

An historical perspective of the COP: achievements and implications for the European land sector and its research and policy needs

The Rio Conventions : addressing the interconnected challenges of Climate Change, Desertification and Biodiversity Loss



Credit: un.org

The three Rio Conventions and the Agenda 2030

Climate change, desertification and biodiversity loss are heavily interlinked and pose existential challenges to humanity. In response to these challenges, governments founded three sister “Rio Conventions” at the 1992 Earth Summit in Rio de Janeiro, Brazil.

These are:

- the United Nations Framework Convention on Climate Change (**UNFCCC**)
- the Convention on Biological Diversity (**CBD**)
- the United Nations Convention to Combat Desertification (**UNCCD**, signed after Rio summit)

There are overlaps across the Rio Conventions since the challenges related to climate change, desertification and biodiversity loss overlap and cross-cutting solutions are developed.

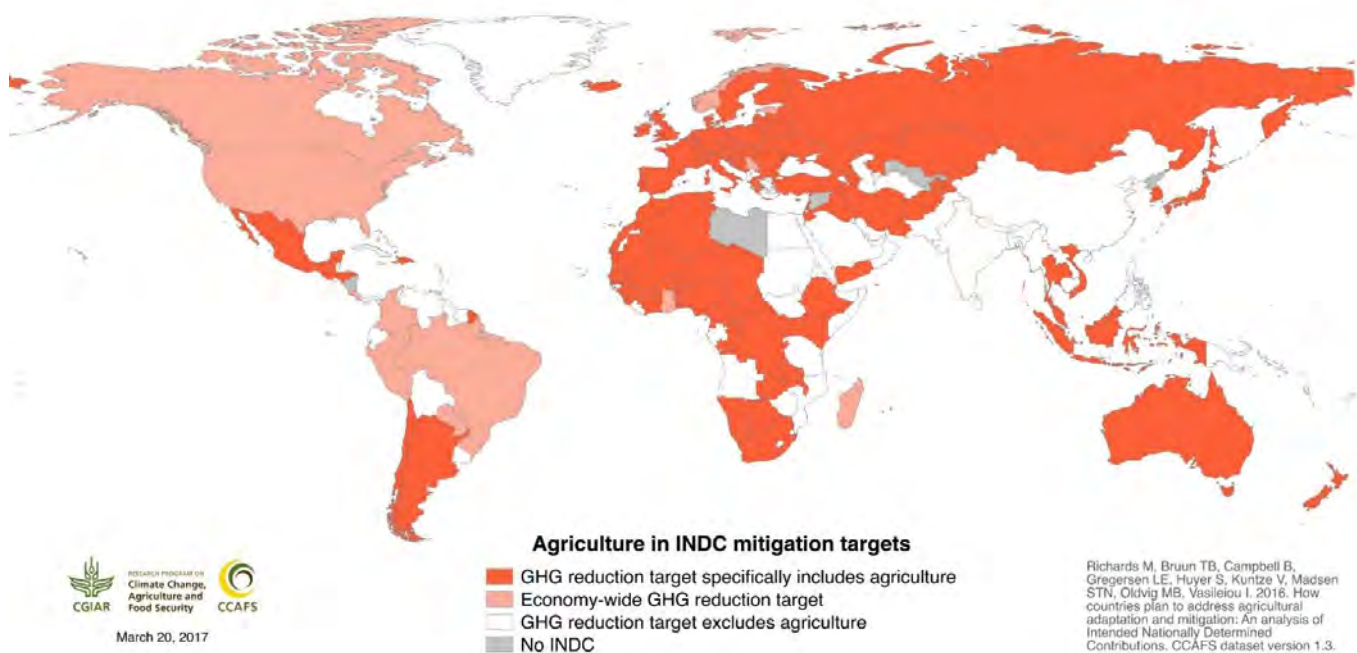
A UN Convention is a binding agreement between different countries. Under such Conventions, nations adopt key goals at **annual Conferences of the Parties (COPs)** and report periodically on progress in implementing these goals. Each Rio Convention has a supporting secretariat. Other key tasks are to help governments report data and to organize technical workshops.

Targets from the Rio Conventions are now embedded in the Sustainable Development Goals (Agenda 2030)

UNFCCC main commitments for the land sector

- At COP21 (Paris), 148 countries have set mitigation and adaptation targets in agriculture, and 157 included targets related to other land use including forests and degraded land
- At COP26 (Glasgow), the Leader's declaration on forests and land use with 144 signatory countries pledged to working collectively to halt and reverse forest loss and land degradation by 2030 while delivering sustainable development and promoting an inclusive rural transformation.
- Also at COP26, the global methane pledge to a collective effort to reduce global methane emissions at least 30 percent from 2020 levels by 2030.

