



未来の
ために、
いま選ぼう。



Ministry of the Environment
Government of Japan

The Joint Crediting Mechanism

Japan's contribution through market mechanism



Yutaka Matsuzawa

Director of Climate Change Policy Division,
Global Environment Bureau
Ministry of the Environment, Japan (MOEJ)

Basic Concept of the JCM

Leading low carbon technologies
and mitigation projects

JAPAN

Used to achieve
Japan's emission
reduction target

Partner
Country

GHG
emission
reductions/
removals

Credits

Operation and management
by the Joint Committee

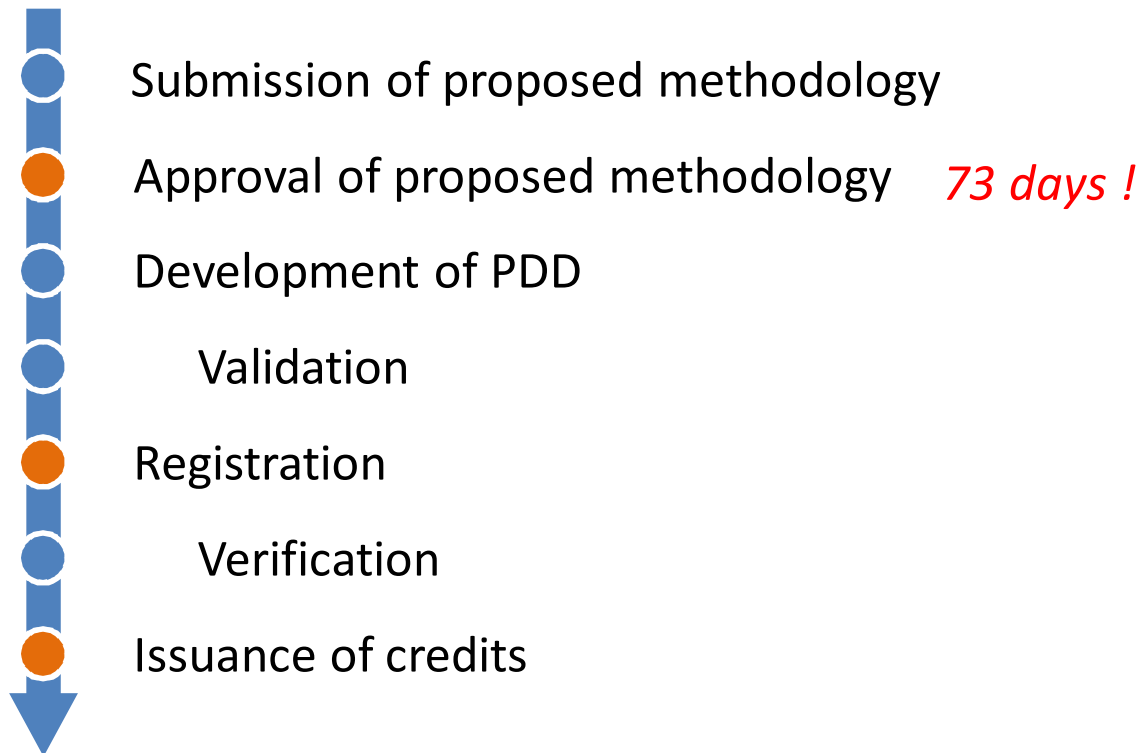


In addition, many of the advanced low-carbon technologies do not generally promise investment-return to developing countries. Japan will, while lowering burdens of those countries, promote diffusion of advanced low carbon technologies particularly through implementation of the JCM.

JCM in Japan's INDC

- The amount of emission reductions and removals acquired by Japan under the JCM will be appropriately counted as Japan's reduction in accordance with the Paris Agreement.
- Accumulated emission reductions or removals by FY 2030 through governmental JCM programs to be undertaken within the government's annual budget are estimated to be ranging from 50 to 100 million t-CO₂.

JCM Procedure



5

JCM Model Projects by MOE

Government of Japan

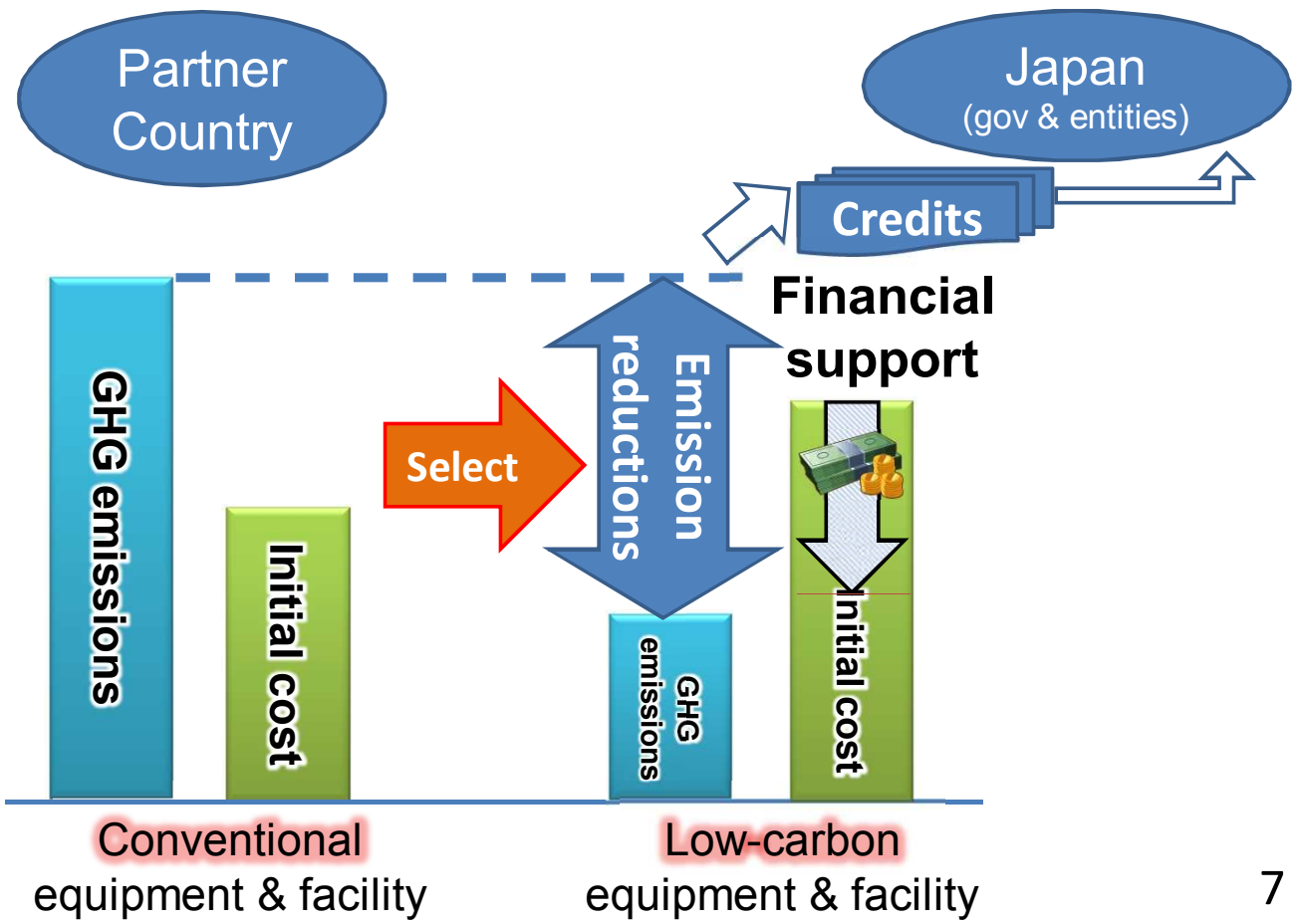
Finance part of an investment cost (**less than half**)

MRV and deliver at least half of JCM credits

International consortiums (which include Japanese entities)

