



Energy research Centre of the Netherlands

The climate change negotiations and the role of technology

Heleen de Coninck
YES-DC DEO-day, May 29, 2010



International institutions

Build a coalition to address a collective action or cooperation problem

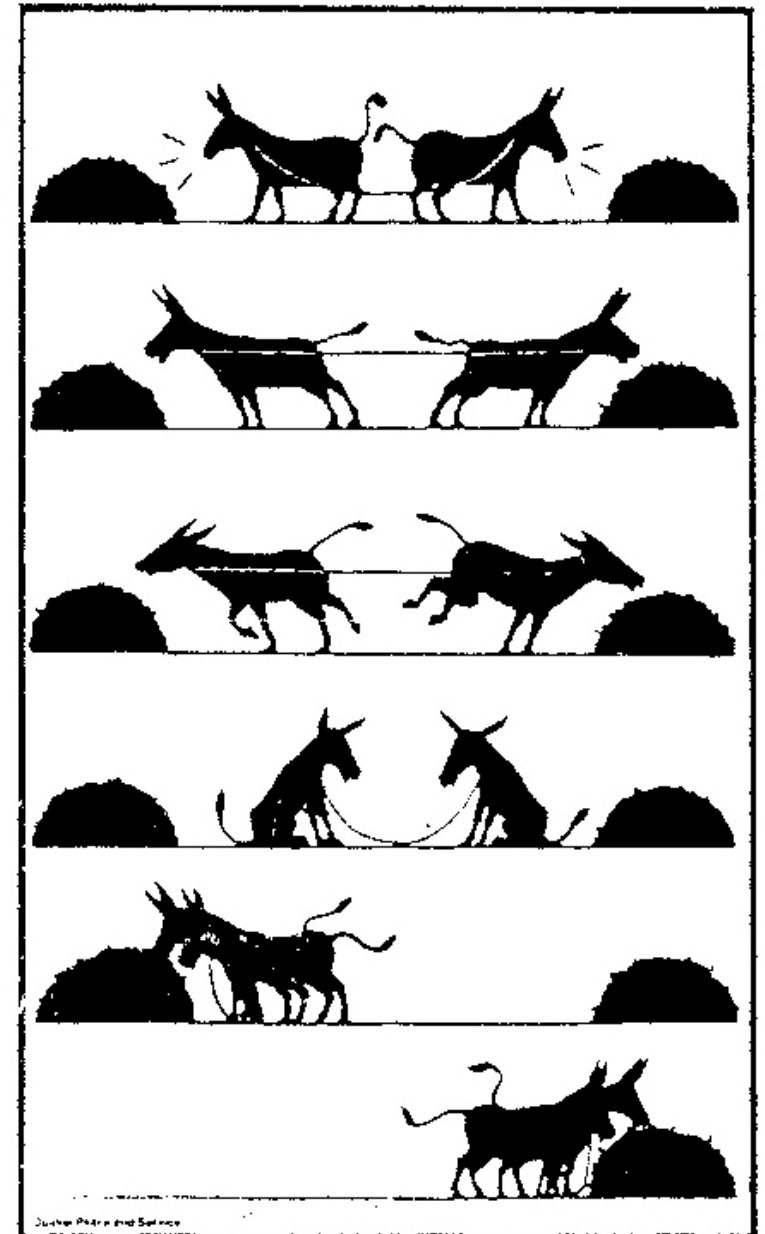
In the UN, actors are exclusively states

International agreements: Characterised by non-enforceability

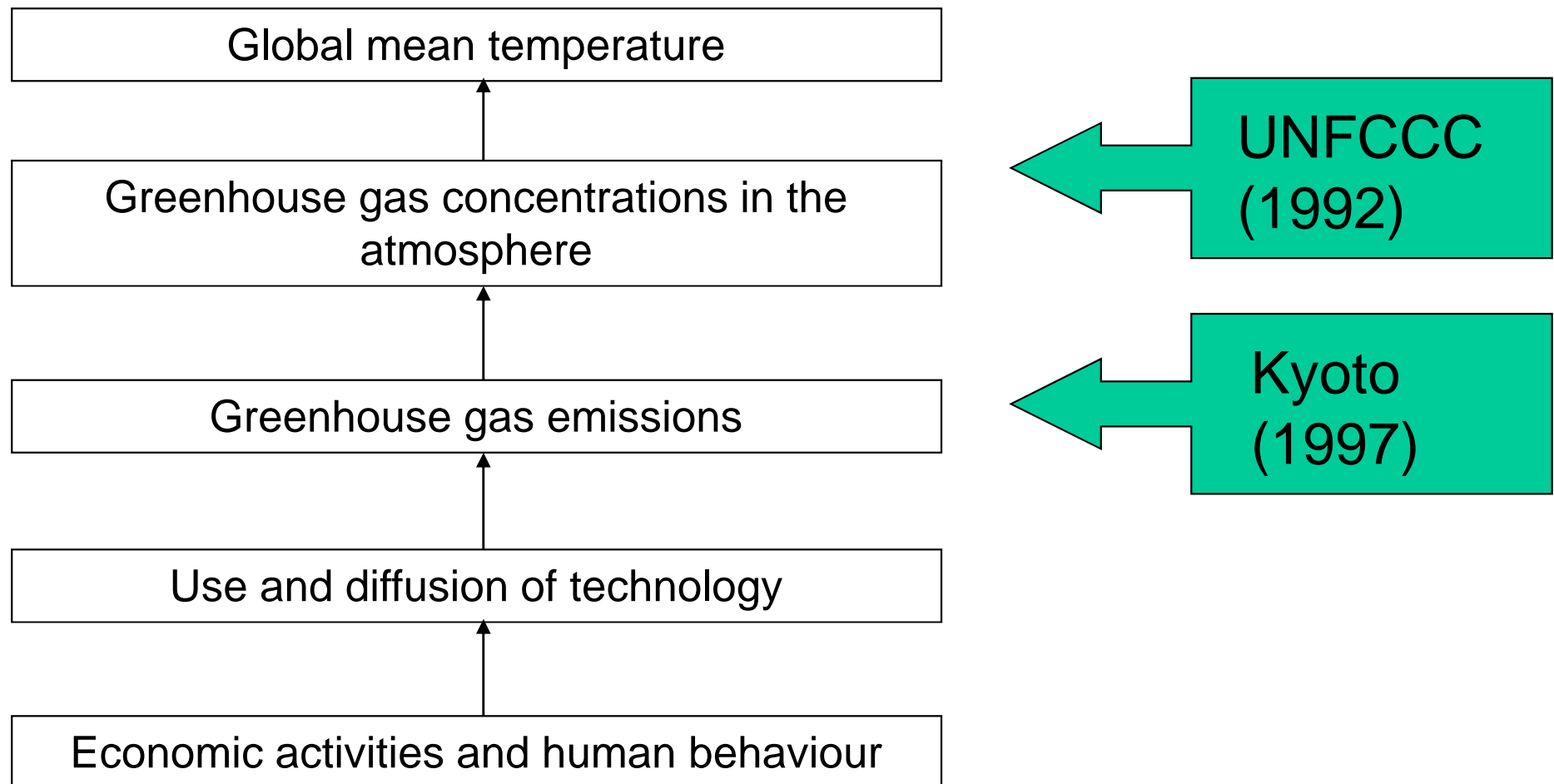
- Only exceptions: UN Security Council and WTO
- International environmental agreements: soft power and self-enforcing

