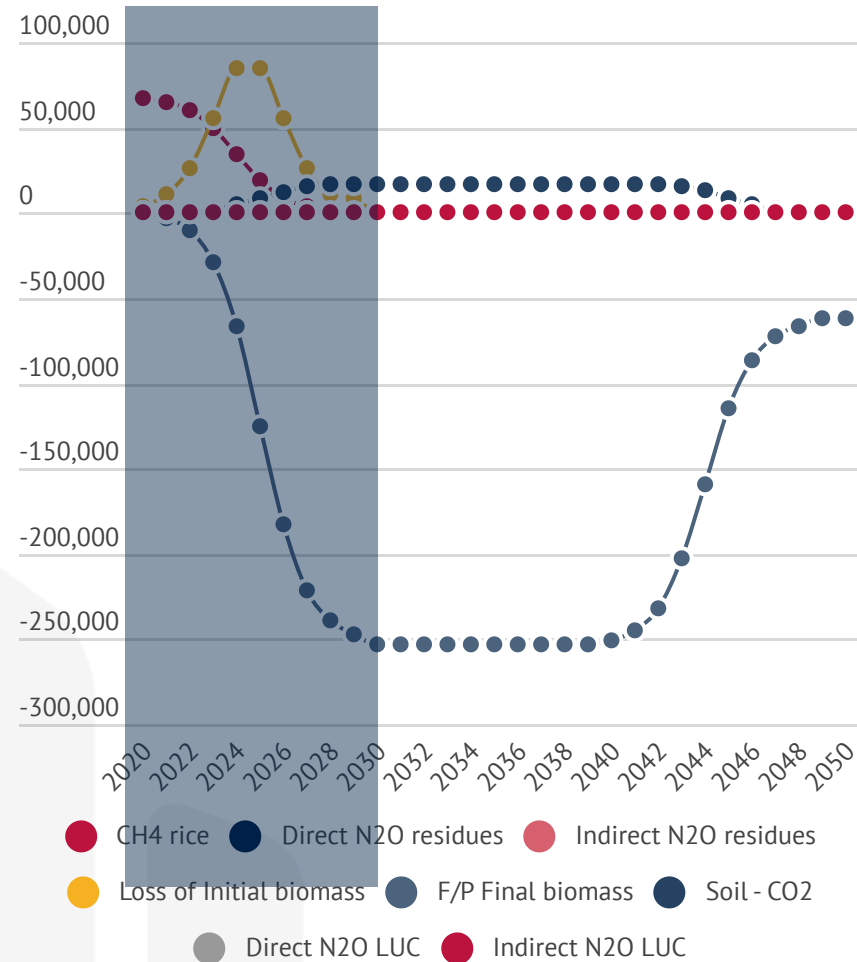
Total GHG emissions



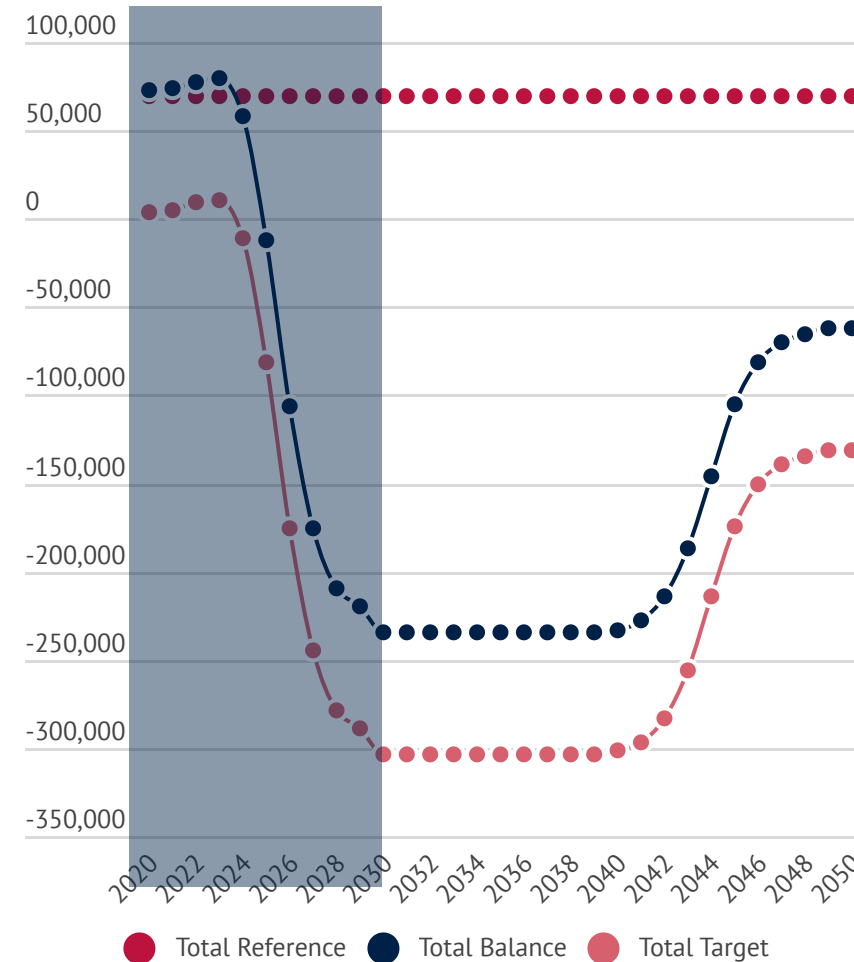
Reference



Target



Balance



Annual GHG emissions from the conversion of flooded rice to forest over 10 years, assuming S-curve implementation pattern
Residues are retained

All emissions are in tCO₂-e

In summary - What is NEXT?