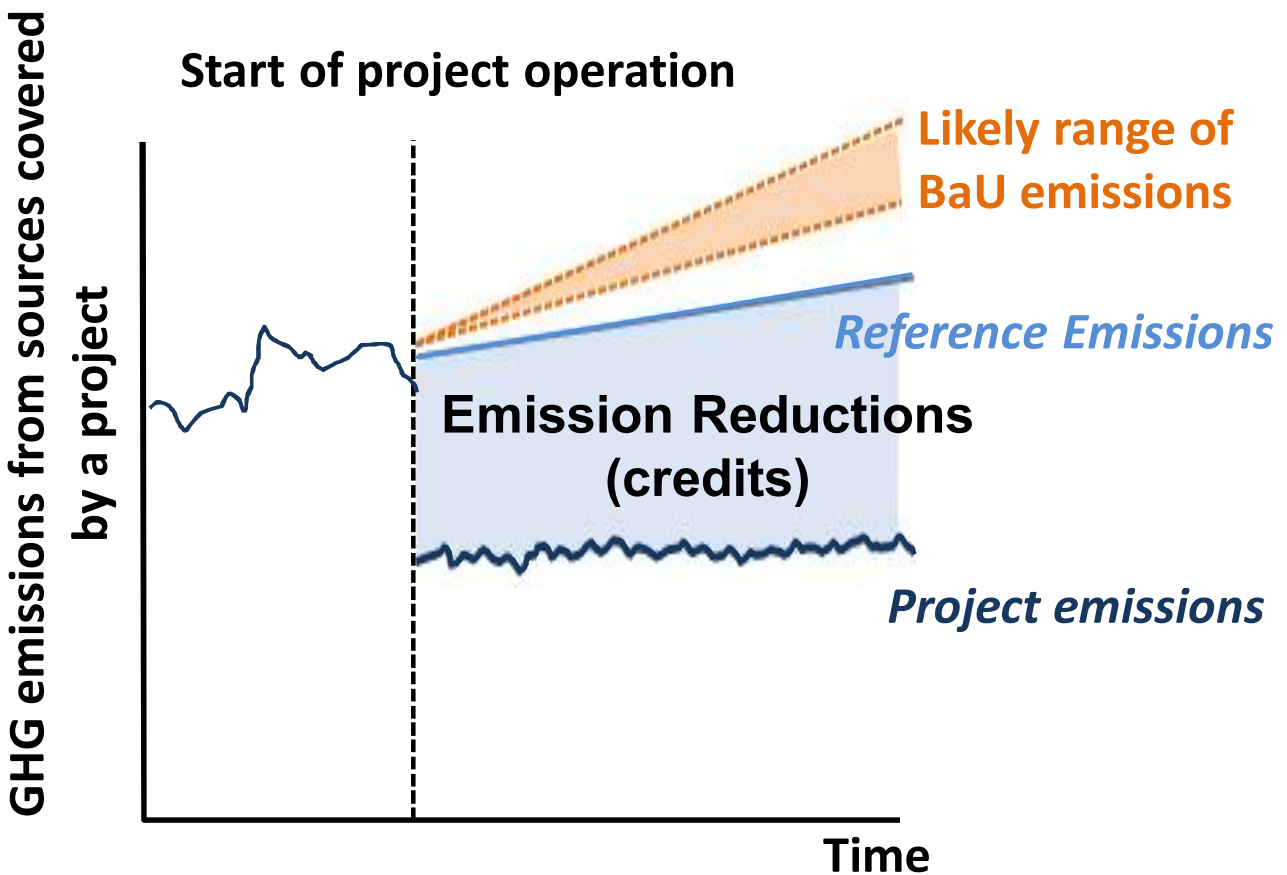


Merits for Partner Country by MOEJ model countries



Crediting under the JCM

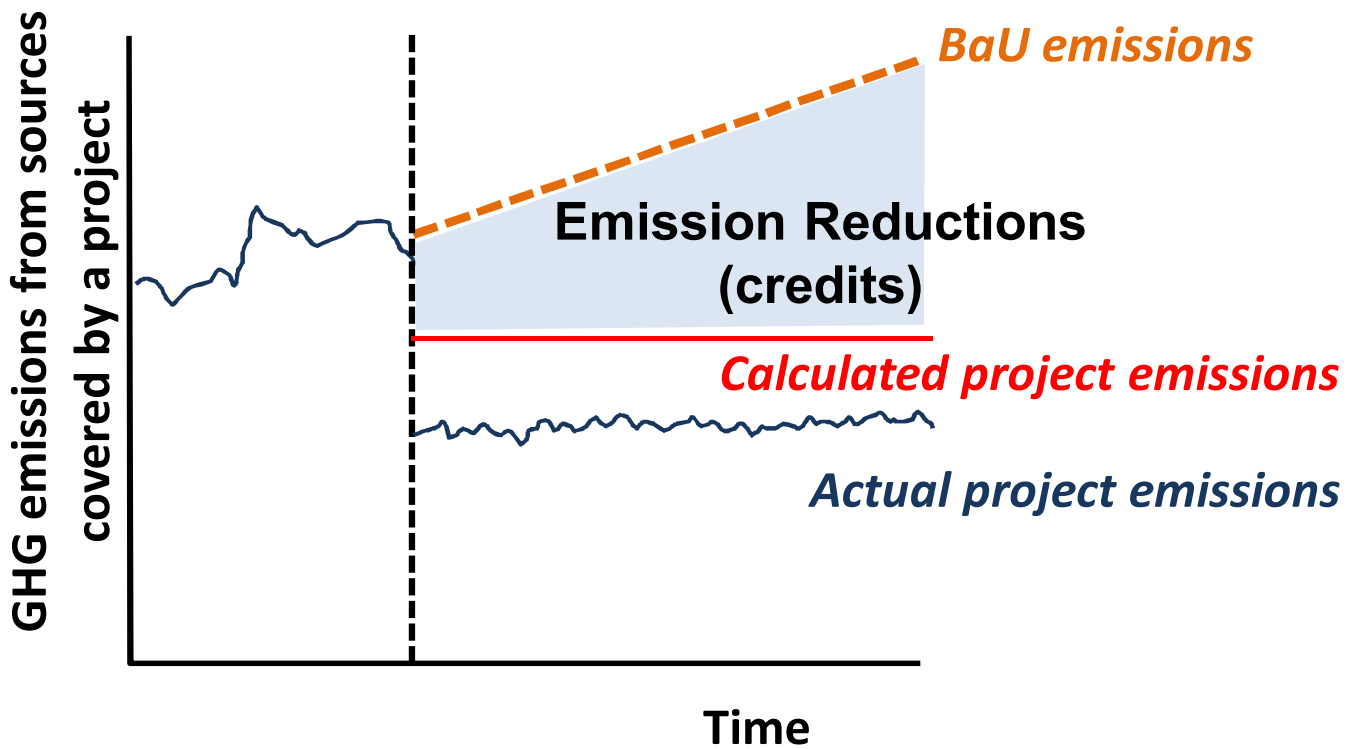
(Subject to further consideration and discussion with partner countries)



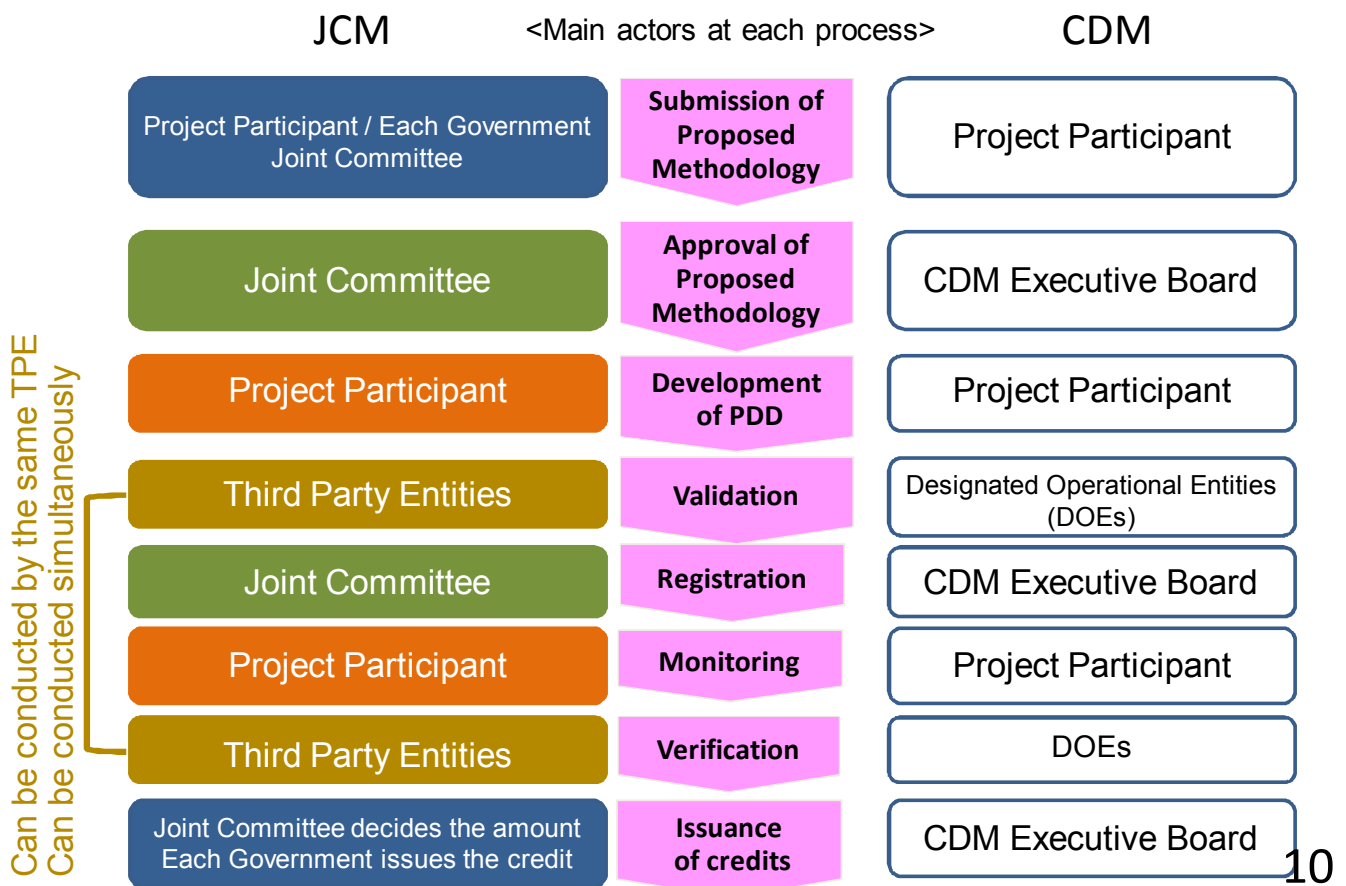
Addendum: ways to realize net reduction

(Subject to further consideration and discussion with partner countries)

