Options and Processes for Establishing Medium to Long Term Technology Governance Architecture towards Low-Carbon Society

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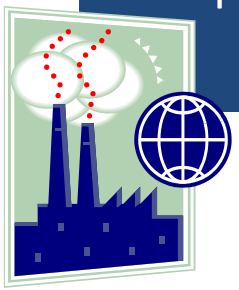
Low-carbon world requires diffusion of low-carbon technology throughout the world (no matter what the short- to mid- term international regimes would be)

Negotiation is inter-GOVERNMENTAL

GAP

Technology is owned by companies (not nation states)



A key for the next generation of institutional architecture is effective configuration of actors (companies, NGOs, IOs, etc) and new form of networking and partnerships

Various actors involved in technology transfer – Partnership needed

Actors	Government	Private Sec.	Local Community
Mobility of people (across borders)	−	+++	−
FDI	+	+++	−
Stock investment (abroad)	+	++	+
Dev. Assistance programme	+++	−	++
JV	+	+++	−
Licensing	++	+++	−
Loan	++	+++	−
Meeting, WS, Conf. etc.	+	−	+++
NGOs	+	−	+++
Paper (journal etc.)	+	+	+++
Trade of goods and services	+	+++	−

Source : Karakosta, Charikleia, Haris Doukas and John Psarras(2010), p.1548

Fragmented initiatives related to low-carbon technology

iea

ASIA-PACIFIC PARTNERSHIP ON CLEAN DEVELOPMENT & CLIMATE

reeep

renewable energy & energy efficiency partnership

GEN IV Nuclear Energy Systems

IPHE

IRENA
International Renewable Energy Agency

Global Methane Initiative

GGFR
Global Gas Flaring Reduction
A Public-Private Partnership

REN21 Renewable Energy Policy Network for the 21st Century

carbon sequestration leadership forum

ISES
International Solar Energy Society

Zep
Zero emissions platform

MAJOR ECONOMIES FORUM ON ENERGY AND CLIMATE

GBEP
Global Bioenergy Partnership

International Technology Governance for Low-carbon Future?

Mainstreaming Low-carbon Initiatives in Fragmented Frameworks

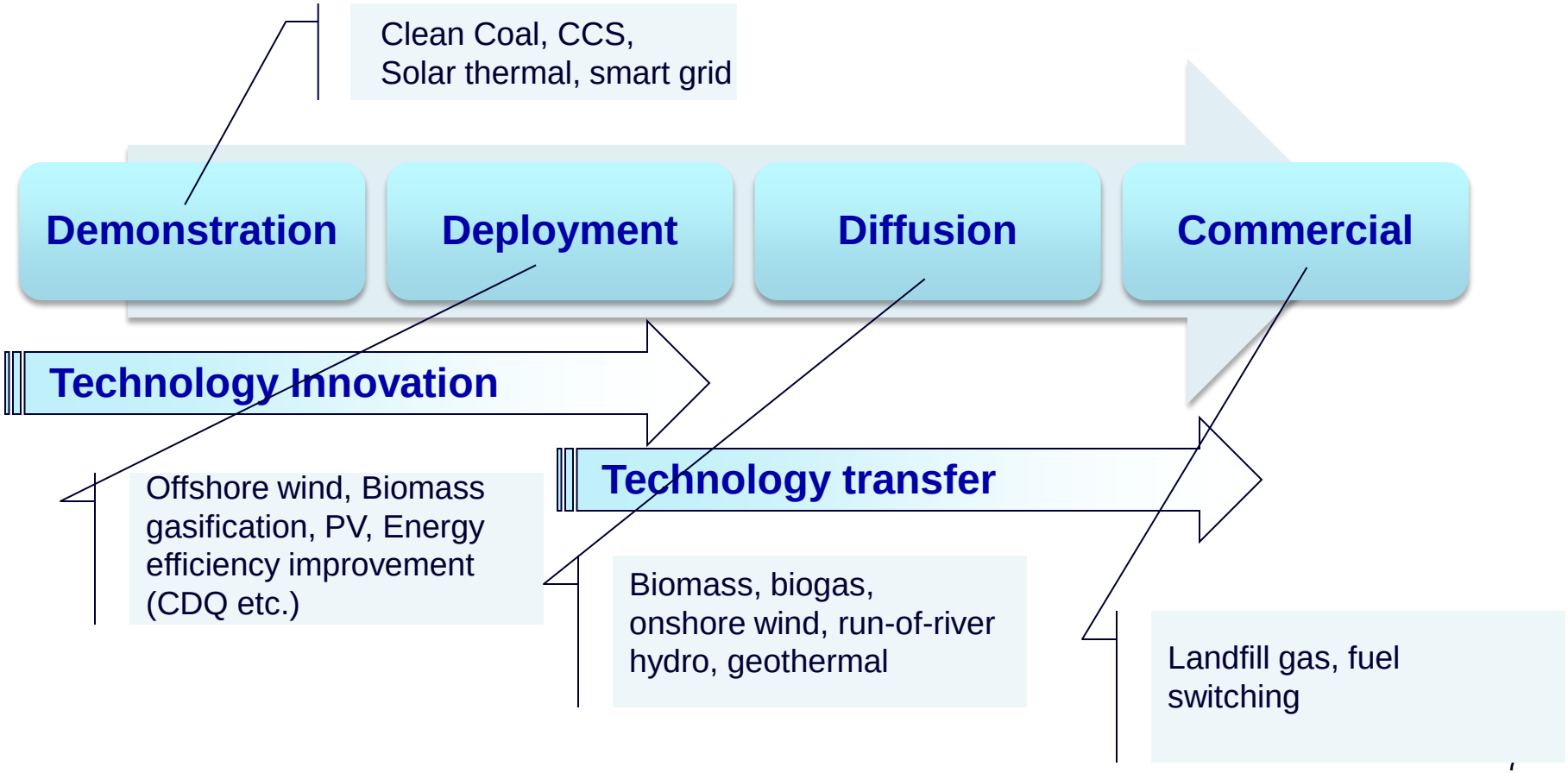
Barriers in technology innovation and transfer.