Preventing climate change: global public good problem

- Non-excludable benefits
- incentives for free-riding

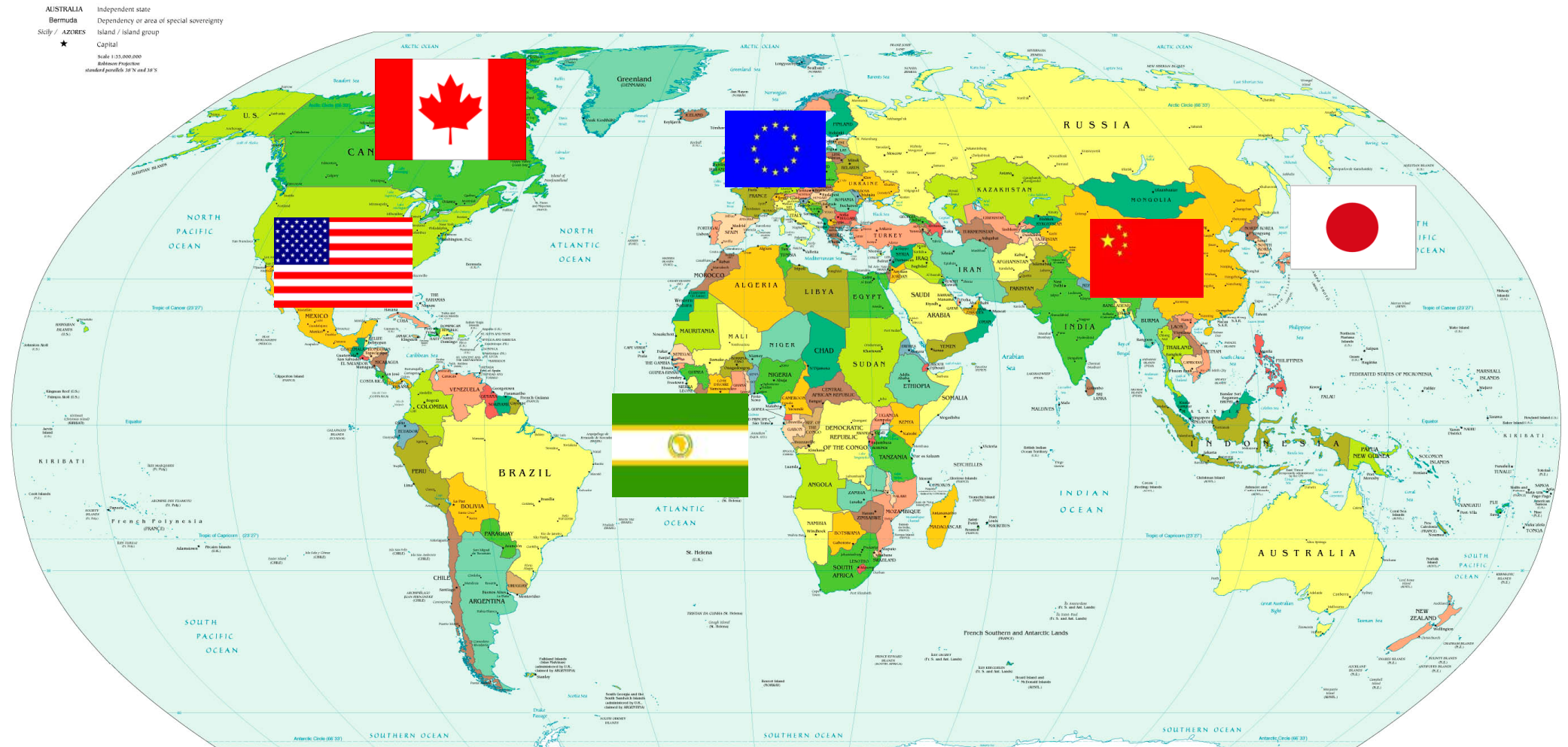


Climate change causal chain and policy points of intervention



What has happened to Kyoto?

Political Map of the World, April 2001



Conclusion: Kyoto has led to some emission reductions, but insufficient to address the problem