Start of project operation



Project Cycle of the JCM and the CDM



Time requirements

Steps	Days	
	JCM	CDM
Methodology approval	73	288
Request for registration	42	382
Registration	20	79

Sources: JCM website, IGES CDM Project Database, CDM pipeline (UNEP RISO) 11

JCM Partner Countries (16 ATM)



“3rd JCM Partner Countries’ High-level Meeting” in COP21



Examples of JCM Projects



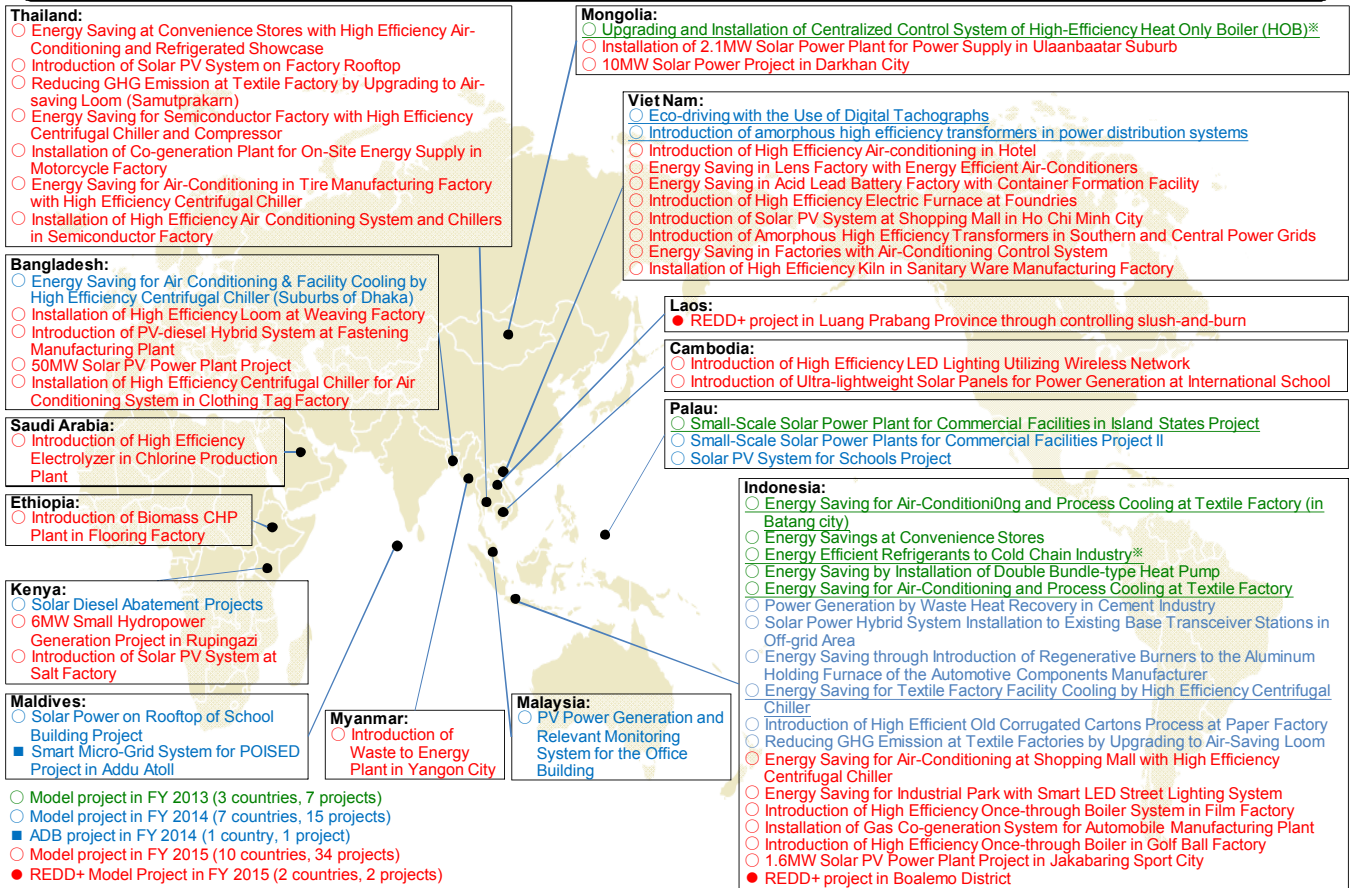
Examples of JCM Projects



Examples of JCM Projects



JCM Financing programs by MOEJ (FY2013/2014/2015) as of May 17, 2016



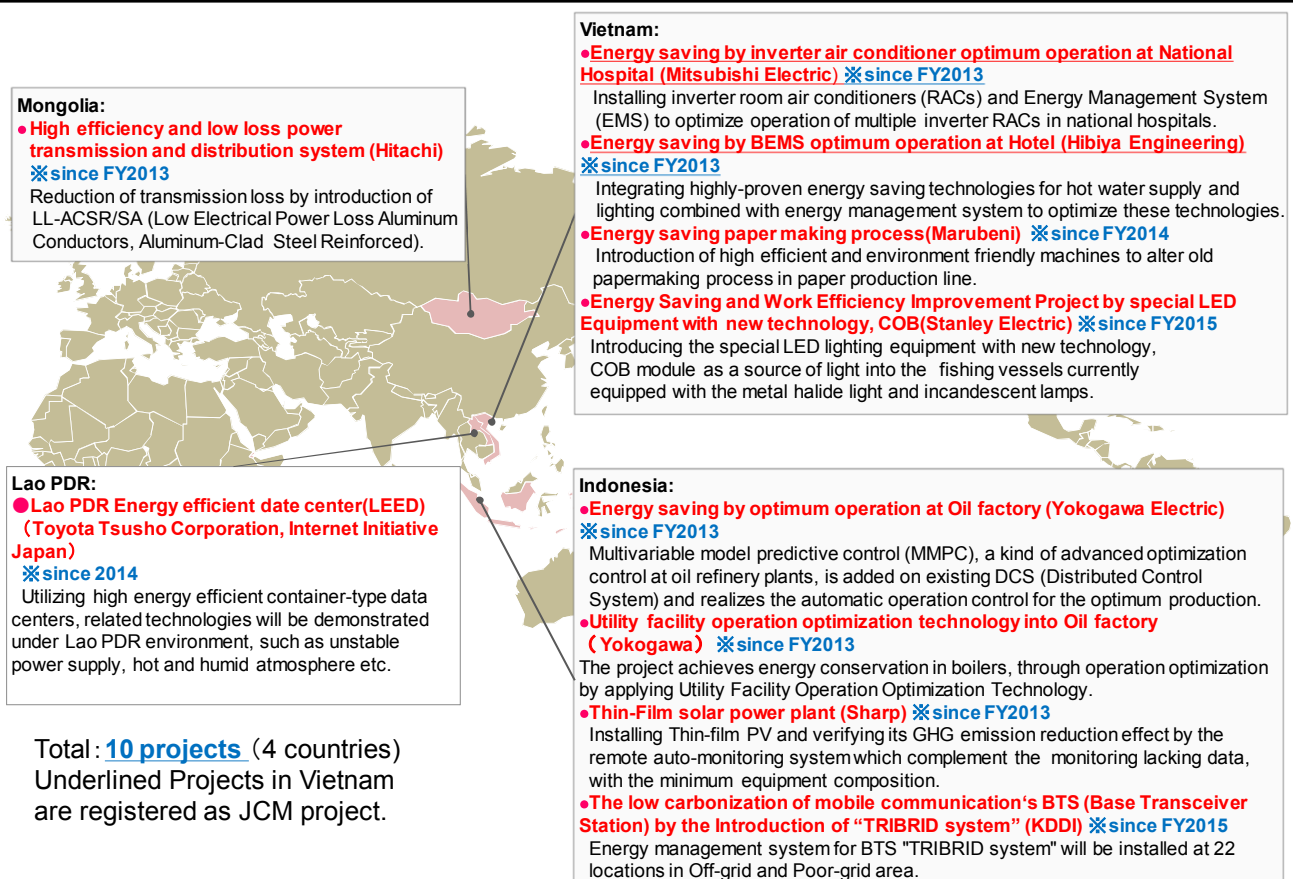
Total 14 countries, 58 projects

The underlined projects have been registered as the JCM projects (10 projects)

*these projects account for 2 registered JCM projects respectively, as they're operating in different sites

17

JCM Demonstration Projects by NEDO in FY2015



18

The First Issuance of JCM Credits in May 13th

The JCM credits were issued for the first time in May 13th, under the JCM between Indonesia and Japan

Energy Efficient Refrigerants to Cold Chain Industry
MAYEKAWA MFG / PT Adib Global Food Supplier



Issued credit amount

40 t-CO₂



Ministry of the Environment
Government of Japan

Thank you for your attention !





