



DEEP
DECARBONIZATION
PATHWAYS
PROJECT

LCS-RNet meeting – 6/7 September 2016 – Wuppertal

**How to explore and exploit the synergies
between SDGs and low carbon societies?**

**Methodological lessons from the DDPP
and research perspectives**

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Investigating the synergies between Climate mitigation and SDGs

The methodological challenges of articulation

- **Articulating Objectives** : Global GHG emission constraints vs domestic development objectives given country-specific conditions
- **Articulating the focal lenses**: Economy-wide objectives vs complex combination of detailed transformations
- **Articulating time horizons**: Long-term objectives vs short-term actions needed to keep the window of opportunity open

+ an overarching challenge:

Articulating research and decision making

Articulating objectives

Ad-hoc, country-driven assessment methods

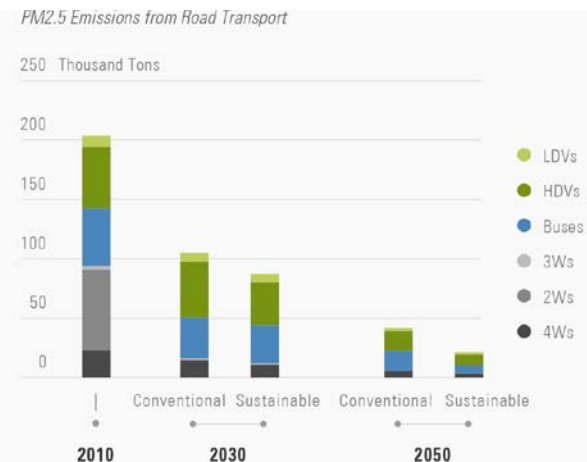
16 independent country research teams autonomous in their methods
(≠ generic model)

- Ad-hoc national model structure, according to country-specific questions at the crossroads of CC and SDGs

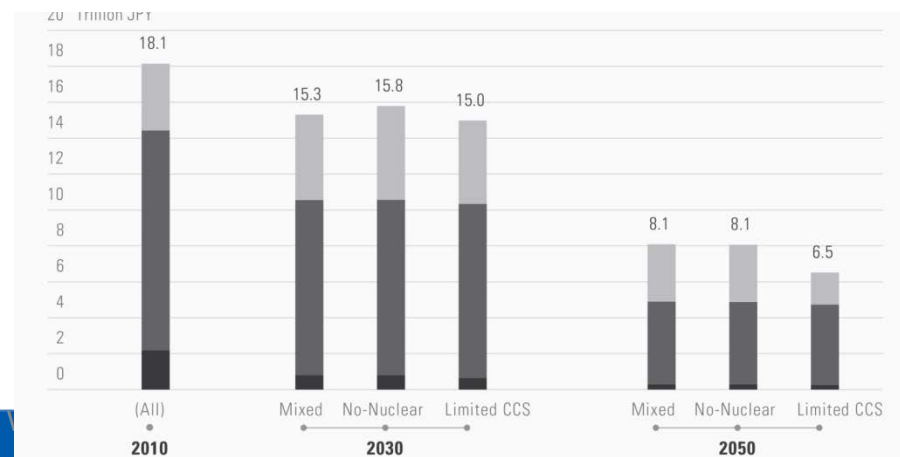
Ad-hoc national model structure

Accounting	Bottom Up	BU based hybrid	Mixed linked BU+TD	Top Down based hybrid	National IAM
US	UK	Canada	Australia	France	None
Indonesia	Russia		Japan	Brazil	
South Korea			Italy	Canada	
Mexico			China		
			South Africa		
			India		

Air pollution benefits (India)



Energy security for energy importers (Japan)



Articulating objectives

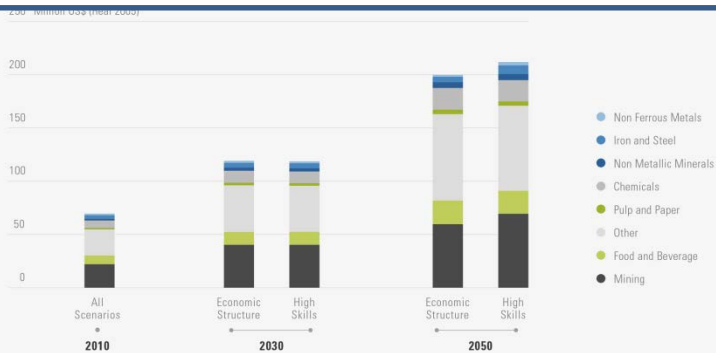
Ad-hoc, country-driven assessment methods