There are technological, financial, institutional barriers in technology innovation and transfer.

Technological barriers	Financial barriers	Institutional barriers
• Lack of absorbing new technologies in general. • Limited access to the international technology market. Poor knowledge of available technologies in the market. • Lack of appropriate infrastructure. • Lack of local knowledge and expertise for imported technologies. Lack of skills and know-how for operation and maintenance.	• Lack of funding for R&D. • Lack of funding (debt and equity) for project implementation. • High investment costs. • Higher O&M costs in the developing countries. • Lack of private sector involvement. • Lack of enabling business environment. • Poor knowledge of financing opportunities among project participants.	• Lack of awareness and lack of access to regulatory information. • Lack of policy and incentive programs to promote clean energies. • Lack of middle or long-term goals to promote clean energy. • Lack of enabling regulatory environment. • Insufficient protection of intellectual property rights. • Political instability. • Lack of social acceptance and support for clean energy.

Institutional design:

Policies and measures should to be tailored to each stage of technological development.



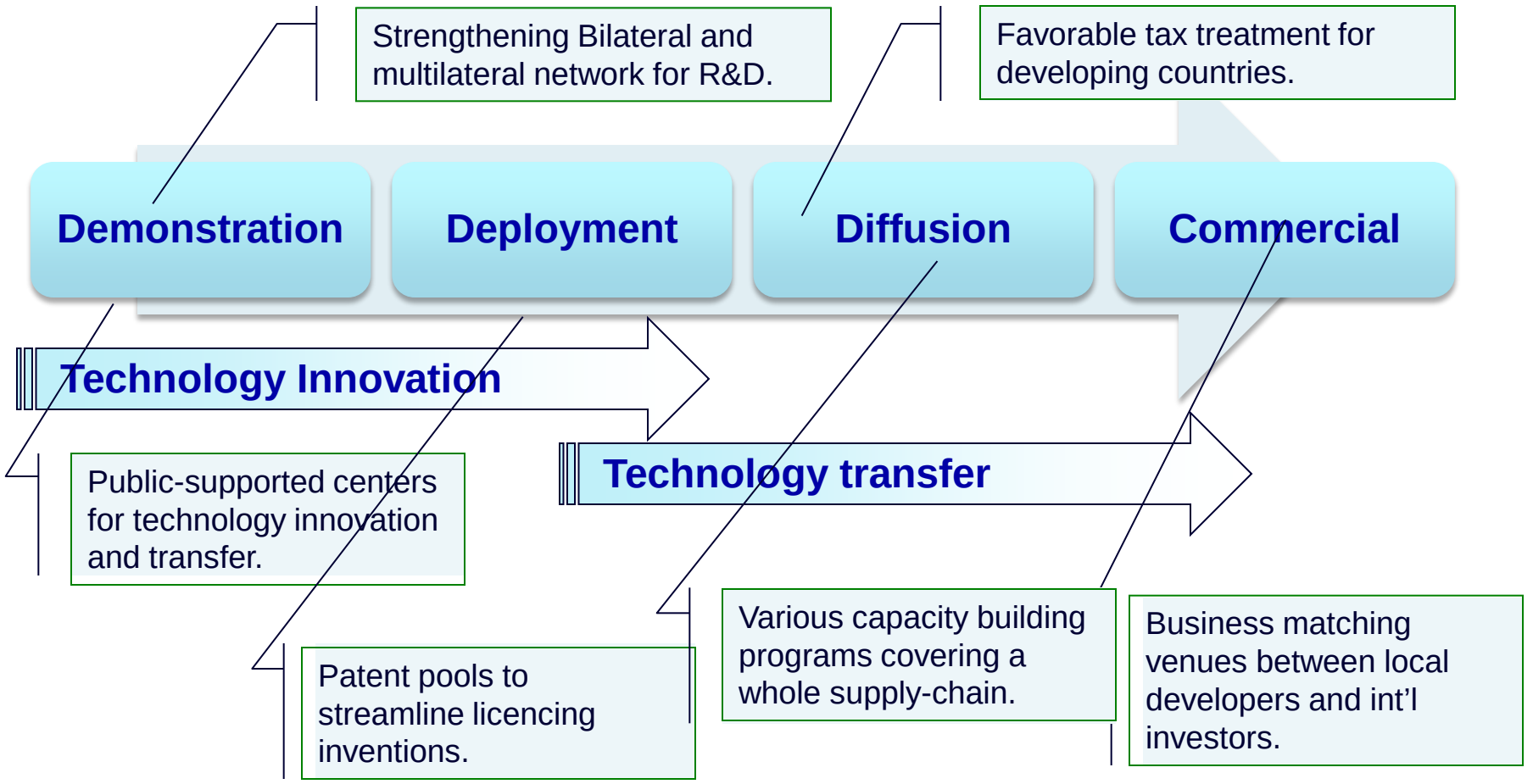
The original version of this figure is contained in UNFCCC (2009), Advance Report on Recommendations on Future Financing Options for Enhancing the Development, Deployment, Diffusion and Transfer of Technologies under the Convention: Note by the Chair of the Expert Group on Technology Transfer (FCCC/SB/2009/2). The author modified the figure by adding specific technologies along the technological development.

Institutional design: Lessons learned (among others).

1. **Policies and measures should to be tailored to each technological development stage.**
   - CDM: only effective at the **diffusion and commercial** stages.
   - The scaling-up of the public funding and the empowerment of the network of the research groups are necessary at the **demonstration and deployment** stages.
2. **The scope of possible barriers should be holistically examined by possibly considering the whole supply chain of technologies from their delivery to actual operations.**
   - Lack of local knowledge and expertise for imported technologies.
   - Lack of skills and know-how for operations and maintenance.