Technology Transfer in the Approach of the International Climate Initiative (IKI) of the BMUB

Presentation on the German-Japanese „Low Carbon Technology“ Symposium, Tokyo, 18 May 2016

Harald Neitzel

Federal Ministry for the Environment, Nature Conservation,
Building and Nuclear Safety (BMUB)

Division KI II 3 "International Affairs Environment and Energy, Environment
and Building and Urban Planning, OECD and Cooperation with Industrialised
Countries"

Koethener Str. 2-3; 11055 Berlin;

Tel. 03018 305-4265; Fax 03018 10 305-4265; e-mail:

harald.neitzel@bmub.bund.de

24/05/2016

Page 1

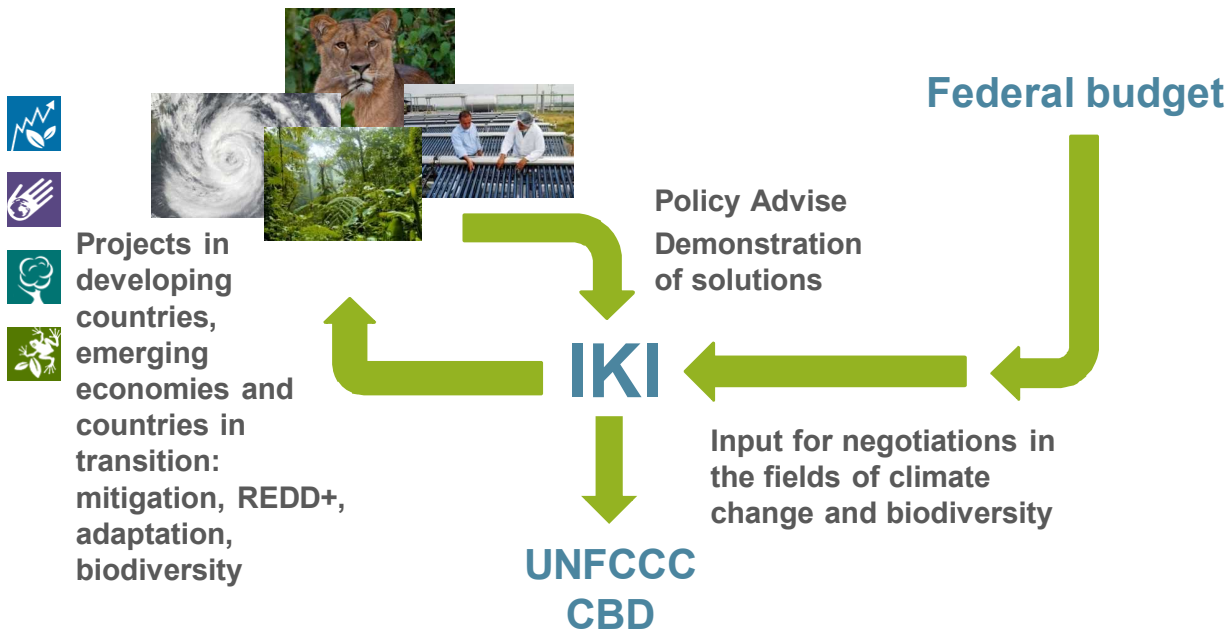


About Technology-Transfer: Issues to be discussed

- **Different Roles of Government and Business Sector**
- **Governments: policy, legal and economic framework, promotion programmes**
- **Business Sector: transferring technologies by selling, by doing investments, by founding local companies, by joint ventures etc.**
- **Intellectual Property Rights (IPR)**
- **Tariffs and Customs**
- **Local Content**
- **Technical Standardization**
- **Mentioned in „Paris Agreement“**
- **etc.**

Page 2

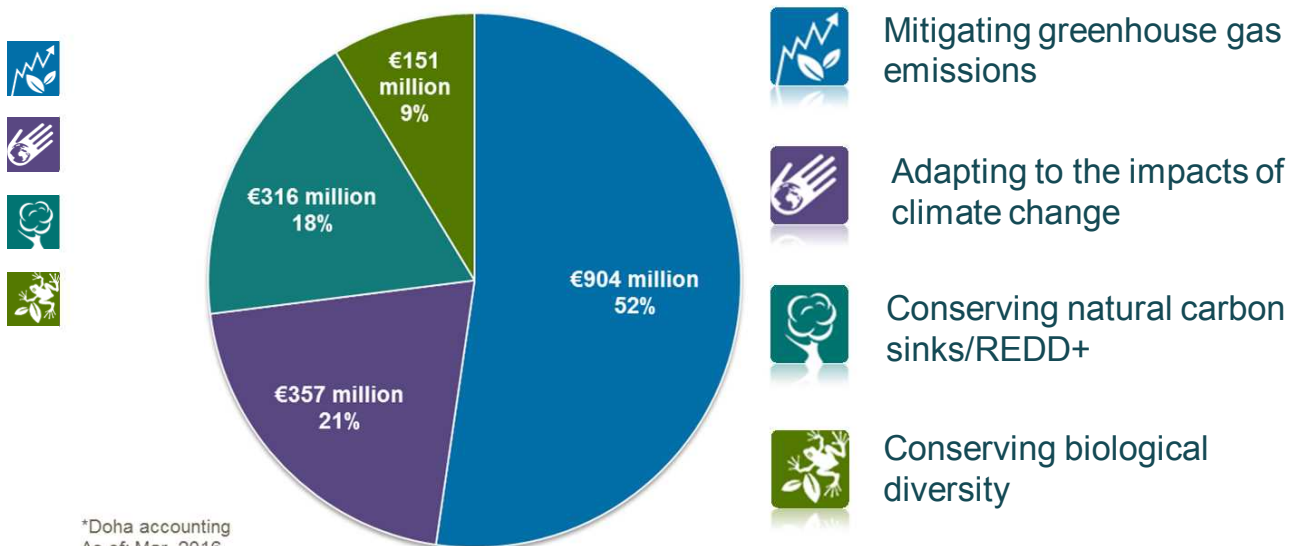
International Climate Initiative (IKI)



24.05.2016

Page 3

Volume of funding according to support area (2008-2016)*

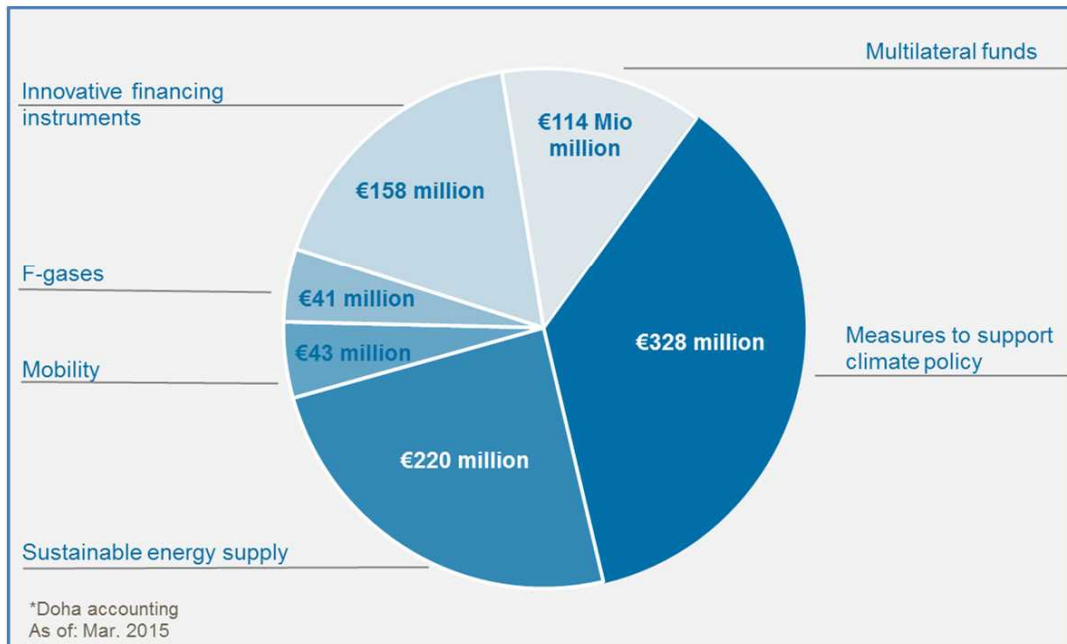


*Doha accounting
As of: Mar. 2016

24/05/2016

Page 4

IKI area “Mitigating Greenhouse Gas Emissions” (2008-2016)*



24/05/2016

Page 5

IKI-Goals for Renewable Energy and Energy Efficiency:

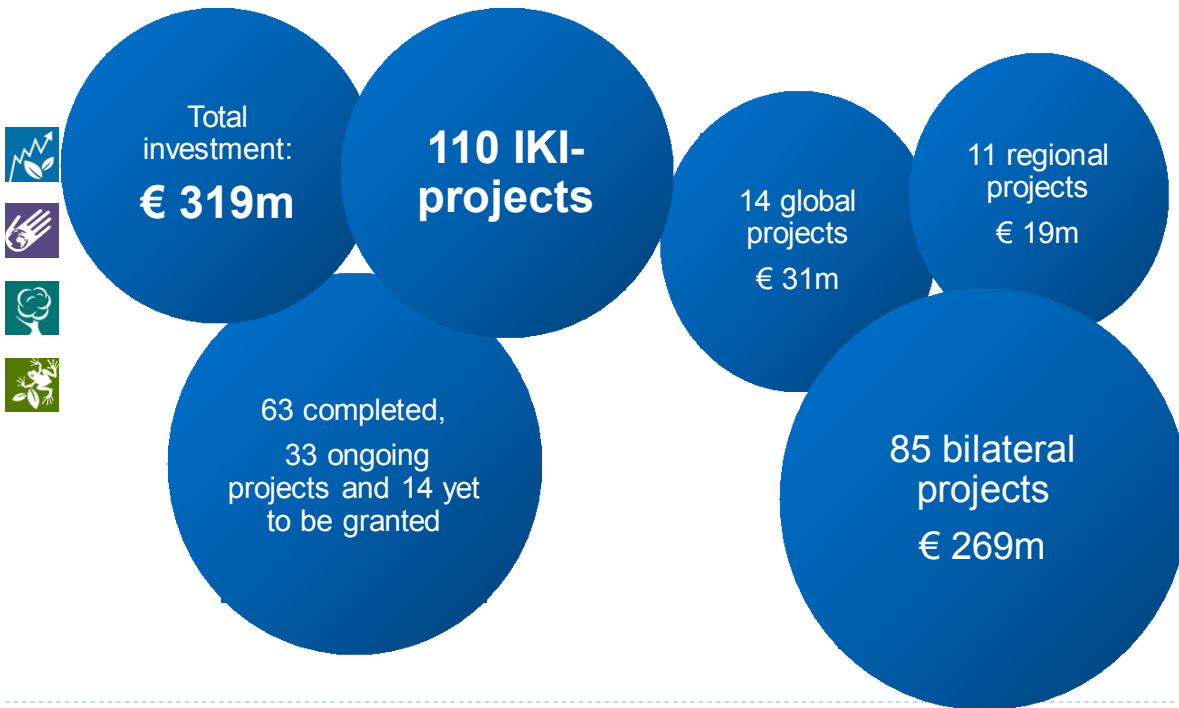
www.international-climate-initiative.com