Agriculture in Nationally Determined Commitments: mitigation targets



- 104 countries included agriculture as one of the sectors in which they intended to make emission reductions towards their targets
- 70 of these are developing countries.

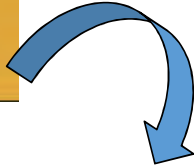
UNCCD main commitments

- Land degradation neutrality (LDN). LDN counterbalances the expected loss of productive land by land degradation with the recovery of degraded areas. It is also a target by SDG 15.3
- To date over 122 countries have engaged with the LDN target setting programme.

CBD main commitments for the land sector

- The Global Biodiversity Framework adopted at COP15 (Montreal-Kunming) prioritizes ecologically representative, well connected and equitably governed systems of protected areas and other effective area-based conservation, recognizing indigenous and traditional territories and practices.
- It targets for 2030 several objectives, including: protecting 30% of Earth's lands, oceans, coastal areas and inland waters; reduce to near zero the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity.
- Cut global food waste in half.
- Reduce by half both excess nutrients and the overall risk posed by pesticides.
- Progressively phase out or reform by 2030 subsidies that harm biodiversity.

Agenda 2030 and Sustainable food systems



Global environmental assessments supporting the three Rio Conventions

- The **IPCC**, established in 1988, has likewise been instrumental in placing the issue of anthropogenic climate change on the international political agenda.
- **IPCC** Assessment Reports (6th cycle to be completed by the publication of a Synthesis report) have become important events punctuating the life of UNFCCC
- In contrast, **IPBES** is a recent institution formally established in 2012 of global expert advice whose objective is to tackle the loss of biodiversity, the degradation of ecosystem services, and to improve human well-being.
- **IPBES** is more ambitious than these earlier initiatives since it aspires to develop a model of expertise inclusive of more diverse forms of knowledge and which operates at multiple scales.
- In 2019, **IPBES** gained significant public visibility with the release, and substantial media attention, of its first Global Assessment on Biodiversity and Ecosystem Services.
- In 2013, the United Nations Convention to Combat Desertification (**UNCCD**) established a science–policy interface (**SPI**) to address Parties' need for demand-driven, timely, interdisciplinary science and technical knowledge to tackle problems of desertification, land degradation and drought.
- Further formalization of the **SPI**'s status within the UNCCD would improve its functions and enable the UNCCD to maintain its global lead in providing knowledge and advice.

Global Environment Assessments trigger international research programs. Examples

- The Coupled Model Intercomparison Project, which began in 1995 under the auspices of the World Climate Research Programme (WCRP), is now in its sixth phase (CMIP6).
- AgMIP, <https://agmip.org/> Agricultural Model Intercomparison and Improvement Project, led by US universities, with support of FACCE JPI (MACSUR knowledge hub)
- The Global Research Alliance on agricultural greenhouse gases (<https://globalresearchalliance.org/>), intergovernmental (66 member countries, including 20+ European countries)

The three panels have (mostly) been working independently

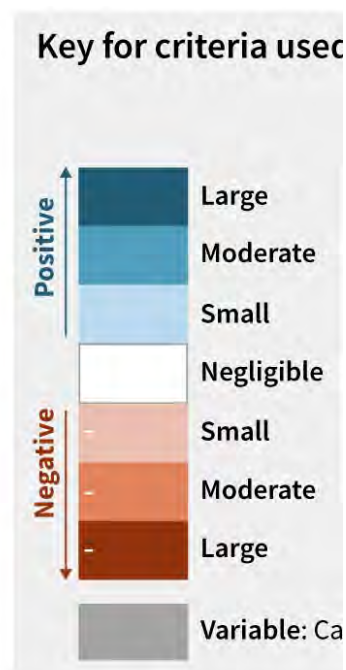
- ***June 10, 2021, first joint workshop of IPCC and IPBES***
- *Tackling Biodiversity & Climate Crises Together and Their Combined Social Impacts*
- *Global Experts Identify Key Options for Solutions First-Ever Collaboration between IPBES and IPCC Selected Scientists*

However, IPBES addresses climate change impacts on biodiversity.

IPCC Special Report on Climate Change and Land (SRCCL, 2019) addressed climate change, land degradation and biodiversity.