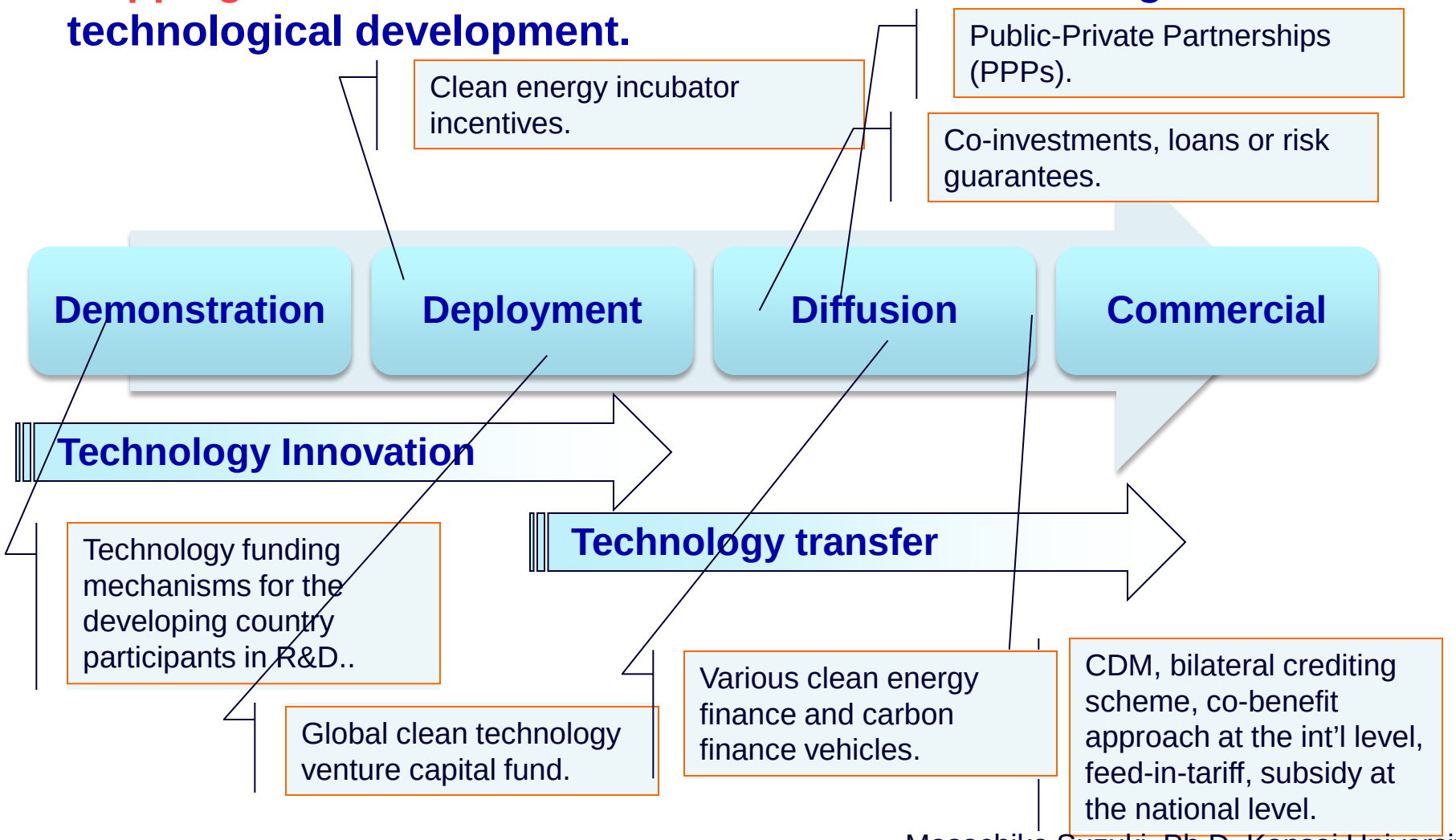
Institutional architecture: Mapping (some examples).

Mapping effective policies, measures and programs (as an institution) for each stage of technological development.



Institutional design: Mapping (some examples).

Mapping effective financial mechanisms for each stage of technological development.