April 2001

Map of the World (Robinson projection)
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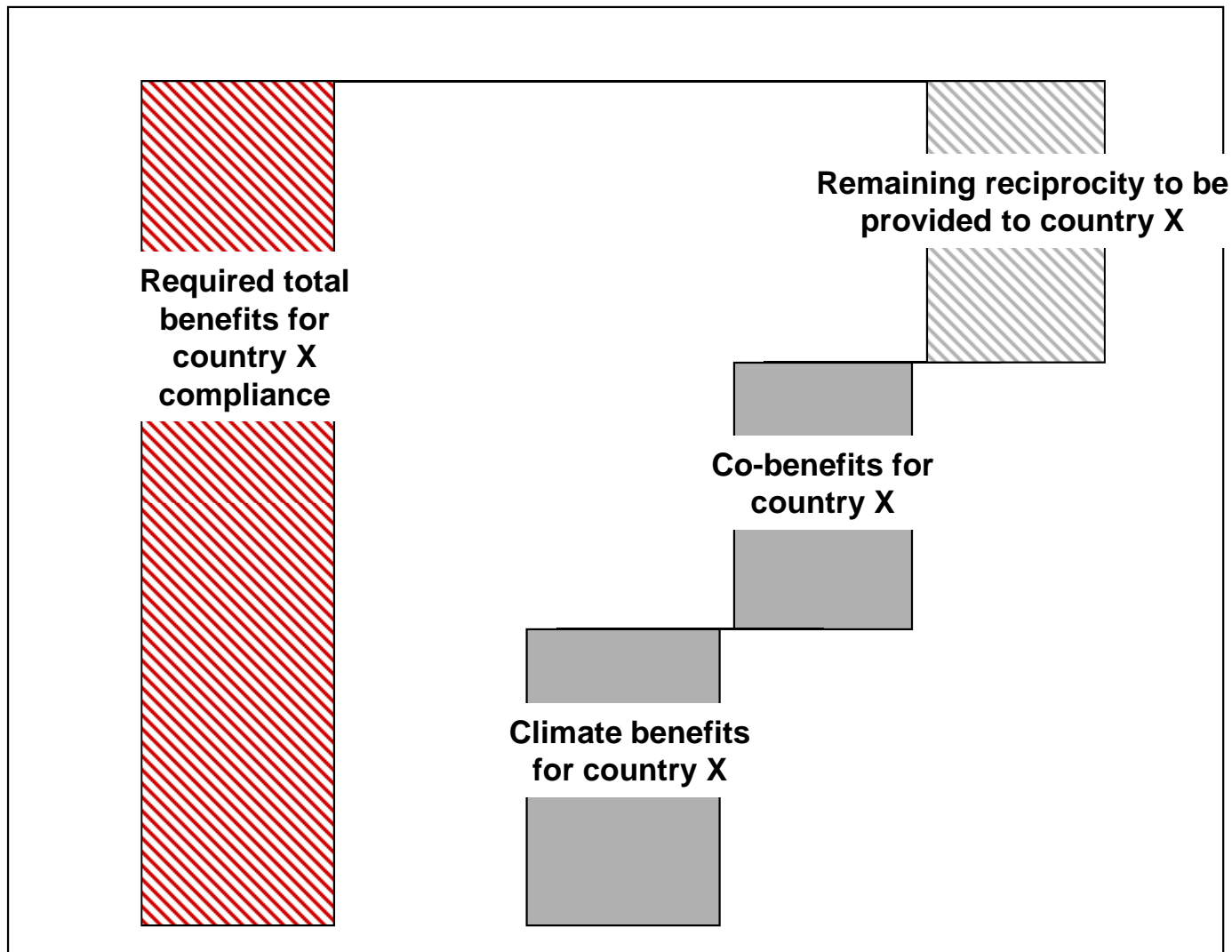
Colors represent political boundaries and are not necessarily authoritative.

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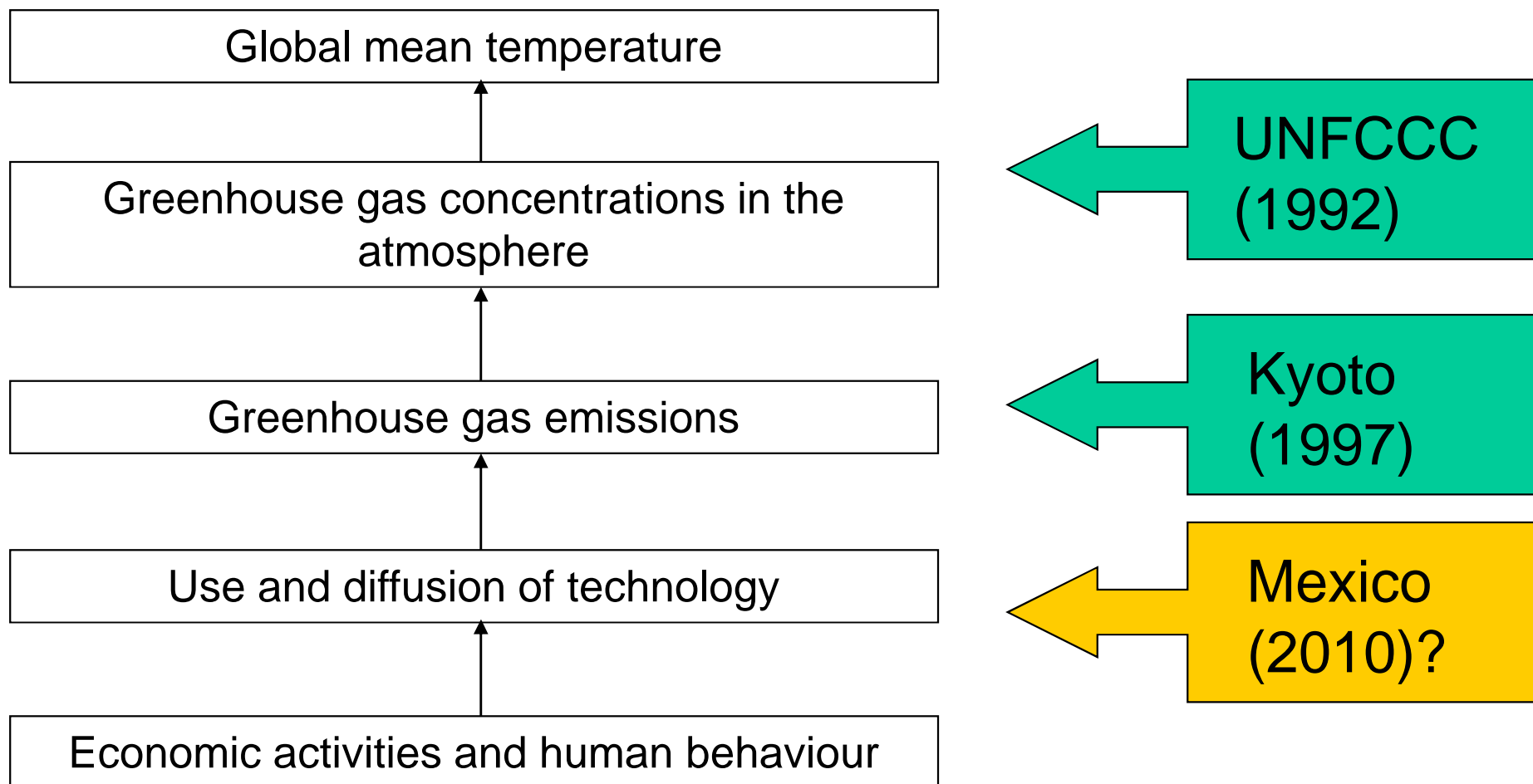
Core of the problem - no simple solution

- Most emissions: Industrialised countries, while impacts in poor countries
- Costs of reducing emissions are high, while benefits accrue to others
- Countries act as self-interested rational actors
- Emission reduction agreement is not in the interest of those that should most urgently reduce emissions
- Little means of enforcement of international agreement
- Self-reinforcing agreements: “attractive to sign and want to carry out the terms of agreement”
- Reciprocity “perceived equivalence of costs and benefits between parties”