Response options based on land management		Mitigation	Adaptation	Desertification	Land Degradation	Food Security	Cost
Agriculture	Increased food productivity	L	M	L	M	H	—
	Agro-forestry	M	M	M	M	L	●
	Improved cropland management	M	L	L	L	L	●●
	Improved livestock management	M	L	L	L	L	●●●
	Agricultural diversification	L	L	L	M	L	●
	Improved grazing land management	M	L	L	L	L	—
	Integrated water management	L	L	L	L	L	●●
Forests	Reduced grassland conversion to cropland	L	—	L	L	L	●
	Forest management	M	L	L	L	L	●●
Forests	Reduced deforestation and forest degradation	H	L	L	L	L	●●
Soils	Increased soil organic carbon content	H	L	M	M	L	●●
	Reduced soil erosion	↔ L	L	M	M	L	●●
	Reduced soil salinization	—	L	L	L	L	●●
	Reduced soil compaction	—	L	—	L	L	●
Other ecosystems	Fire management	M	M	M	M	L	●
	Reduced landslides and natural hazards	L	L	L	L	L	—
	Reduced pollution including acidification	↔ M	M	L	L	L	—
	Restoration & reduced conversion of coastal wetlands	M	L	M	M	↔ L	—
	Restoration & reduced conversion of peatlands	M	—	na	M	L	●
Response options based on value chain management							
Demand	Reduced post-harvest losses	H	M	L	L	H	—
	Dietary change	H	—	L	H	H	—
	Reduced food waste (consumer or retailer)	H	—	L	M	M	—
Supply	Sustainable sourcing	—	L	—	L	L	—
	Improved food processing and retailing	L	L	—	—	L	—
	Improved energy use in food systems	L	L	—	—	L	—
Response options based on risk management							
Risk	Livelihood diversification	—	L	—	L	L	—
	Management of urban sprawl	—	L	L	M	L	—
	Risk sharing instruments	↔ L	L	—	↔ L	L	●●

Many response options bring multiple benefits without changing land use



Source : IPCC, SRCCL, 2019, SPM

Coordinated solutions

- Given that **land and marine ecosystems absorb more than half of man-made carbon emissions**, it is clear that protecting these systems need to be a central component of climate action. At the same time, **healthy biodiversity and healthy soils play a huge role in building resilience to the unavoidable impacts of climate change**.
- The biggest overlap in the work of all three Rio Conventions is in the field of **“nature-based solutions”**. Such solutions refer for example to the protection of coral reefs and mangrove forests that protect coastal communities from storms, flooding and erosion. Measures to avoid cutting down huge swaths of tropical forests are beneficial both for animal and plant life and are crucial for a stable climate, food and drinking water.
- Sustainable agriculture and land use is also a shared area of work of all three Conventions as is recognized in the [Koronivia joint work on agriculture](#).
- Another key overlap includes the recognition that societies need to rapidly introduce and scale up the use of clean and sustainable technologies. This applies notably to **renewable energy technologies** such as wind and solar power.

Such coordinated solutions are underlined by European Commisision, e.g. EU Mission: A Soil Deal for Europe

Numerous agricultural initiatives launched at Climate COPs

- Food and Agriculture for Sustainable Transformation (FAST) led by Egypt, launched at COP27
- The Agriculture Innovation Mission for Climate (AIM for Climate) (USA and UAE led) committed 8 billion USD (at COP26, COP27)
- Adaptation of African Agriculture (COP22, Marrakech)
- 4 per 1000 initiative, soils for food security and climate (COP21, Paris)

...

Some of these initiatives explicitly include research (eg. 4 per 1000)

An assessment of these initiatives and their overlaps would be needed!

The Koronivia joint work on agriculture

The COP held in Bonn in 2017, adopted the "Koronivia joint work on agriculture" to address issues related to agriculture, including through workshops and expert meetings, working with constituted bodies under the Convention and taking into consideration the vulnerabilities of agriculture to climate change and approaches to addressing food security

	2018	2019		2020	2021		2022
Workshops, Meetings, Sessions	SB49 Dec 2018, Katowice Topic: Modalities for implementation of the outcomes of the five in-session workshops	SB50, June 2019, Bonn Topic: Adaptation, adaptation co-benefits and resilience Topic: Soil, water management and integrated systems	SB51, Dec 2019, Madrid Topic: Nutrient use and manure management	UNFCCC Climate Dialogues (virtual), Nov-Dec 2020 Topic: Livestock management and resilience Topic: Socioeconomic and food security dimensions	Koronivia Intersessional workshops, June 2021 Topic: Sustainable land and water management including integrated watershed management strategies to increase food security	Koronivia Intersessional workshops, October 2021 Topic: Strategies and modalities, the scale-up, implementation of best practices, innovation, and technologies that increase resilience and sustainable production in agricultural systems according to national circumstances	SB56, June 2022, Bonn Topic: Informal consultation on Draft conclusions and Elements for a draft COP decision