16 independent country research teams autonomous in their methods
(≠ generic model)

- Ad-hoc model model hybridization according to country-specific questions at the crossroads of CC and SDGs
- A mix of methods to design comprehensive, country-relevant stories, combining complex models and “out-of the box” assessment

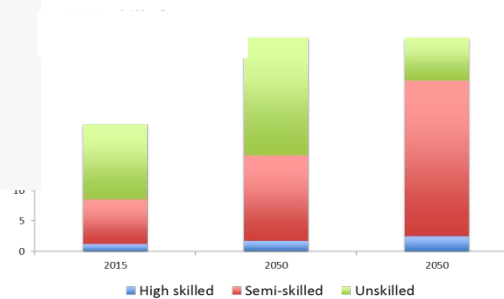
A mix of methods to design comprehensive, country-relevant stories

Industry value added per sub-sector

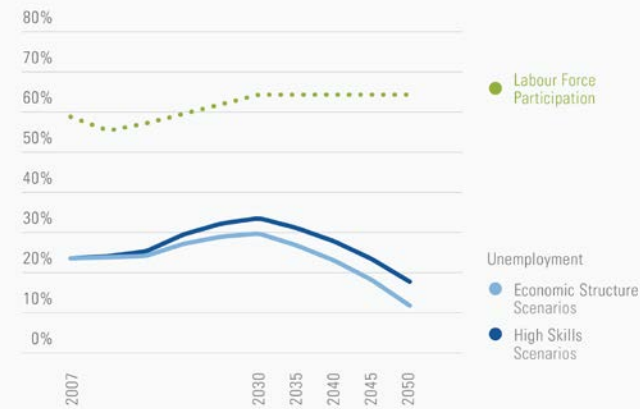


SOUTH AFRICA DDPP ANALYSIS