- Assessment of the potentials: technical, economic
- Support mechanism for renewable energies and energy efficiency actions (policy consulting)
- Capacity building of institutions and relevant actors
- Identification and removal of barriers to investments and commercial mainstreaming
- Support for pilot projects and technology transfer
- **Creation of both: GHG mitigation opportunities and markets for RE** (solar, wind, biomass from organic waste) and **EE** (buildings, industries, transport)

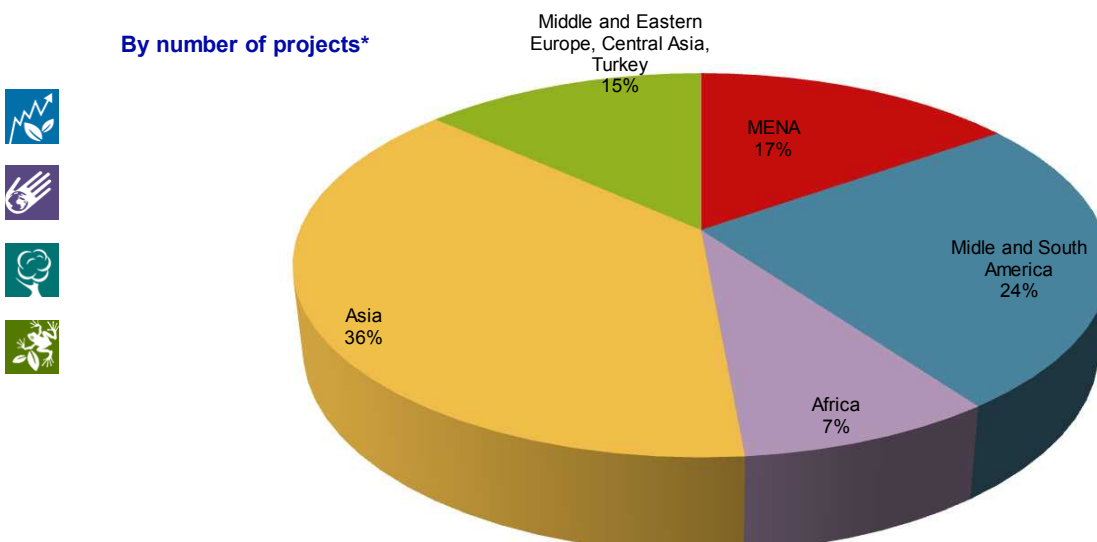
Page 6

The IKI-Portfolio in the Field of Renewable Energies



Sustainable energy supply, renewable energy and energy efficiency by region

By number of projects*



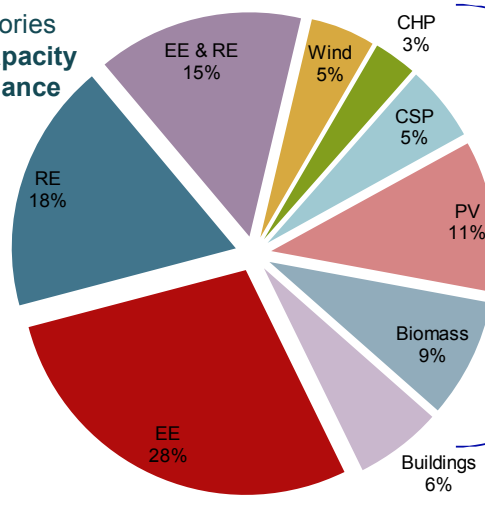
* Includes bilateral, regional, and global projects. Excludes F-gas projects with EE or RE components

Thematic focus areas of country matrix “Energy“

Projects *not* clearly attributed to one technology or mitigation approach



Methodological project categories are mainly **policy advice, capacity building, and innovative finance instruments**



Projects clearly attributed to one technology or mitigation approach

Methodological project categories are mainly **technology transfer and investments**

* By number of projects, numbers from 2015



Mitigation

IKI Project Example: Climate Partnerships with the Private Sector (DEG)



Goals: Mobilise the private sector as crucial actor in mitigating greenhouse gas emissions. The project enhances the transfer of technology and knowledge in the areas of renewable energies and energy efficiency.

Results 2010-2015:

- DEG supported 15 climate partnerships, which were implemented on four continents in various areas of energy efficiency and renewable energies. Some projects are particularly innovative, while in others the approach can be easily replicated or produce a wide-reaching, broadscale multiplier effect.
- The funds are estimated to leverage at least 5-6 times the amount in follow-up investments and business generated with climate-friendly technologies by the partner companies in the target markets within the next two years.
- The projects have already saved several thousand tonnes of CO₂ annually.



Mitigation

IKI Project Example: Reducing emissions in Chile by promoting the use of combined heat and power plants in industry and commerce

Goal: Promote the generation of electricity through photovoltaic (PV) and the production of heat by solar thermal applications (SWH) for self-supply of commercial entities, industrial plants or in public buildings.

Results:

- Three CHP pilot plants in public hospitals have successfully showcased the practical benefits of the technology. The experience gained in these projects will be shared with neighbouring countries
- This led Chilean Government to prioritise the development of CHP plants in its energy programme.



CHP plant in Chilean hospital; Credits: GIZ

- Additional specialist expertise is provided by another IKI project for an improved regulatory framework, a better-trained local workforce and higher awareness among investors. A CHP reference centre is being initiated and support is being provided in the implementation of CHP projects.

Energy Efficiency Projects – some examples

- „Big EE“ buildings guide and platform: <http://www.bigee.net/>



- Energy Efficiency in public and private housebuilding (Mexico): technical and financial assistance



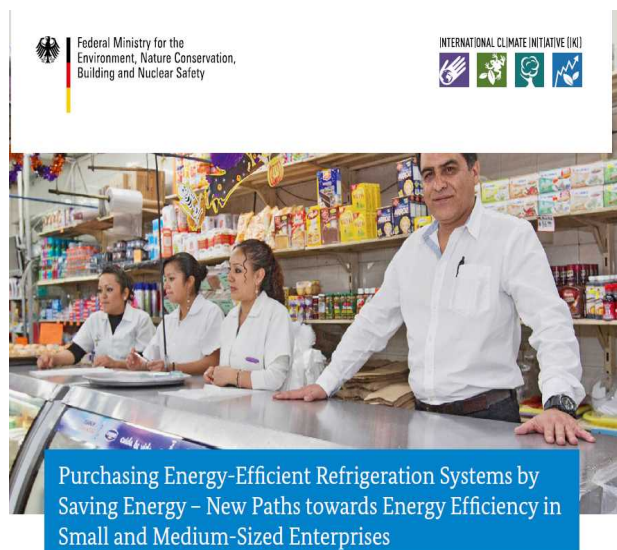
- Energy Efficiency in Public Buildings (Turkey): technical and financial assistance



- Several projects in the transport and industry sector



- Not yet included: energy efficiency for existing fossil power plants



Purchasing Energy-Efficient Refrigeration Systems by Saving Energy – New Paths towards Energy Efficiency in Small and Medium-Sized Enterprises



Lessons learnt (1): In many partner countries, ambitious RE/EE targets and support mechanisms exist. „Implementation is the Challenge



- **Improvements of data** through national, regional and local estimations of potential often first step, followed by employment of technology, which either is not available in country (Technologytransfer) or is not ready for market (see Chile).
- **Demonstration projects** can initiate political dialogues, yet they must not only be profitable & coherent from a political & developmental perspective, but also visible (see Brasil).
- Besides demonstration projects, **innovative finance instruments** can enable a path for a transformative policy dialogue (see Mexico, Turkey, Jordan).
- Energy plays an important role in **NDC implementation**