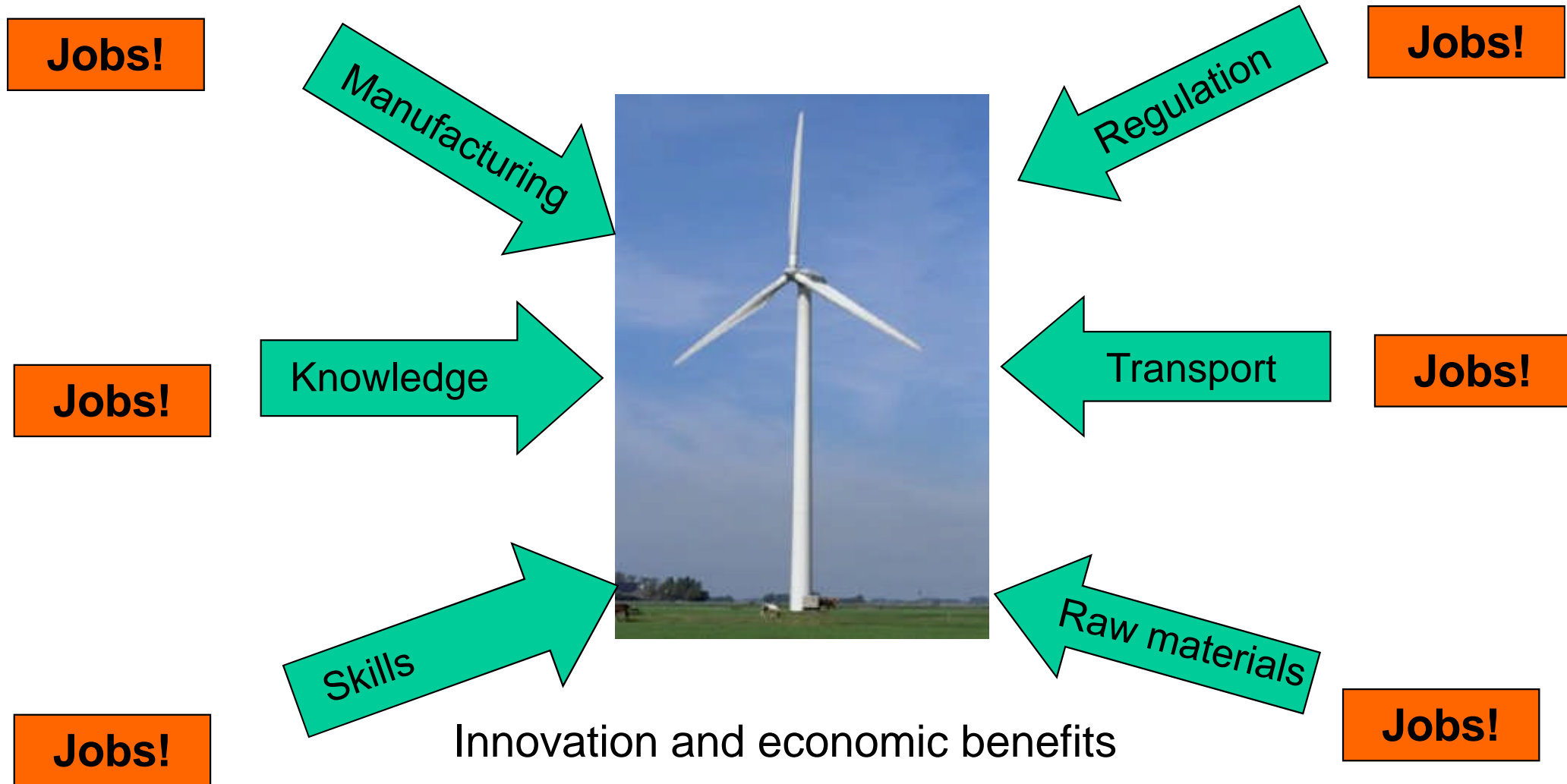
Three means of reciprocity



Metrics with reciprocity?

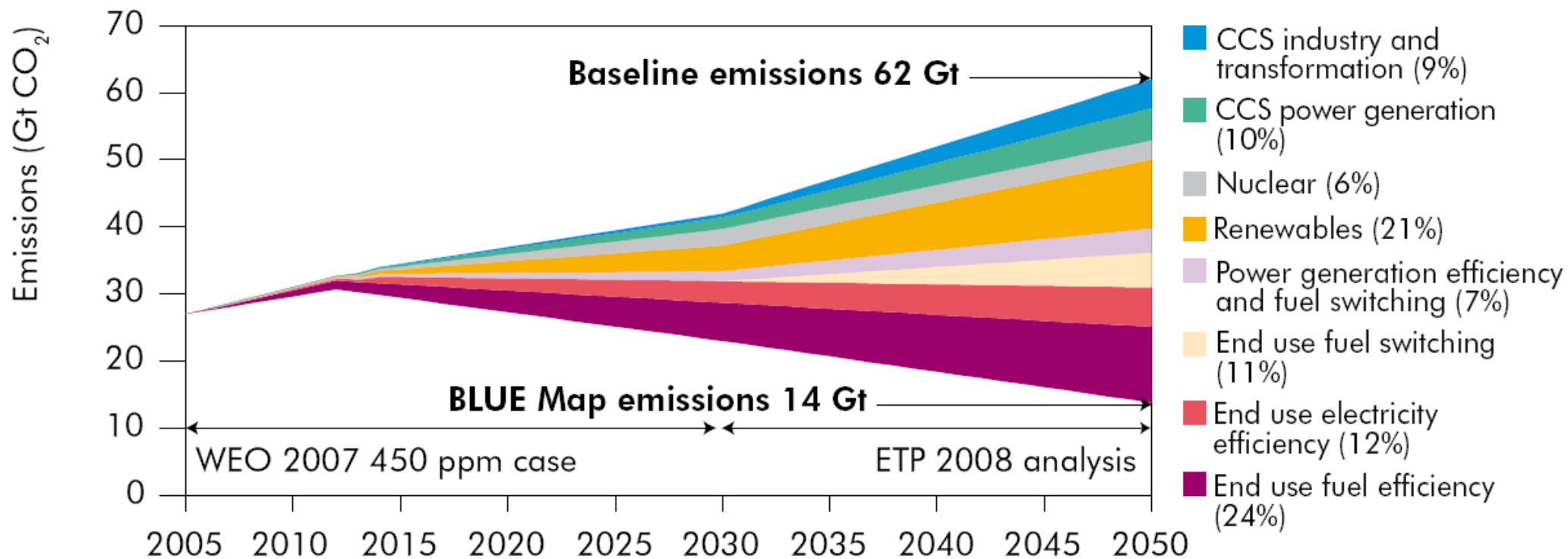


Technology and reciprocity



Innovation and economic benefits
First-mover advantages and export potential
Reducing market inefficiencies
Opportunities, not constraints

Technology: we think we know what we want



Theorising about technology...