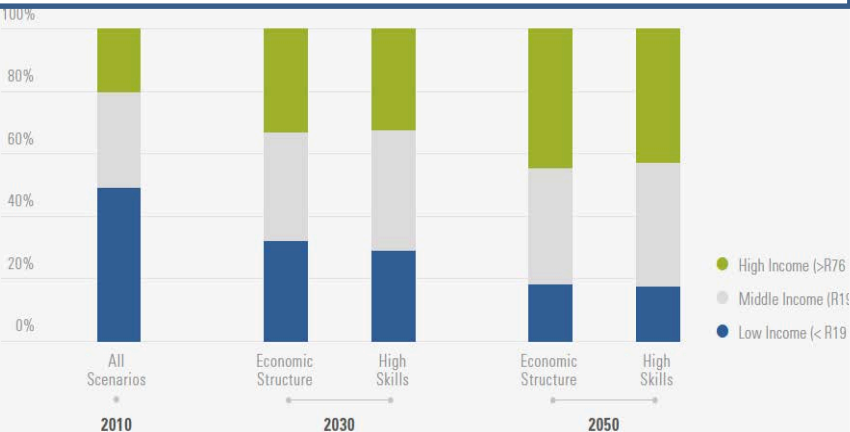
Skills profiles



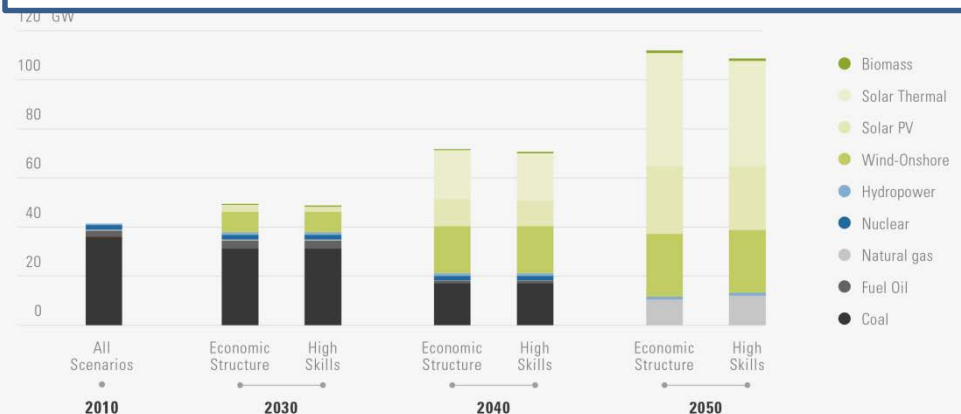
Unemployment rate



Percentage of population per income group



Total electricity generation capacity



A mix of methods to design comprehensive, country-relevant stories

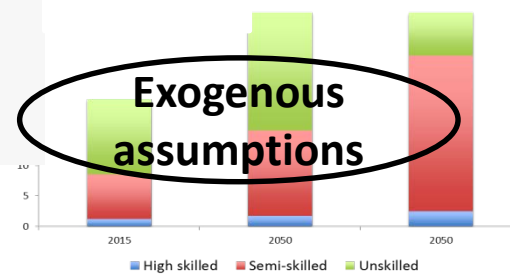
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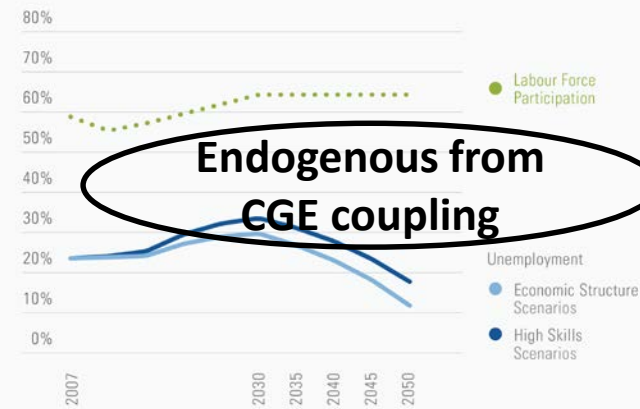
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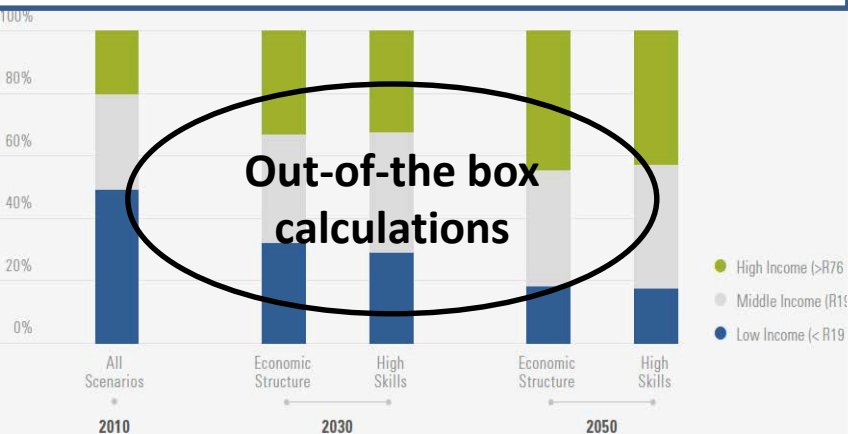
Exogenous assumptions