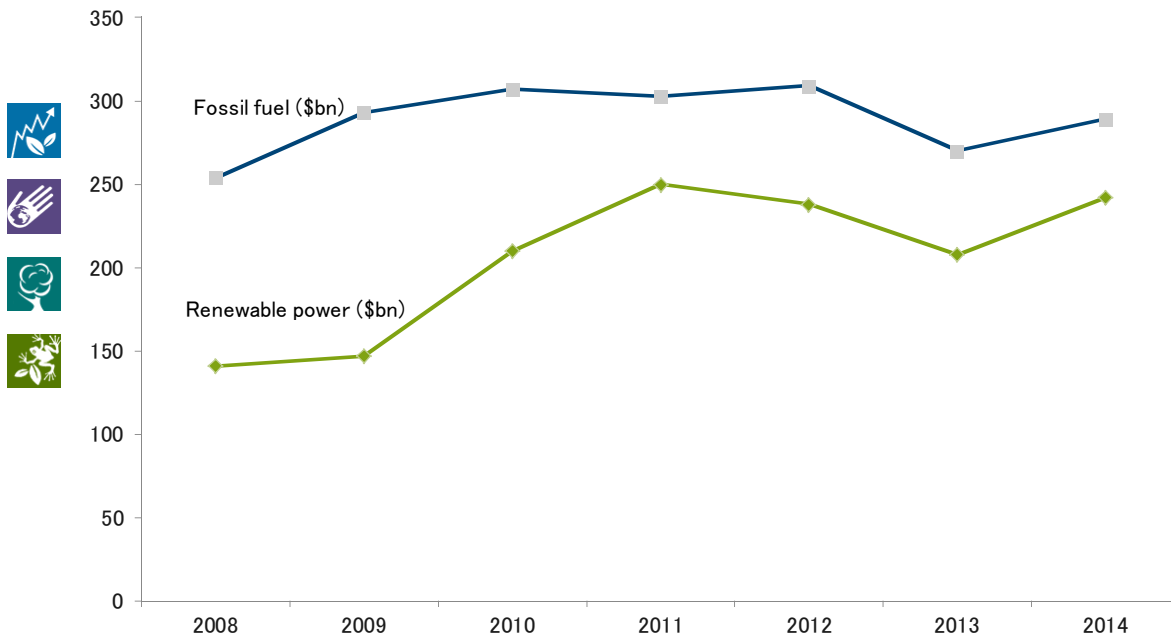
Lessons learnt (2):



- **EE in the building sector** offers large potentials which could be utilised more effectively in the future. The topic of „EE as a business model“ plays a significant role.
- The design of **finance instruments** must consider the issue of life-cycles and life duration of RE technologies in detail.
- Partner countries regard quantitative information about **co-benefits** in addition to GHG emissions reductions as necessary
- Global exchange of project results and „best practices“ to be improved („**Outreach**“).

Slightly good news (1): Comparison

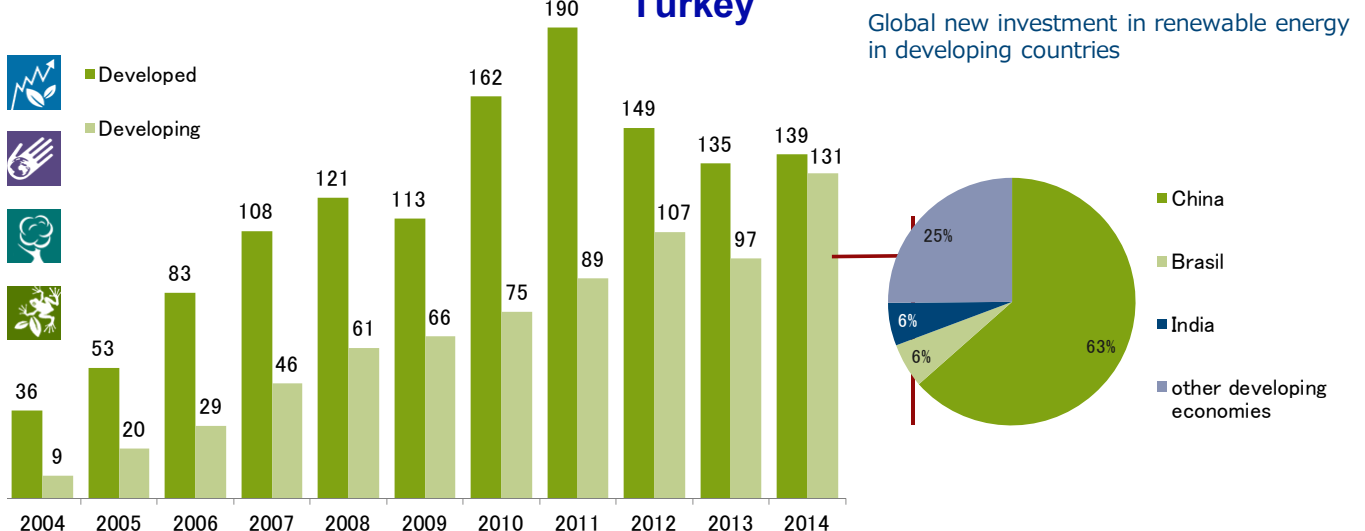
Investments in fossil fuel-based and renewable electricity production, 2008-2014, in billion US\$ 2015: 329 \$bn



Slightly good news (2):

Global investments in renewable energy: Industrialised and developing countries, in billion US\$ <http://fs-unep-centre.org/publications/global-trends-renewable-energy-investment-2015>

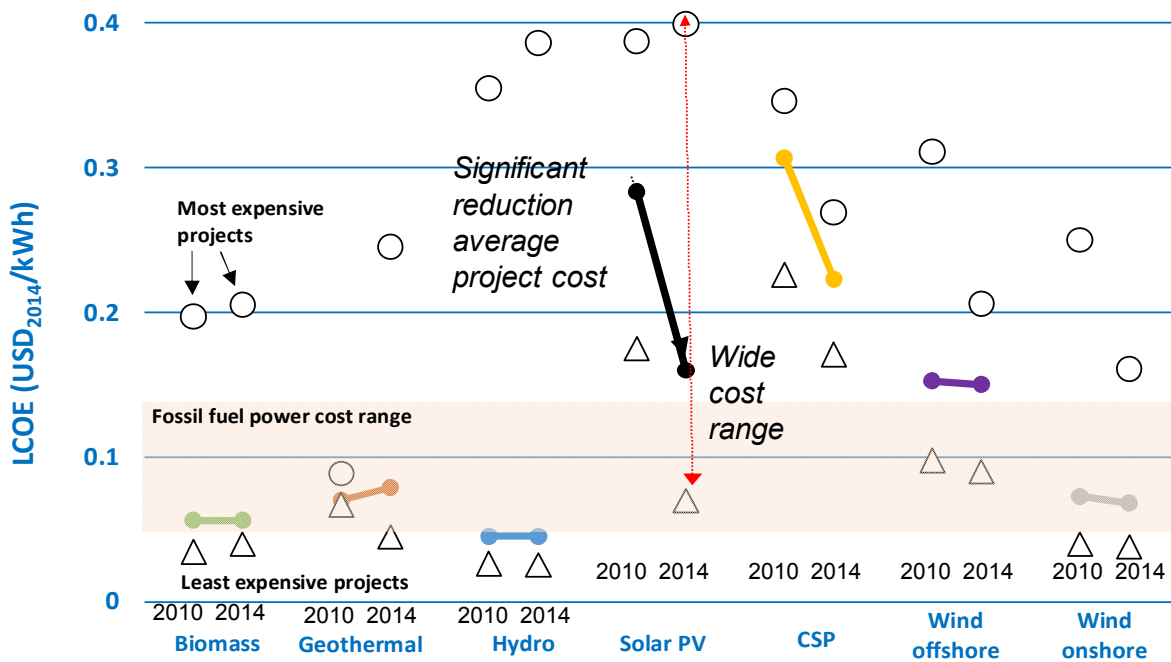
“other” ≥ \$1bn: Indonesia, Mexico, Kenya, South Africa, and Turkey



“Really good news” (3):  **IRENA**
International Renewable Energy Agency

RE costs are decreasing,

however significant cost differences persist



Left side: 2010
Right side: 2014

Source: IRENA, 2015



Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

**Thank you for
your attention!**

**Arigato
gozaimasu**



Comparing Policies on Low-Carbon Technology Transfer between Industrialised Countries

German-Japanese SYMPOSIUM on Technological
Challenges to Combat Climate Change

18 May 2016

Norichika Kanie

UNU-IAS

Keio University



UNITED NATIONS
UNIVERSITY

UNU-IAS

Institute for the Advanced Study
of Sustainability

LOW CARBON TECHNOLOGY TRANSFER PROJECT

Low Carbon Technology Transfer (LCT) Project

Low Carbon Technology Transfer (LCT) Project

- Analyse international strategies of other active developed nations
- Promote low carbon technology diffusion to developing countries
- Consider effective strategies to build partnerships for LCT

United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS)

Conducts focused, policy-relevant research that offers objective, science-based perspectives in the service of policy debate and development, addressing the pressing global problems of human survival, development and welfare.

- Implementation of the SDGs, supporting education and knowledge generation for the SDGs.
- Biodiversity and ecosystem services
- Climate change and Disaster Risk Reduction. Advancing international cooperation on low carbon technology.