Invention

Innovation

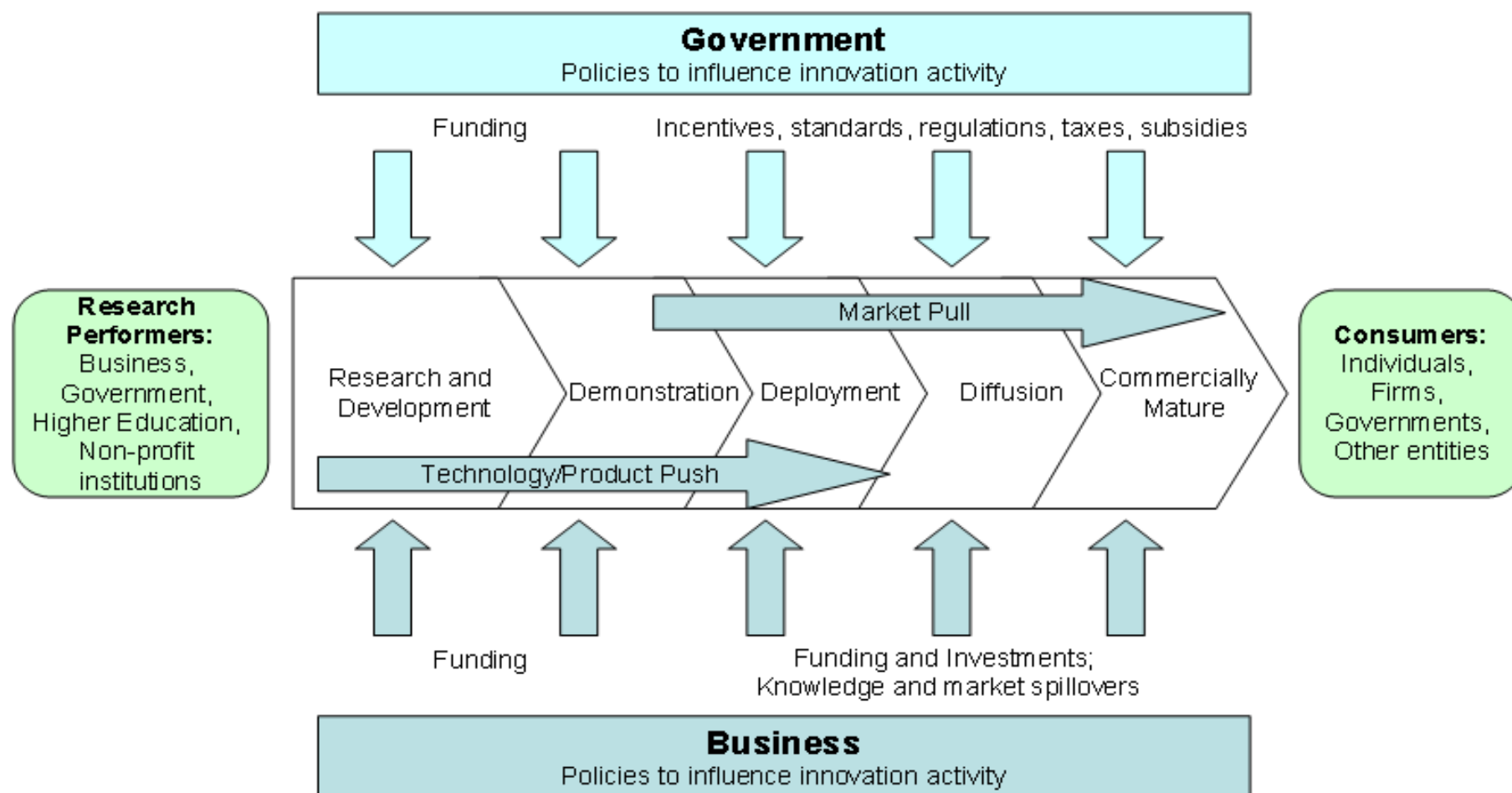
R&D

Demonstration

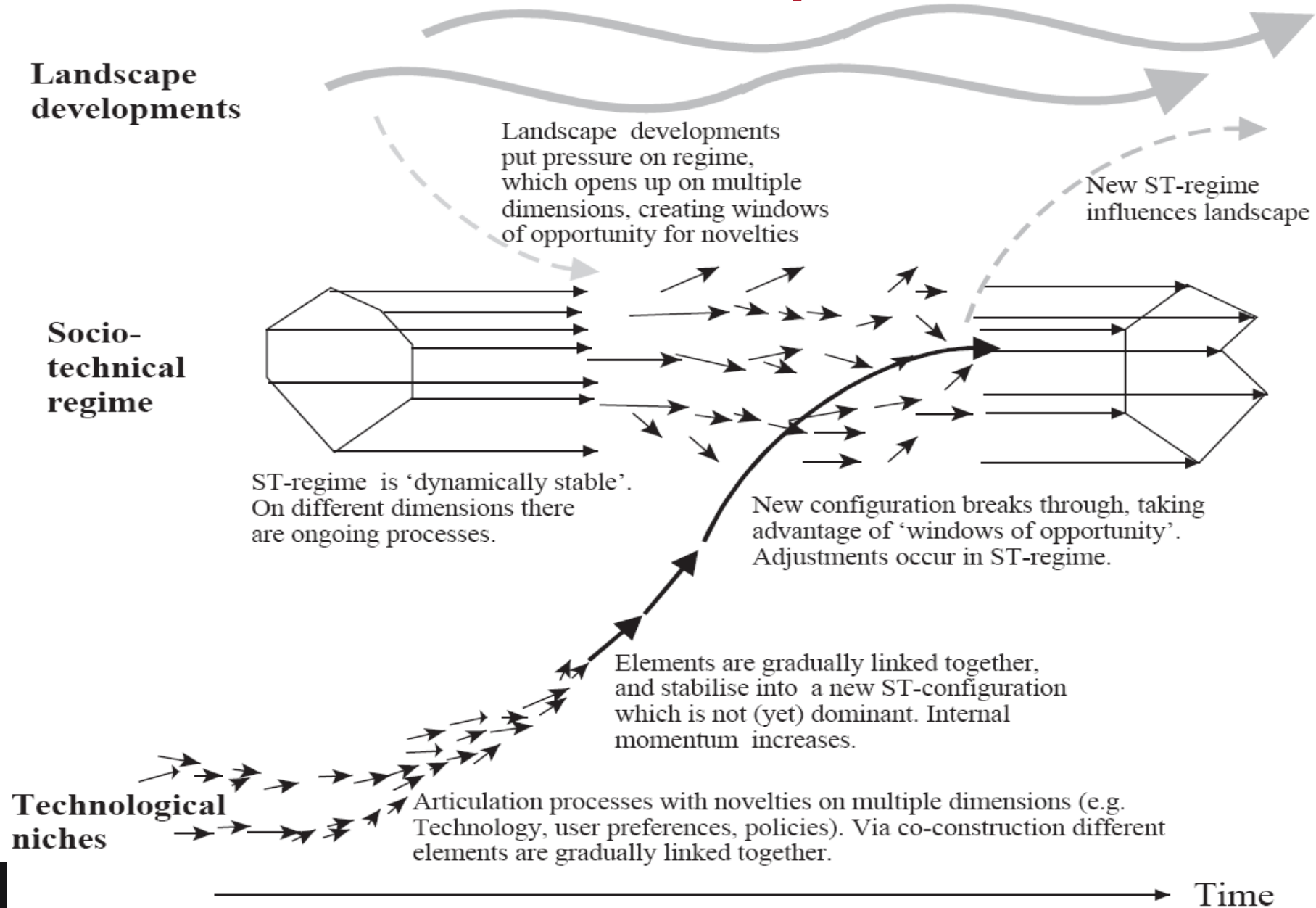
Deployment

Diffusion

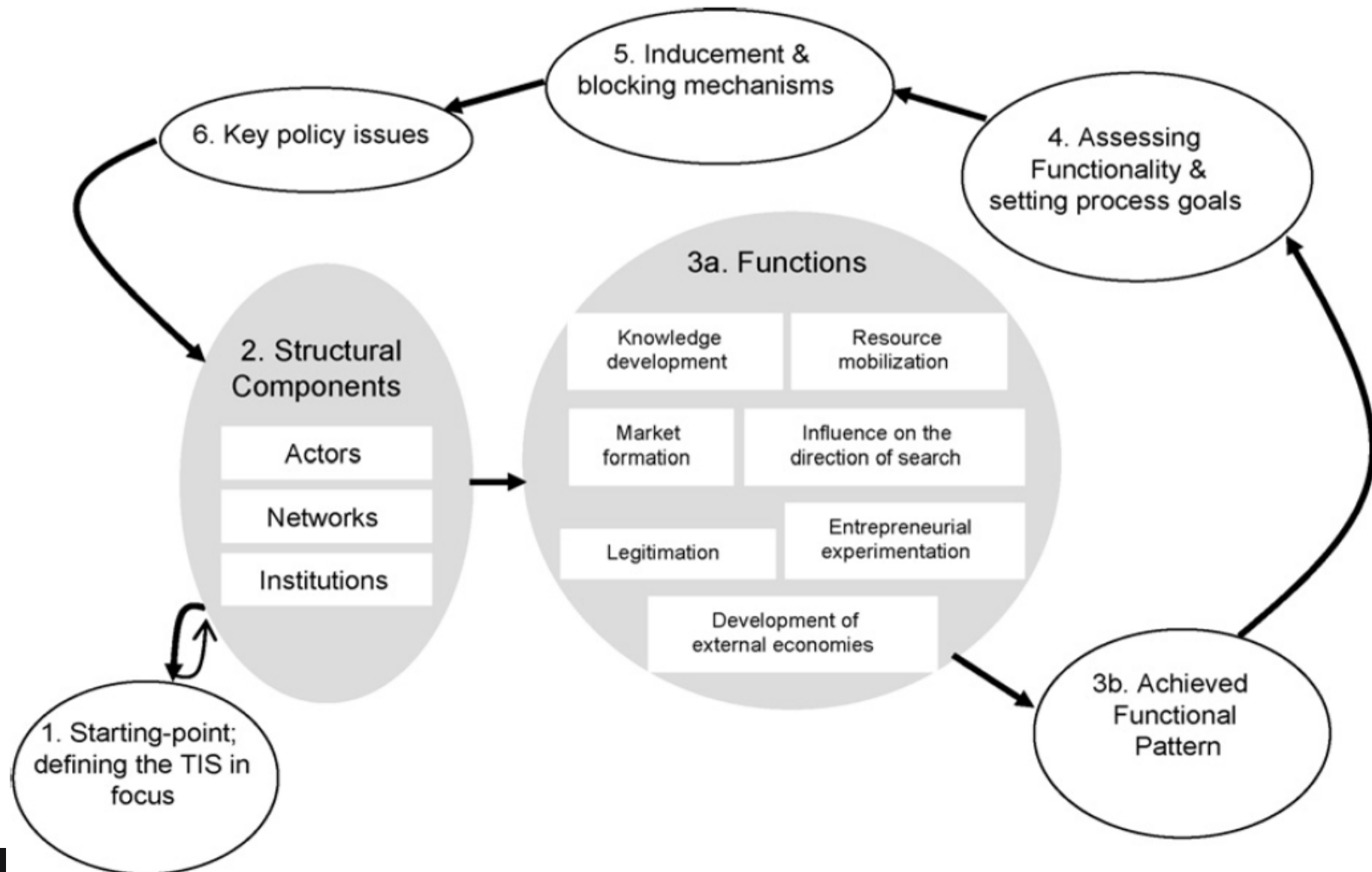
... from economic approaches...



