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The DDP Initiative’s Pathways Designer: A new tool to turn climate goals into national realities

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Countries around the world have set ambitious climate targets, which now have to be turned into realistic, implementable pathways that reflect national priorities, development objectives, and local realities. Building on more than a decade of experience from the Deep Decarbonization Pathways (DDP) Initiative[1], the Pathways Designer by the DDP[2] helps countries design and assess long-term transition pathways in a detailed manner suited to inform policy and decision-making. Combining qualitative narratives and quantitative analysis, it supports the development of country-owned strategies for a sustainable and equitable transition, notably in low-data environments.

Making it happen on the ground: lessons from the DDP

Based on analyses conducted under the DDP since 2013,[3] lessons can be learnt on how to support implementation of climate objectives and, in turn, on the key characteristics of an effective implementation-oriented tool.

It requires climate strategies to be firmly **anchored in national contexts**: as the global climate agenda enters a new phase increasingly focused on implementation, reflected in recent calls for a "COP of implementation", the challenge is to translate climate commitments into concrete transformations across economies and societies.[4] Discussions such as those initiated through the Santa Marta dialogue on transitioning away from fossil fuels[5] have highlighted the importance of strengthening country-driven approaches and ensuring that climate implementation strategies are grounded in national realities, including their socio-economic priorities.[6] An implementation-oriented tool must therefore enable countries to design transition pathways that are consistent with global climate objectives while reflecting their own circumstances.

An implementation-oriented tool must also help **bridge the gap between long-term vision and near-term action** by identifying both the actions needed today to enable structural transformations over the coming decades and the immediate emissions-reduction opportunities available in sectors where low-carbon solutions are already mature and can be deployed at scale.

Finally, an implementation-oriented tool must go beyond identifying emissions trajectories or aggregate targets and instead **provide a detailed understanding of the content of the sectoral transformations required**. This means identifying the technologies, infrastructures, institutions and policies that need to change, as well as their sequencing and interdependencies across sectors. A bottom-up approach, starting from sectoral-specific transformations and their physical, economic and institutional dimensions, is therefore essential to turn climate

objectives into actionable pathways.

Description of the Pathways Designer

The Pathways Designer by the DDP[7] takes the next step of operationalizing these methodological insights into a concrete tool aimed at supporting the design of national pathways suited to inform implementation.

First, the Pathways Designer provides a **detailed representation** of the content of the transformations required for implementation. It explicitly represents 6 energy demand sectors,[8] 3 energy supply sectors,[9] as well as the AFOLU (Agriculture, Forestry and Other Land Use) and waste sectors. Rather than deriving sectoral changes from aggregate emissions targets, national decarbonization pathways emerge from the combination of detailed sectoral analyses, making it possible to identify pertinent sectoral policy packages, but also capture cross-sectoral interactions, and assess the feasibility of different transition strategies.

Second, the Pathways Designer is built around the principle that pathways must be rooted in national realities. Long-term transformation pathways developed with the Pathways Designer are initially developed as qualitative **narratives**, which provide a structured yet flexible framework for capturing national-specific sectoral, technological, organizational, institutional and policy changes, including dimensions that cannot be explicitly represented in quantitative models and metrics. By reflecting each country's specific socio-organizational and policy context, the narratives provide a means of accounting for the national circumstances.

These narratives are then translated into quantitative **scenarios** through a set of technical, economic and social assumptions. Rather than relying on generic parameters, the tool uses policy-relevant indicators that capture the drivers of change as meaningful to national stakeholders, enabling users to link strategic policy choices with their long-term implications.

Its **flexible architecture** allows the structure and content of the Pathways Designer to be adapted to the specific context of each country, including different levels of capacity constraints. In practice, this means that each component of the Pathways Designer can operate under 3 levels of granularity on the drivers, assumptions and qualitative elements, from a more aggregate structure to a more disaggregated representation to capture a higher level of detail. The level of granularity can be chosen independently, allowing users to tailor the level of analysis to the importance of each sector, the availability and quality of data, and national analytical capacity.