UNITED NATIONS
UNIVERSITY

UNU-IAS

Institute for the Advanced Study
of Sustainability

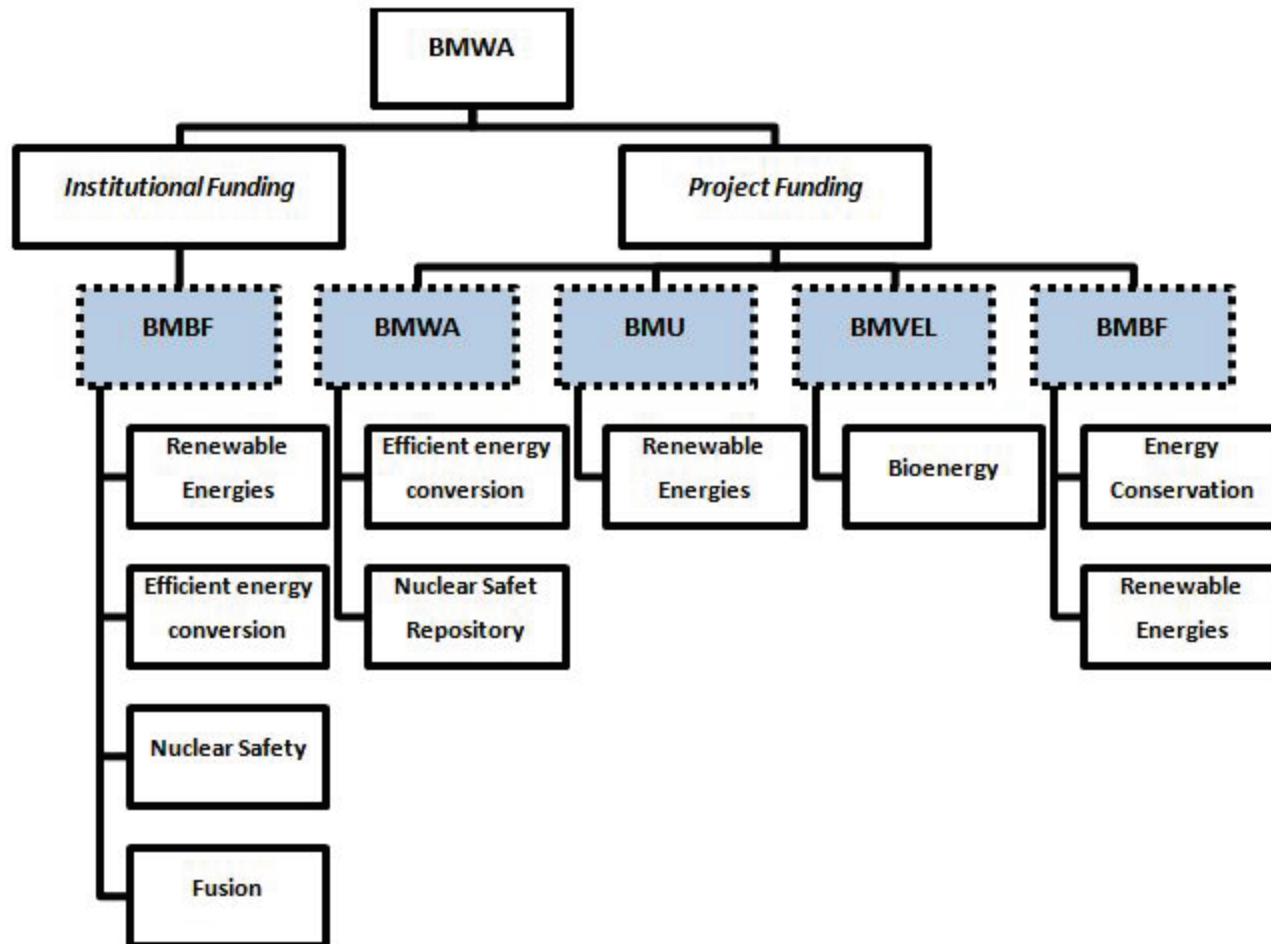
LOW CARBON TECHNOLOGY TRANSFER PROJECT

Analysis of international strategies for promoting LCT 2015-2016

Countries	Participants	Guiding Questions
Germany	ETZ Zurich, Freie Universität Berlin, IKI, GIZ, BMUB	<ul style="list-style-type: none"> ● Which technologies are considered the most suitable for transferring to developing countries? ● What barriers/obstacles have been encountered and overcome in transferring low-carbon technology either locally or in partner countries? ● How are developing countries being supported in implementing and developing low-carbon technologies? ● What are the key gaps in support (broadly defined) which prevent more effective transfer of low-carbon technology?
UK	UNEP, LSE, Sussex University, Carbon Trust, Radboud University Nijmegen	
France	ADEM, UNEP, Ministry of the Environment Japan, IEA, Sciences Po	
US (Interview)	Green Strategies Inc., Natural Resources Defense Council, World Bank, US Department of Energy, International Fund for China Environment, The US Energy Association, Georgetown University	

Germany's strategies for promoting LCT

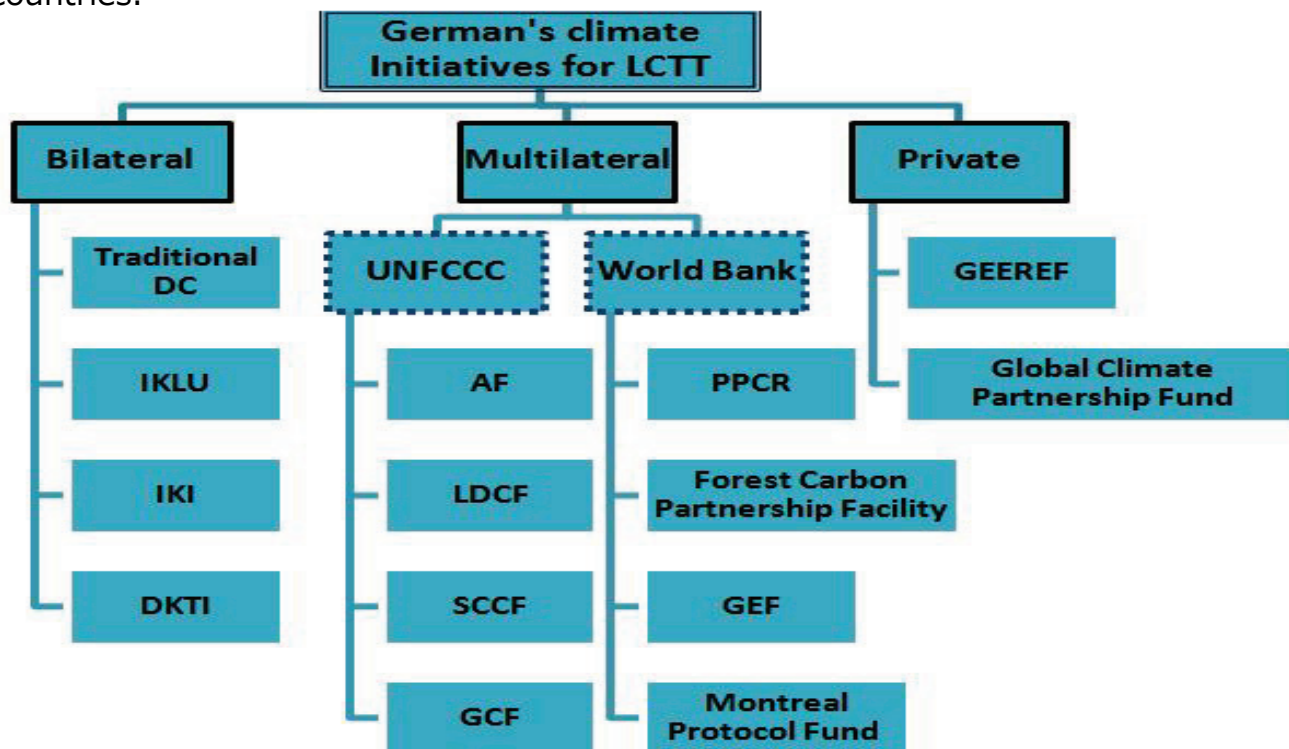
Orientation of energy research policy in the BMWA, Germany