- Excel-based tool aligning with the Enhanced Transparency Framework (ETF) for the GHG accountability (IPCC, GWP)
- Support estimation of annual GHG emissions over the implementation period and beyond with high disaggregation level of results (GHG and non-GHG), e.g. CH₄ for the **global methane pledge** and or N₂O estimates and tracking, % of reduced deforestation, increased ha afforestation among many others
- Provide a period of analyses running until mid-century, or a 30-year time series* **Support identification of residual emissions**
- Support countries in monitoring, planning and policy making, in line with the ETF, and by identifying untapped mitigation to scale ambitions and achieve their climate commitments
- NEXT links land use changes activities, i.e. carbon stocks changes from forest, cropland and grassland to their new affectation, thus help to avoid under or over estimate GHG emissions and or carbon stock enhancement
- Can be used for projects, programme, policies, NDC and LTS
- Mandatory tool for all GEF and GCF projects supported by FAO



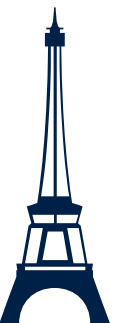
Colombo Declaration
on Sustainable Nitrogen Management



*NEXT can also be used for past policies, e.g. time series can start in 2010

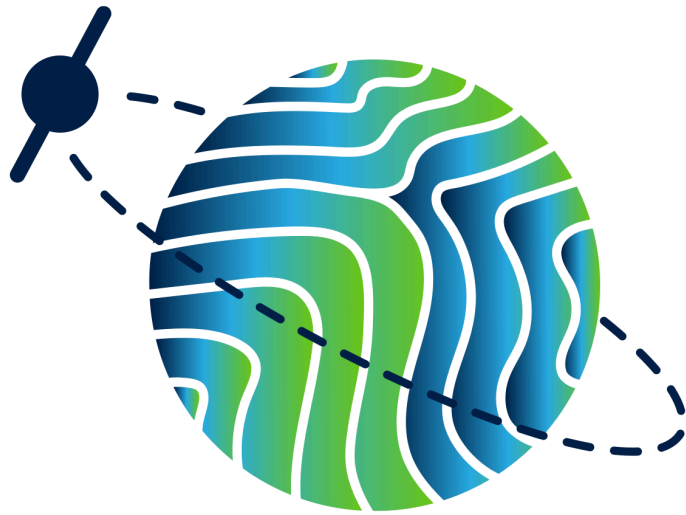


Limit global warming
to well below 2°C,
and preferably 1.5°C





NDC-tool Box

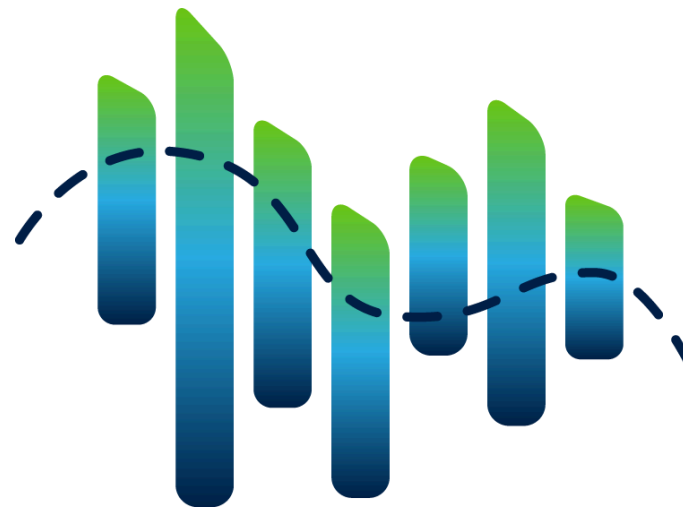


ABC-Map

Adaptation, Biodiversity and Carbon Mapping Tool

A geospatial tool to assess the environmental impact of planned actions on adaptation, biodiversity and carbon

C-part is NEXT



NEXT

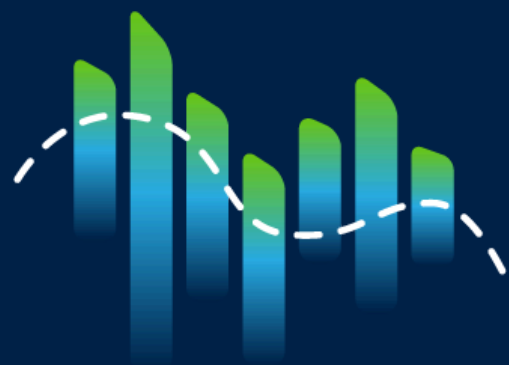
Nationally Determined Contribution Expert Tool

A GHG accounting tool to monitor past & on-going climate actions, and estimate the potential of planned actions



NDC Tracking Tool

A tool to facilitate data collection of the information necessary to track NDC implementation and achievement



NEXT

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EXPERT TOOL

NDC-tool@FAO.org

<https://www.fao.org/documents/card/en?details=CC0568EN>