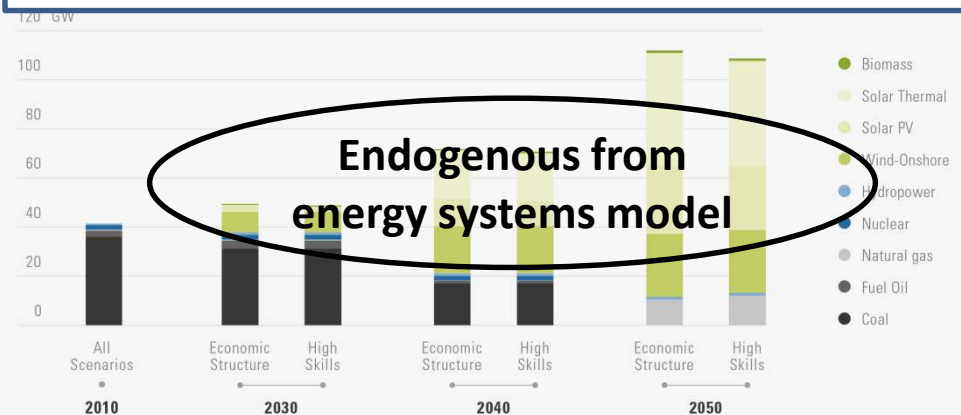
Unemployment rate



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Articulating focal lenses

The DDPP dashboard

A collective reporting template decomposing energy-related carbon emissions trends into their drivers, incl. key development metrics

(<http://deepdecarbonization.org/research-methods/ddpp-collective-toolkit/>)

- A “common dictionary” to enable comparison and mutual learning across country research teams on the details of country scenarios
- Articulating national modelling outcomes and “out-of-the box” assessments (≠ modelling results template)
- Unified metrics to build global trends as a composite of on-the-ground transformations
- A communication tool with decisionmakers to inform implementation (explicit levers at their jurisdictional level)

Articulating time horizons

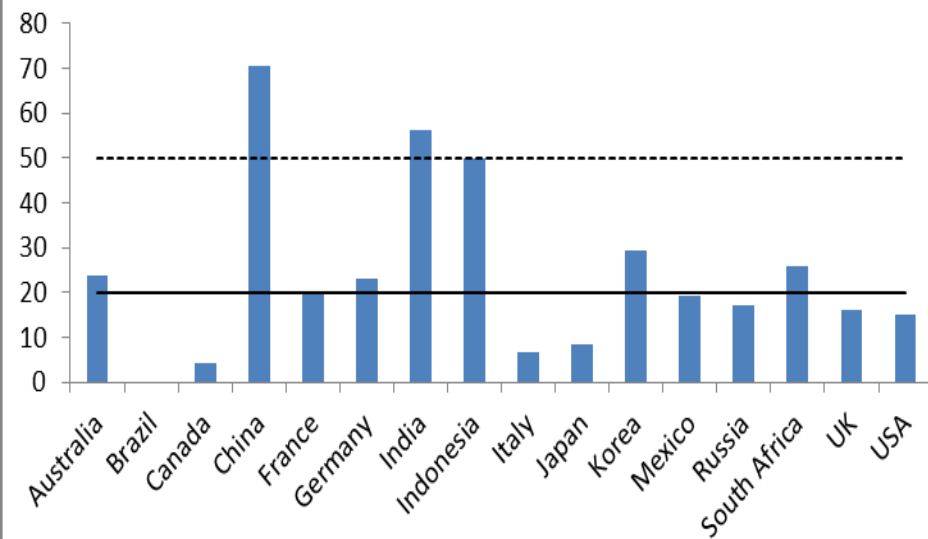
The Pathways approach

Taking a long-term perspective to inform the consequences of short-term decisions

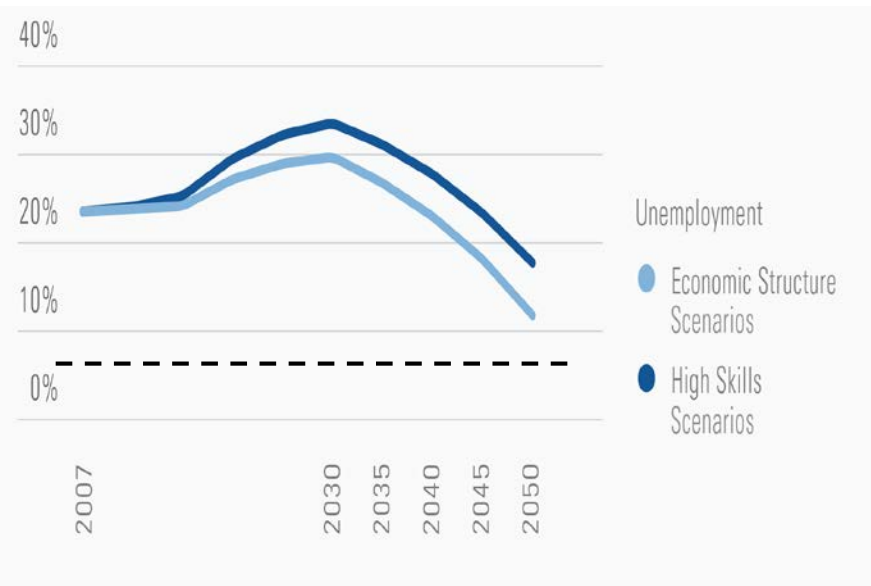
- Granular metrics to benchmark national transformations against long-term domestic and collective ambition (attractors \neq targets)