FIGURE 1
Timeline of Koronivia workshops, adapted from [Drieux et al. \(2021\)](#) Koronivia roadmap. Written submissions were invited through an open consultation process prior to each workshop.
(Sarku et al., 2023)

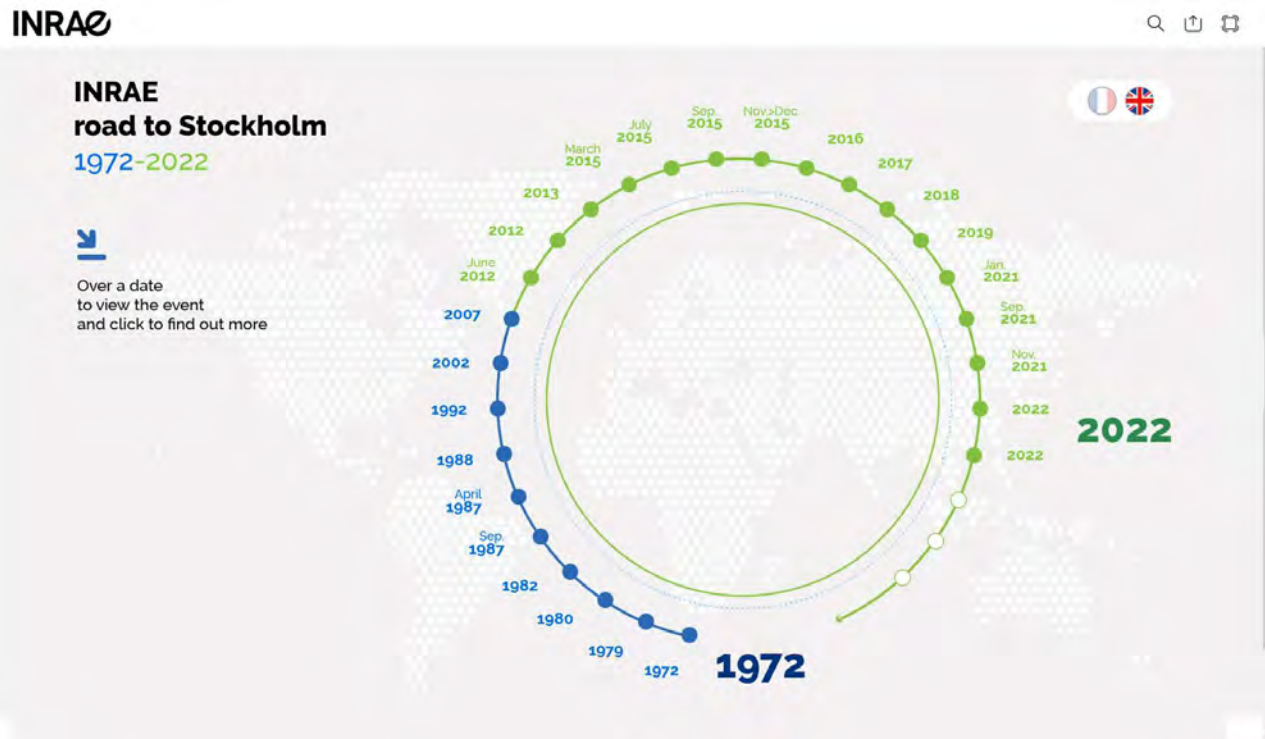
COP 27 – From Koronivia to Sharm El Sheikh joint work on agriculture

- Agriculture and food security – thought to have been at risk of dropping off the climate talks' agenda – were given a stronger mandate and a four-year lease of life
- Sharm el-Sheikh also hosted the first food-systems pavilion at a COP.
- Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security:
- Annual synthesis report; Web portal (contributions invited by March 27); report to COP in 2026.
- See: https://unfccc.int/sites/default/files/resource/cop27_auv_3ab_Koronivia.pdf

Implications for EURAGRI's members

- Independent organizations may want to become observer at COPs, joining 'Research and Innovation NGOs' (RINGOs)
- RINGO's goal is to provide negotiations with the latest science
- Submissions to Koronivia give a voice in the process
- Members may also develop policy briefs and side-events
- ... and support international research programs e.g. on climate change mitigation and adaptation in agriculture and in food systems

INRAE is an observer to UNFCCC and to CBD, INRAE's experts contribute to IPCC and IPBES



June
2022

Climate convention Conference in Bonn, Germany

INRAE is at the Climate Convention Conference in Bonn,
in June 2022 and jointly organises an event with CIRAD, IRD
and NCCSD on the UN Pavilion.



<https://stockholm-road.webdoc.inrae.fr/.1972-2022/#page=1>

Cirad, INRAE and IRD: policy briefs, and side-events at COP27



Thank you for your attention