Finally, the Pathways Designer helps bridge the gap between long-term vision and short-term decision-making by defining **pathways over successive 10-year periods**, providing a concrete representation of how transformation trends evolve over time. It starts from long-term transformation targets and identifies the short-term policy actions and investment decisions needed to achieve them, helping users anticipate technological and infrastructure lock-ins, stranded assets, and the conditions required to avoid carbon-intensive development pathways.

In practice, enabling nationally grounded pathways and policy action

Designed to operate across a wide range of national contexts, including those with limited modelling capacity, the Pathways Designer supports governments and research institutions in developing deep decarbonization

pathways that are not only ambitious but also grounded in countries' economic, social and institutional realities. The tool is currently implemented in 3 countries, Côte d'Ivoire, Uzbekistan, Sierra Leone, with 3 local teams, namely: the UNESCO Chair of Foresight, Future Studies, and Sustainable Regions – CUAPTD; the Center for Economic Research and Reforms (CERR), under the Administration of the President of the Republic of Uzbekistan; and the Department of Electrical and Electronic Engineering at the University of Sierra Leone.

Developed as an **intuitive modelling platform**, it can be used not only by modelling specialists but also by policymakers, government officials and other national stakeholders. By making the assumptions underlying transition pathways transparent and easy to explore and by strengthening the importance of narratives expressed in a non-technical language, it facilitates dialogue between technical experts and decision-makers, helping to build a shared understanding of the choices, trade-offs and uncertainties associated with long-term decarbonization strategies. As DDP partners in Uzbekistan put it, "the DDP [designer] tool has become an important instrument in our policy engagement, including discussions with senior decision-makers such as the Advisor to the Uzbekistan President on Economic Affairs. Its ability to translate policy narratives into quantified emissions impacts has provided a strong evidence base for decision-making. The tool informed our analysis on reducing PM2.5 concentrations in the capital city of Tashkent, contributed to the development of the national Clean Air program, and supported policy measures later reflected in a Presidential Decree."

This role is particularly valuable in a context where the number of climate models and emissions calculators continues to grow, while modelling expertise often remains concentrated in research institutions, consultancies or international organizations. The Pathways Designer helps bridge this gap by enabling governments to develop, adapt and interpret their own transition pathways in collaboration with technical experts, strengthening national ownership and supporting more informed, evidence-based decision-making. The Pathways Designer can support a wide range of policy processes, including the preparation of long-term climate strategies, national roadmaps informing the conditions for transitioning away from fossil fuels, sectoral transition planning, cross-sector coordination, or the design of integrated development and decarbonization pathways.

For example, in Sierra Leone, the in-country team works closely with the Ministry of Energy to advance national priorities on energy transition and green growth. Through this collaboration, they support the implementation and continued refinement of the Energy Transition and Green Growth Plan, which is under the guidance of the Presidential Initiative on Climate Change, Renewable Energy and Food Security (PI-CREF) and the Ministry of Energy. The work also strengthens national capacity to further develop, refine and sustain these policy frameworks over time.

Next step is to scale the DDP approach through the deployment of the Pathways Designer across new countries and contexts.

1

https://ddpinitiative.org/

2

https://ddpinitiative.org/pathways-designer/

IDDRI (2026), Pathways Designer by the DDP (version V1.0), Paris, Intitut du Développement Durable et des Relations Internationales

3

DDP (2024). *DDP Annual Report 2024. Making it happen: national pathways to net zero* . IDDRI
DDP Report (2025). *A Decade of National Climate Action: Stocktake And The Road Ahead* . IDDRI.

4

COP30: Addressing implementation | IDDRI and https://www.iddri.org/fr/publications-et-evenements/billet-de-blog/cop-30-sur-le-climat-t-franchi-le-cap-dune-cop-de-la-mise

5

https://transitionawayconference.com/

6

https://www.iddri.org/fr/publications-et-evenements/billet-de-blog/transition-hors-des-energies-fossiles-comment-la

7

https://ddpinitiative.org/pathways-designer/

8

Passenger transport, freight transport, energy & process emissions Intensive Industries, light Industries, residential buildings, commercial buildings and public services.

9

Extractive energy industries, power production, other energy industries.

CLIMATE CARBON NEUTRALITY