Attractors towards collective and domestic objectives

2050 carbon intensity of power generation (gCO₂/kWh) in the most ambitious DDPP scenario



Unemployment rates in South African DDPs



Articulating time horizons

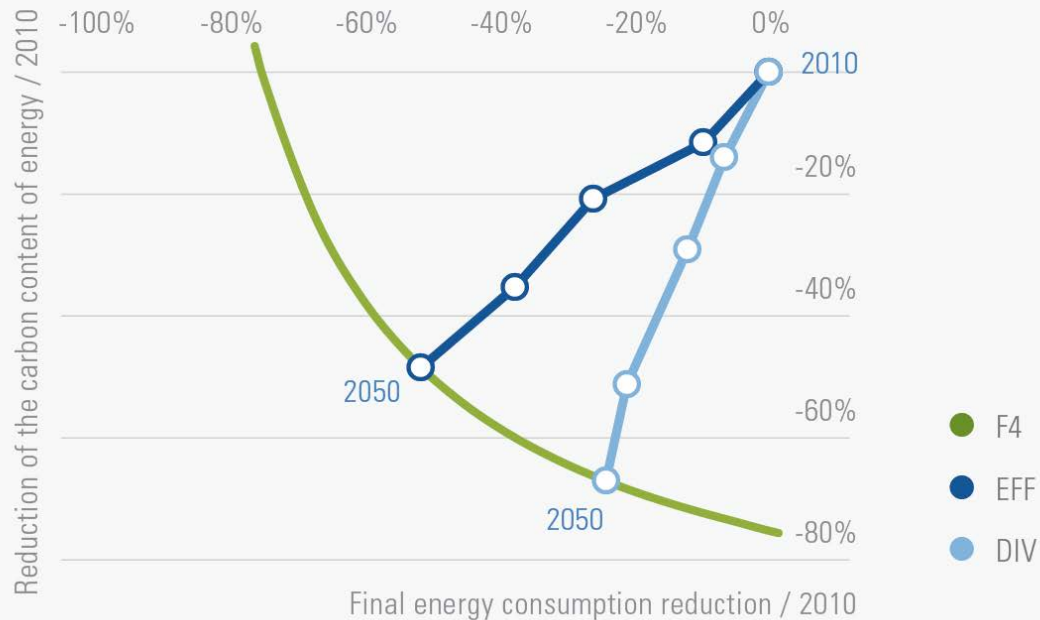
The Pathways approach

Taking a long-term perspective to inform the consequences of short-term decisions

- Granular metrics to benchmark national transformations against long-term domestic and collective ambition (attractors \neq targets)
- Multiple scenarios make together robust and resilient transformations against uncertainties (\neq cost optimization)

Multiple scenarios to inform a dynamic management of the transition

Figure 3: DIV and EFF pathways, according to demand reduction and energy-decarbonization on 2010



