



Name

ENERGY System Modelling for
Green Development of Africa

Acronym

EMERGE

Call

HORIZON-CL5-2022-D3- 02-02

Partners

11

Countries

9

Demosites

Morocco, Mozambique and
Niger river region

Budget

€2.49M

GA number

n. 101118278



Why this region?

Morocco was selected as an EMERGE pilot because it combines ambitious energy transition goals with strong Water-Energy-Food interdependencies. The pilot aligns with the national target of 52% renewable energy in installed capacity by 2030 and with Morocco's Long-Term Low Emission Development Strategy, guiding the transition to a low-carbon economy by 2050 [1][2][3].

These links are especially important in arid and semi-arid regions, where pumping, desalination, water transfers and irrigation are highly energy-intensive.

Morocco therefore provides a strategic case for demonstrating how integrated Water-Energy-Food (WEF) Nexus approaches can support coherent long-term decisions on climate resilience, energy security and socio-economic development.

What is happening there?

In Morocco, EMERGE is deploying the integrated Water-Energy-Food (WEF) Nexus modelling toolkit to co-design, with national institutions and sectoral stakeholders, prospective scenarios for 2050 aligned with the LT-LEDS.

The pilot explores contrasting pathways, including a gradual low-carbon transition, a highly renewable electricity system, a green hydrogen hub, electric vehicle integration and a trajectory toward near energy sovereignty.

By comparing these scenarios, EMERGE aims to identify robust, no-regret options for investment and public policy decisions, while accounting for territorial and socio-economic constraints and supporting Morocco's long-term sustainable development goals.



Scan for more details

[1] https://unfccc.int/sites/default/files/resource/MAR_LTS_Dec2021.pdf;

[2] <https://www.unep.org/ndc/news-and-stories/story/morocco-launches-its-national-low-carbon-strategy-2050-roadmap-net-zero>;

[3] <https://www.unep.org/ndc/news-and-stories/story/charting-moroccos-climate-commitment-ndc-long-term-low-emission-strategy-lt>.

Focus Areas | Themes

The EMERGE pilot in Morocco addresses interconnected challenges across the residential, transport, industrial and agricultural sectors.



Energy access and electricity transition:

Assessing decentralized renewable energy sources (solar, wind and hydropower) and their integration into the national grid, particularly in rural and peri-urban areas.



Capacity building:

Strengthening integrated energy-modelling capacities through training, knowledge transfer and the co-development of analytical tools for engineers, planners, policymakers and researchers.



Data and modelling infrastructure:

Developing territorial datasets and analytical capabilities for long-term energy-water-agriculture planning, considering data scarcity, climate uncertainty and the LT-LEDS 2050.



Optimization of energy and water systems:

Analysing hydropower, pumped storage, desalination and agricultural pumping to improve system efficiency and resilience to climate change.

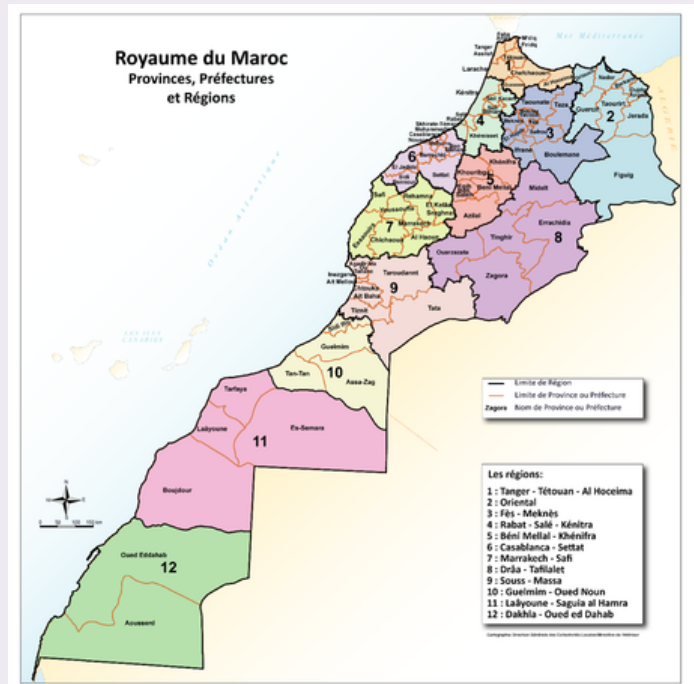


Stakeholder engagement:

Engaging public institutions, industry, civil society, academia and local actors in participatory processes to develop inclusive, locally adapted and socially acceptable solutions.

Who is involved?

The Morocco pilot brings together national energy and water institutions, planning bodies, universities, research centres and local stakeholders.



Expected Outcomes

- A tested and operational EMERGE toolkit, adapted to the Moroccan context.
- Integrated energy-water-agriculture planning scenarios, aligned with the 2030 objectives and the 2050 LT-LEDS.
- A better understanding of the interactions between energy and water systems, including impacts on the residential, transport, industrial, and agricultural sectors.
- Strengthening of institutional and technical capacities at the national and regional levels.
- Operational recommendations for territorially-centred energy transitions.
- A contribution to national and regional energy and climate transition strategies.
- Planning approaches replicable in other arid and semi-arid regions of North Africa.

Communities and public decision-makers participate in co-designing inclusive solutions aligned with national development priorities.