... to socio-technical developments....



and technological innovation systems



Technology pre-Copenhagen climate negotiations

UNFCCC (Art. 4.1c, 4.5)

- Parties should cooperate on advancing technology
- Annex-I should transfer technologies to non-Annex I

Current Convention sources and vehicles for technology transfer finance

- Technology Needs Assessments – demand for technology
- Global Environment Facility – fund for technology transfer
- CDM (and JI) – market mechanisms

Expert Group on Technology Transfer (EGTT)

- Find ways to advance development and transfer of technology
- New dynamic: from North-South technology transfer to international cooperation

Existing examples of technology cooperation

Type 1: Knowledge sharing and coordination	<ul style="list-style-type: none">• Carbon Sequestration Leadership Forum (CSLF)• Asia-Pacific Partnership (APP)• Methane to Markets (M2M)• Energy Star bilateral agreements• Task sharing in IEA-Implementing Agreements
Type 2: Research, Development & Demonstration	<ul style="list-style-type: none">• European Organisation for Nuclear Research (CERN)• ITER fusion reactor• Cost-sharing in IEA-IA• Solvent Refined Coal II
Type 3: Technology transfer	<ul style="list-style-type: none">• Multilateral Fund under the Montreal Protocol• Global Environment Facility (GEF)
Type 4: Standards, mandates, incentives	<ul style="list-style-type: none">• International Convention for the Prevention of Pollution from ships (MARPOL)