NB: the dots on the pathways mark decades 2020, 2030, 2040 and 2050

Articulating time horizons

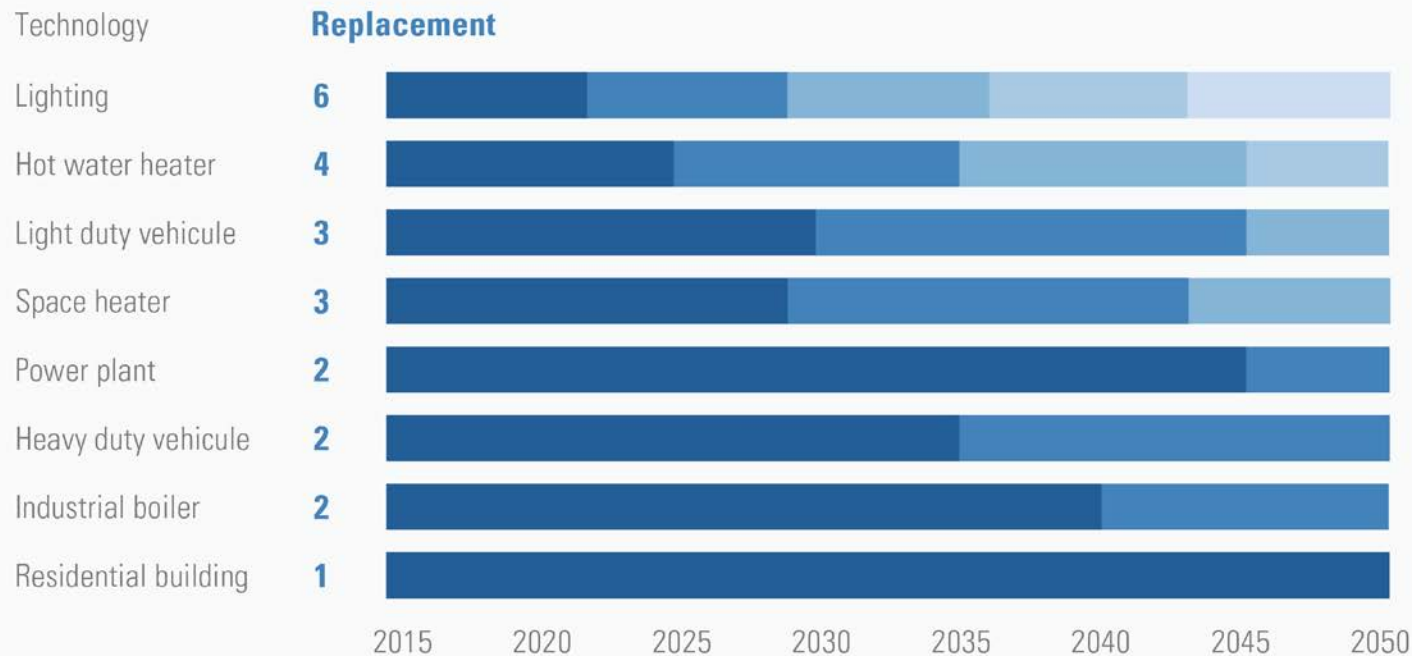
The Pathways approach

Taking a long-term perspective to inform the consequences of short-term decisions

- Granular metrics to benchmark national transformations against long-term domestic and collective ambition (attractors \neq targets)
- Multiple scenarios make together robust and resilient transformations against uncertainties (\neq cost optimization)
- Physical representation of inertias in the system to inform time sequencing of actions

Analyzing time requires detailed physical representation

Figure 24. Equipment Infrastructure: opportunities between 2015 and 2050



Perspectives

Policy needs in the post-COP21 context

Policy milestones	Objectives	Needs
Stocktaking dialogue	Track collective progress to identify areas where action must be accelerated on mitigation and development	Common template decomposing the drivers of emissions and key development indicators
LT-LEDS	Enable benchmarking of actual transformations vs. domestic changes required to meet the climate and development goals	Standard for designing useful long-term trajectories consistent with 2C and country conditions
Revision of NDCs	Define more ambitious national emission targets, consistent with domestic capacities and sustainable development	In-country assessment methods (incl. models) able to articulate mitigation and development