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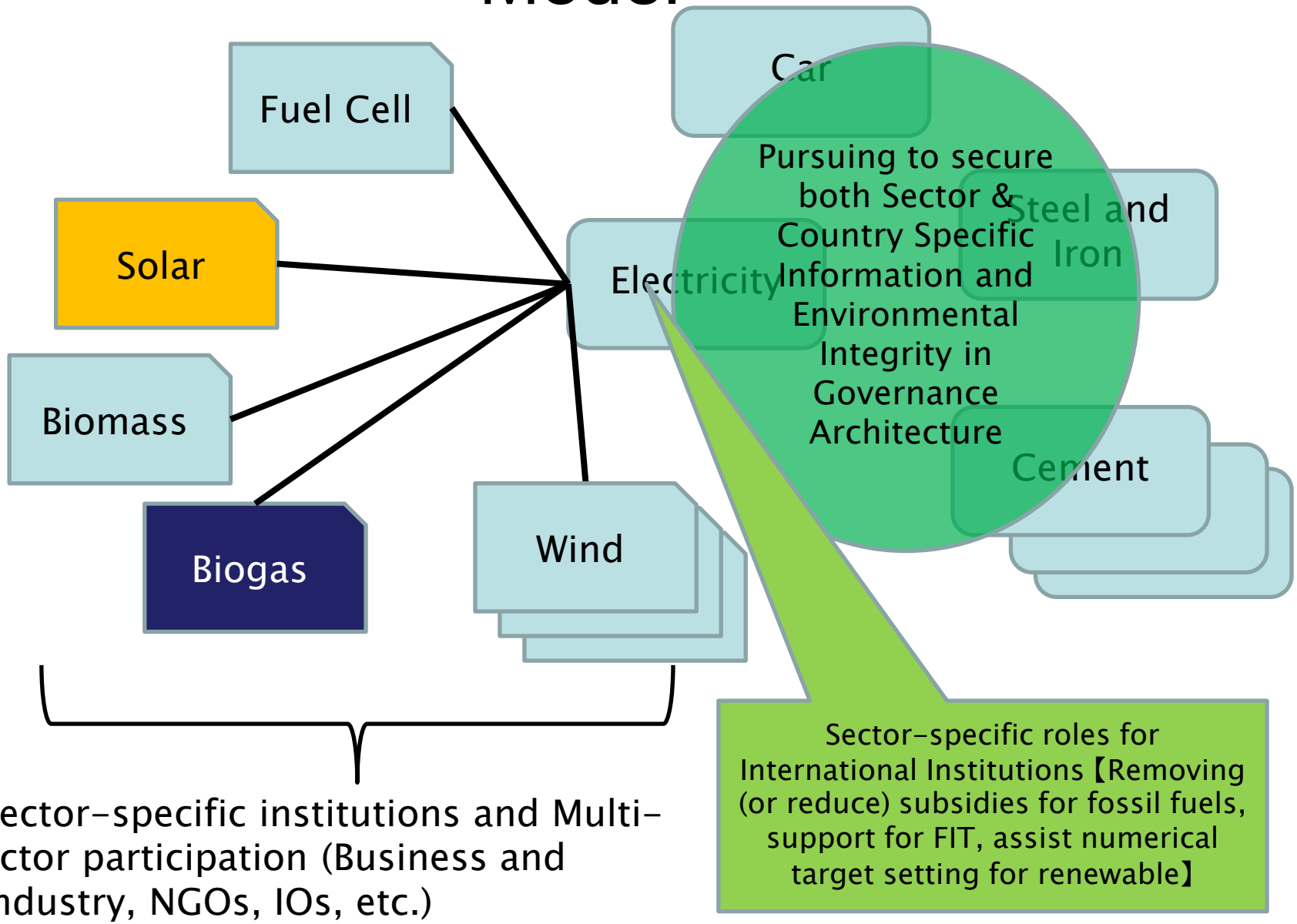
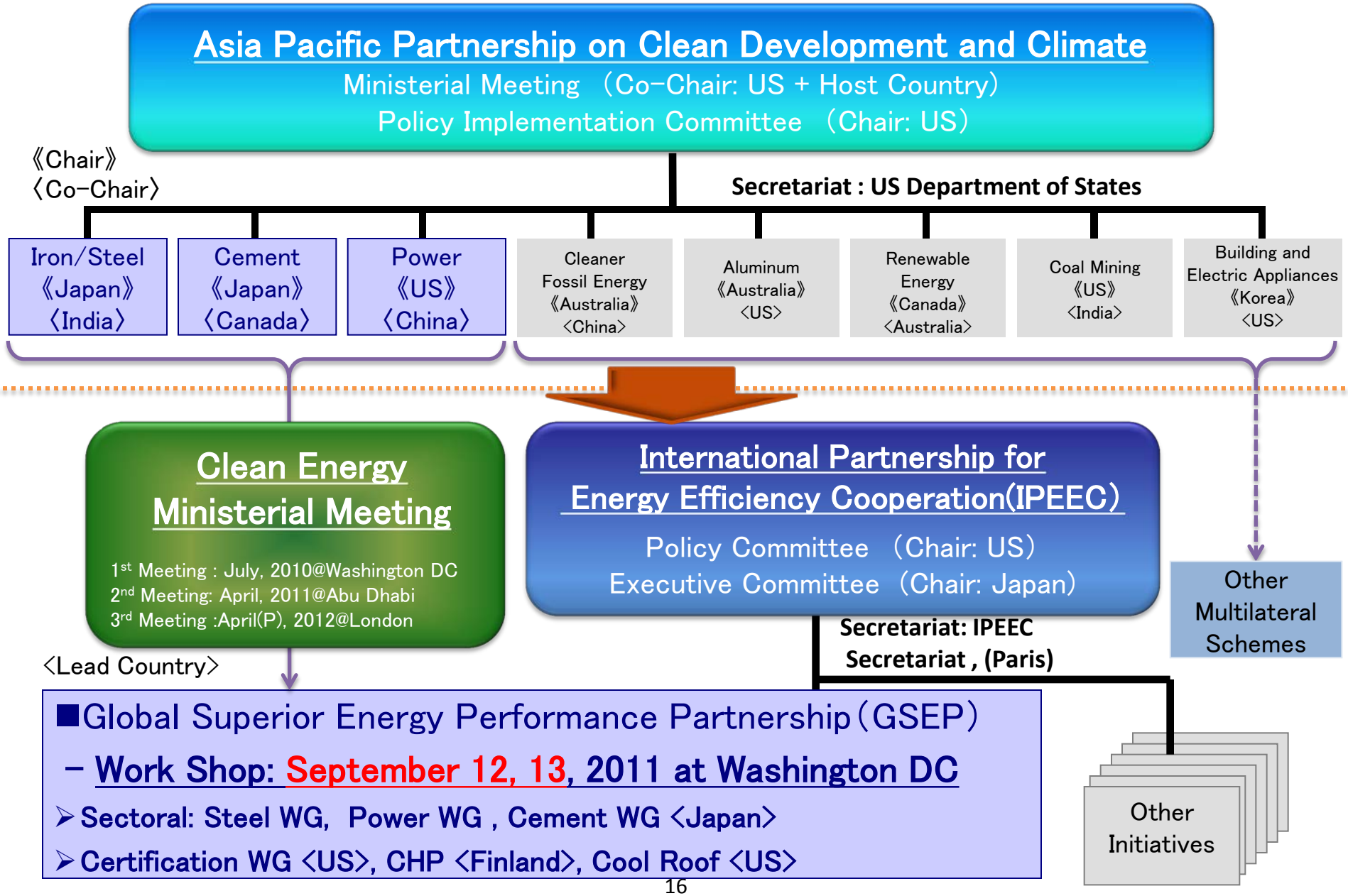
Mainstreaming Low-carbon Initiatives in Fragmented Frameworks

Low-carbon Technology Governance Model



Still another initiative? … need to incorporate initiatives under FCCC platform



Yoshito Izumi (Nov 2011)

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Configuration of Actors is the Key

Cancun Agreement

- Parties encouraged to engage in bilateral and multilateral cooperative activities on tech development and transfer (para. 116)
- The TEC is to "seek cooperation with relevant international technology initiatives, stakeholders and organizations, promote coherence and cooperation across technology activities, including activities under and outside of the Convention" (para. 121 (f))
- Climate Technology Centre and Network (CTCN)

1) TEC and CTCN need to involve private actors
   innovative institutional setting that fits into the current IR power dynamics is in need
2) Careful configuration of actors is the key
   Lessons can be learnt from experiences of other MEAs
3) Configuration of actors is dependent upon
   A) Phases of technology
   B) Different component of governance (negotiation, implementation, compliance, etc)