Situation after Copenhagen

Mitigation: only pledges

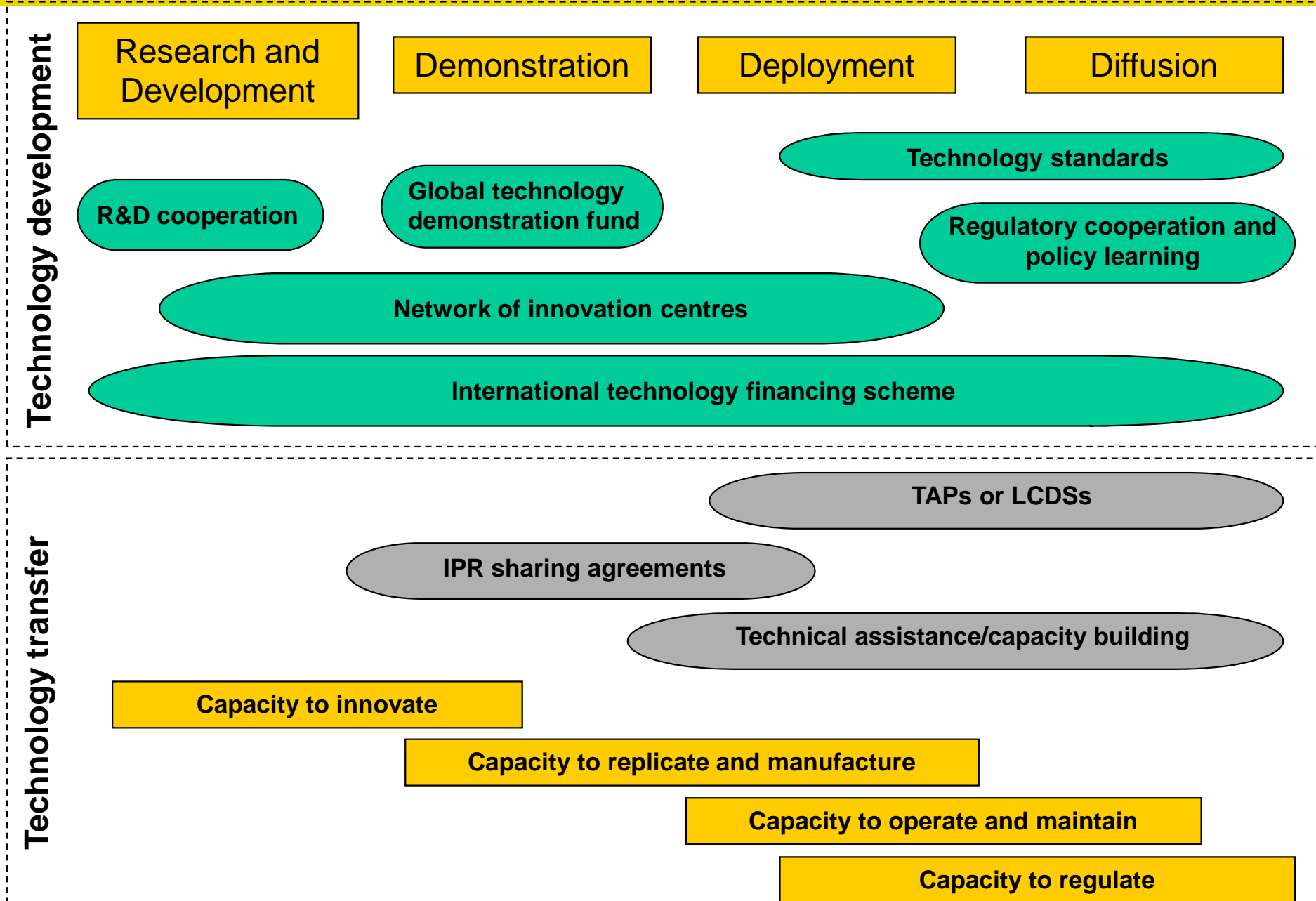
Copenhagen Accord

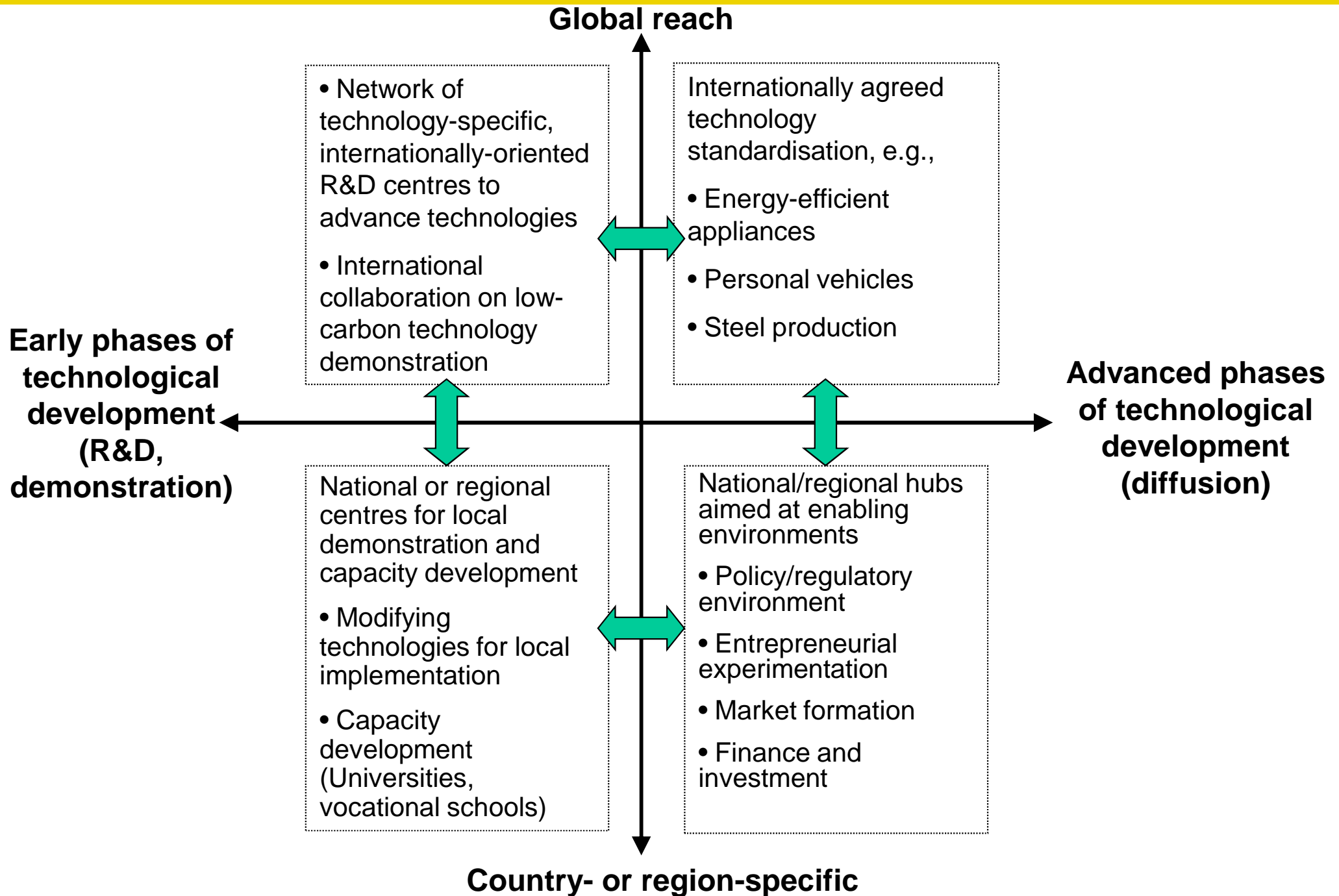
- Technology Mechanism: agreed but not clear what the content will be
- Finance:
 - 2010-2012: USD 10 billion/yr (new and additional)
 - From 2020 onwards: USD 100 billion/yr

Developing countries

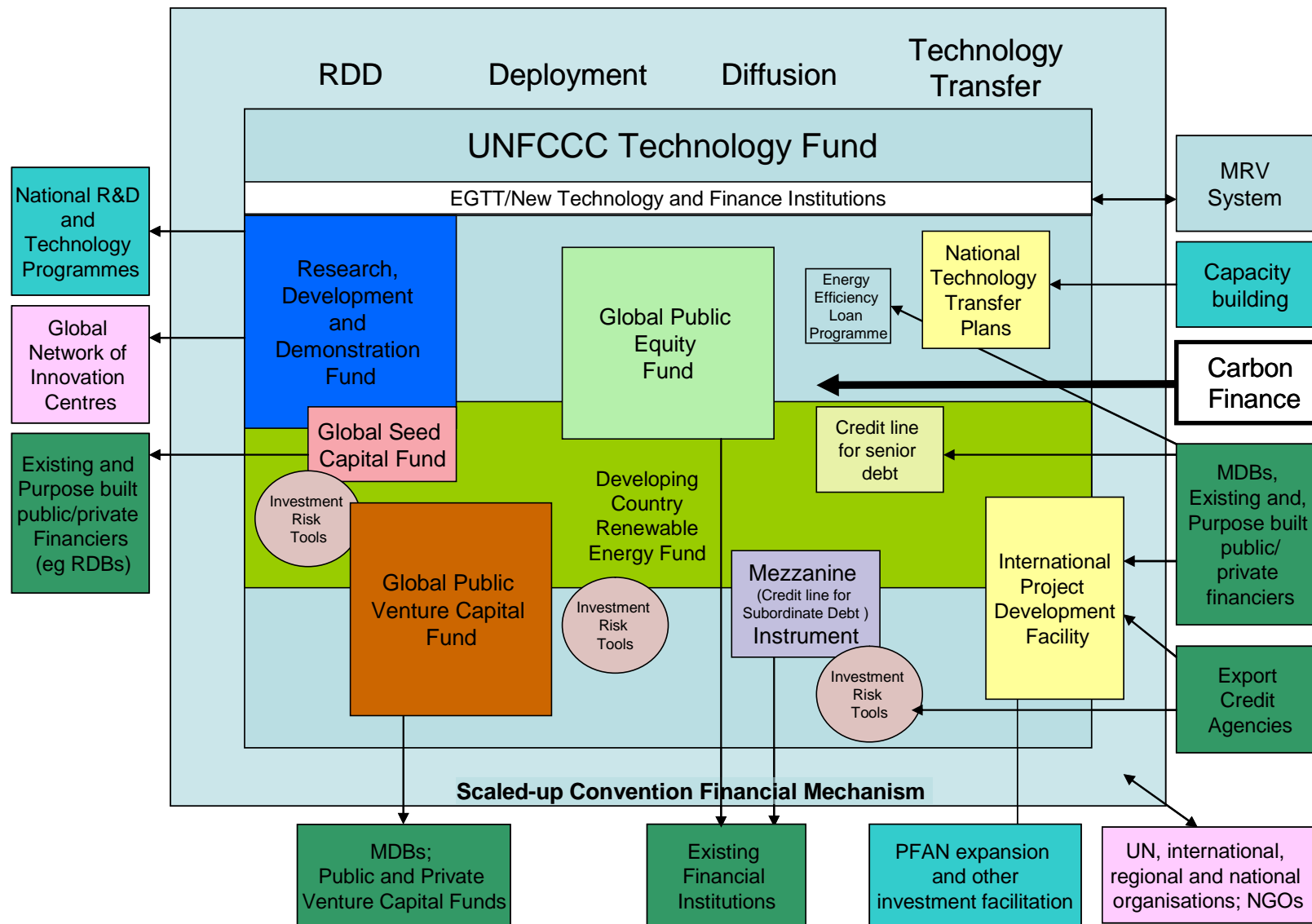
- Recognition domestic policy (Low-carbon development strategies, NAMAs)
- Benefit from enhanced technology and finance framework







Slowly the complexity is increasing....



Are we witnessing a changing paradigm?

Cap-and-trade: from dominant international policy paradigm to optional domestic instrument

Increasing complexity

International mechanisms for technology and finance that help national policy in developing countries

Remaining questions:

- Can such an outcome provide sufficient reciprocity?
- Are industrialised countries really willing to share technology?
- What is successful technology transfer policy?

*Lindström/Nilsson*