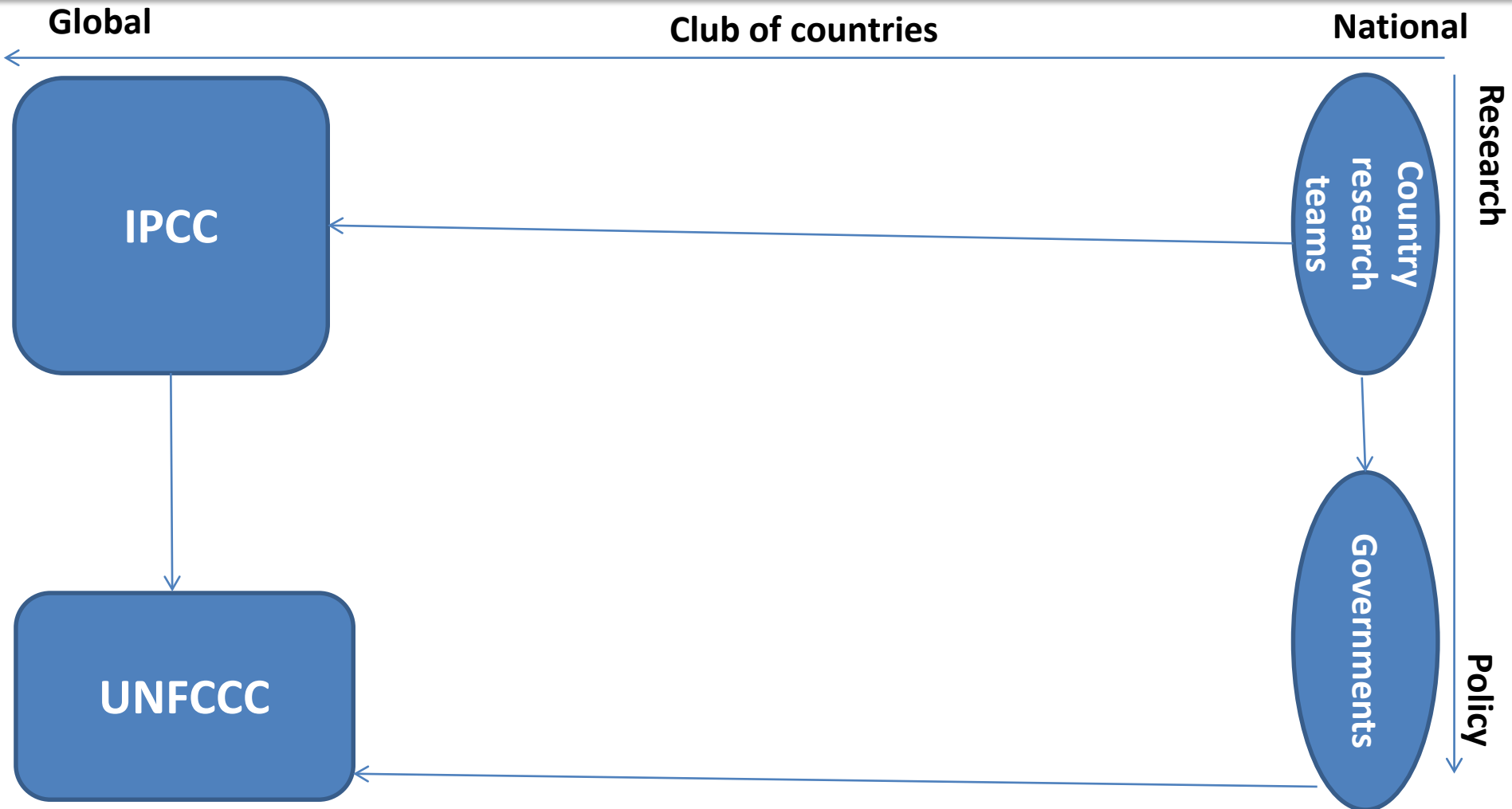
Perspectives

How can the research community be useful?

- ❑ A quite clear research agenda to address the policy needs
 - Develop a common reporting template to structure the research community & enable engagement with decisionmakers
 - Building databases of scenarios into the common template
 - Develop collaboratively the next generation of national models
 - Organize capacity building in a large set of new countries

- ❑ Lots of pieces exist from the collaborative research projects and individual country teams ... but dispersed and not coordinated
 - Need for an international research community with a sense of ownership in each country and a coordinated functioning
 - Back to the issue of articulation btw research and decision making

Articulating research and decision making



Articulating research and decision making