Germany's strategies for promoting LCT

German's climate initiatives for low-carbon technology transfer

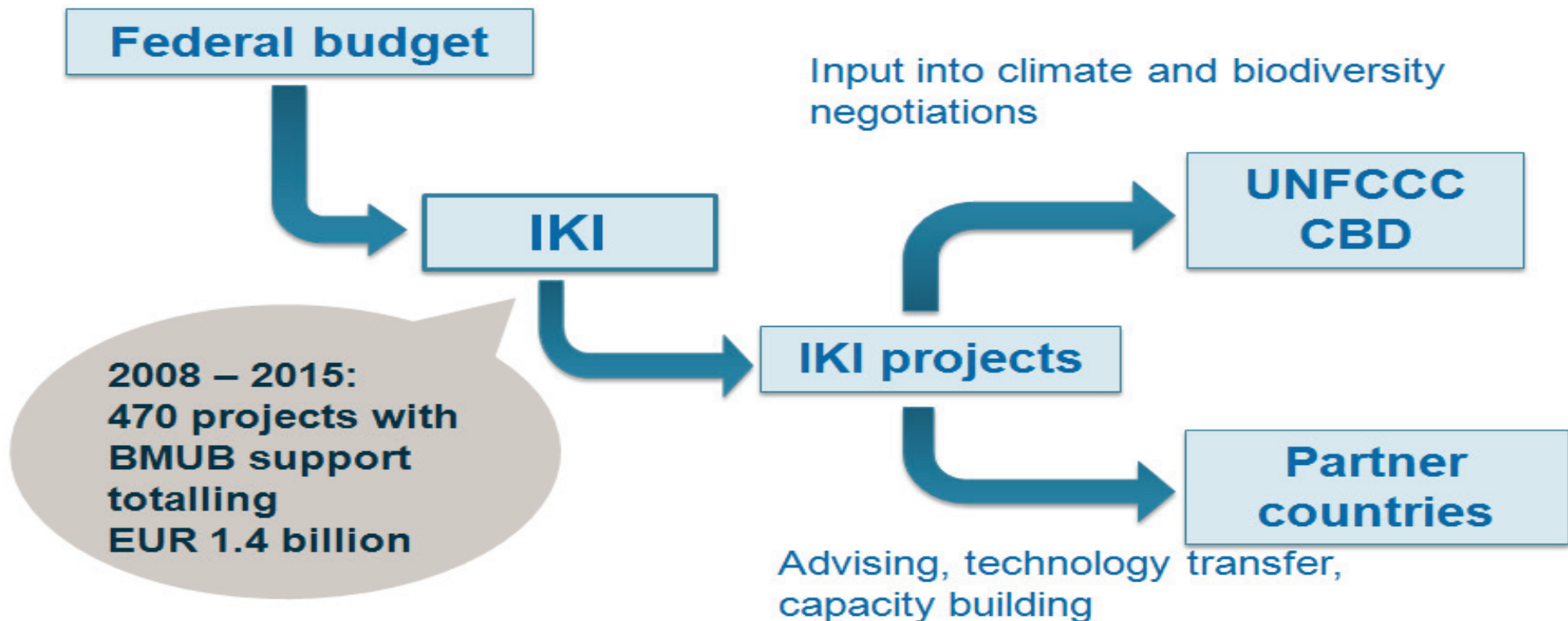
- Uses principally bilateral climate initiatives to foster the deployment of low-carbon energy technologies, with support of the federal budgets of the Environment Ministry (BMUB) and the Development Ministry (BMZ) (currently approx. 85%)
- Seeking to increasing contribution to multilateral climate funds (currently 15%) for mitigation projects from 2015 to 2016, mainly through the Green Climate Fund (GCF) and payments to the Least Developed Countries Fund (LDCF), the Global Environment Facility (GEF), and the G7 Climate Risk Insurance Initiative for developing countries.



Germany's strategies for promoting LCT

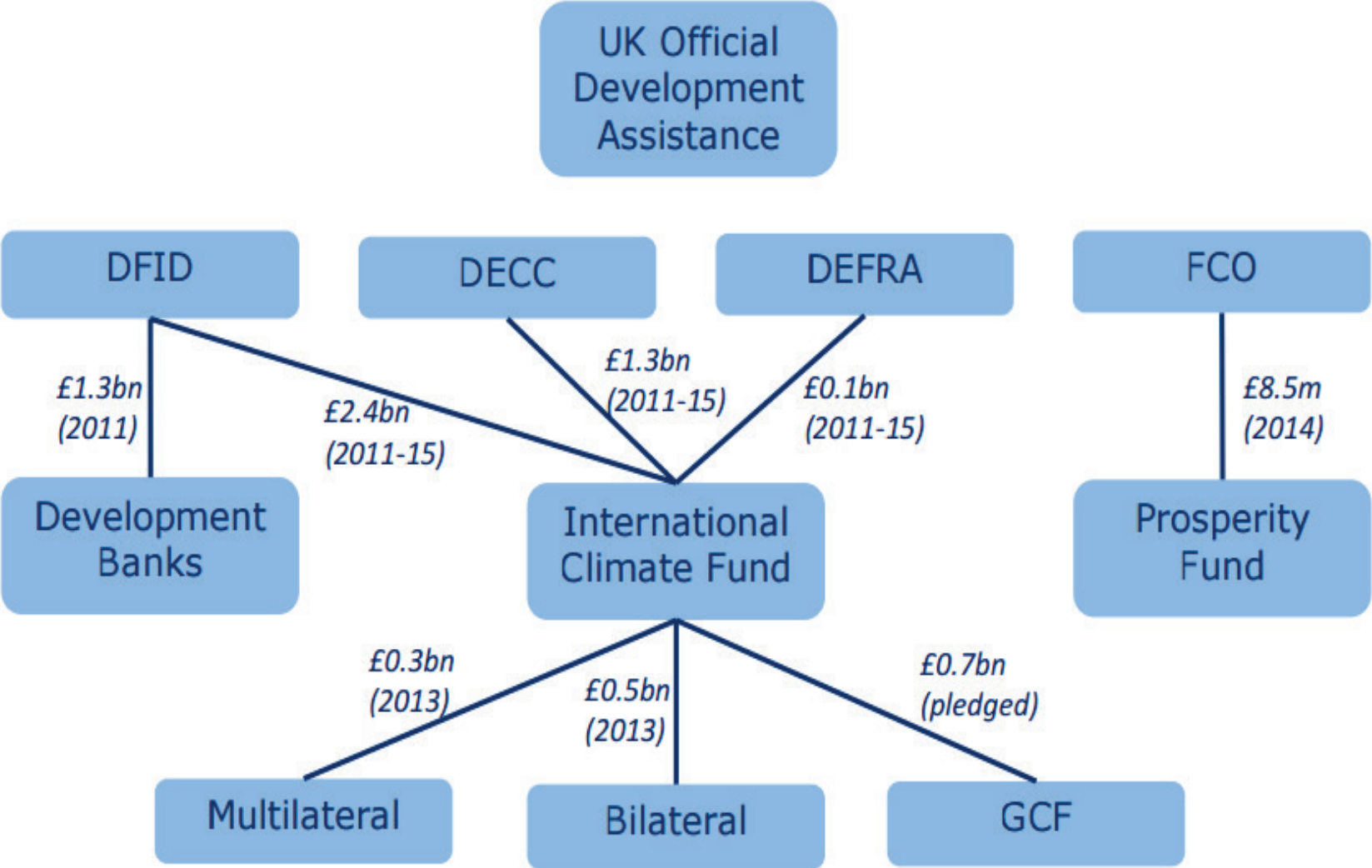
Overall importance of projects in the IKI

- The International Climate Initiative (IKI) initiates projects on both climate change mitigation and biodiversity to demonstrate solutions and feedback into their own negotiations for the UNFCCC and Convention on Biological Diversity (CBD).
- In 2014, 65 projects were chosen
- Mobilized a further 2.5bn EUR from implementing agencies, other public and private sector sources in addition to the 1.4billion of direct support from BMUB (includes payments to multilateral funds and contributions from the NAMA facility and DKTI).



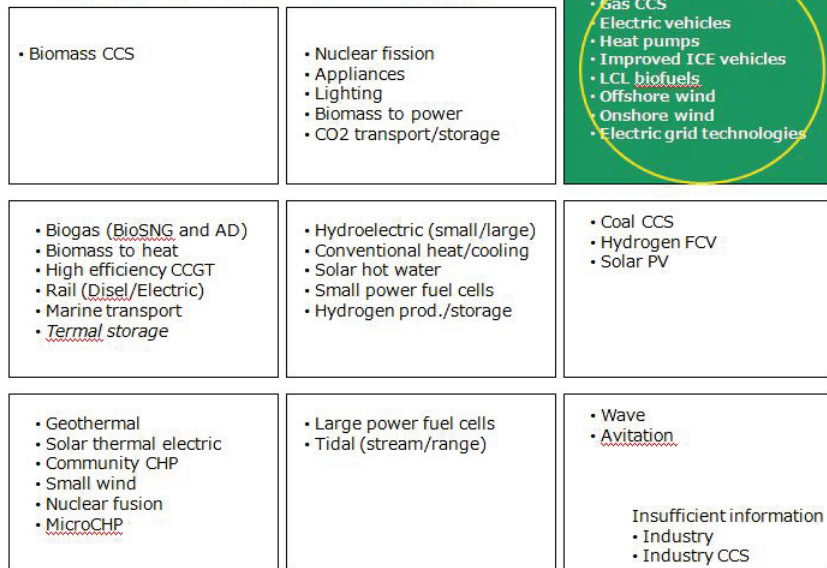
UK's strategies for promoting LCT

The UK international climate initiatives



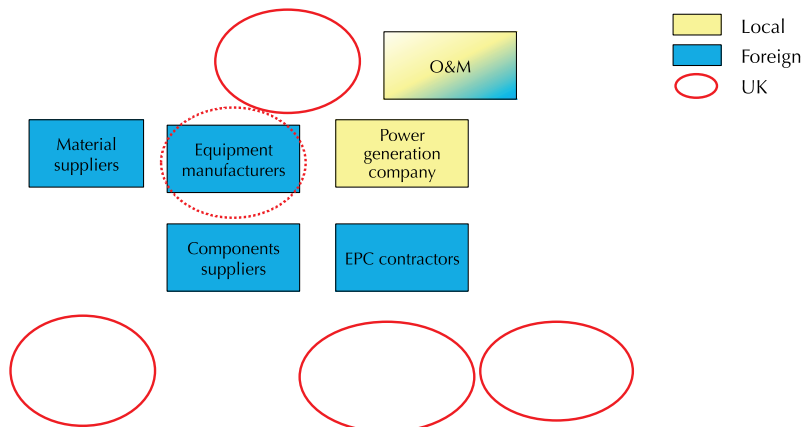
UK's strategies for promoting LCT

UK carbon abatement vs. economic value creation potential



Economic value creation potential for UK business

Value chain of a typical RE project in a LIC



- UK clean energy technology transfer priorities are driven partly by the UK's own domestic needs.
- Mapping technologies based on the scale of carbon abatement in the UK and the potentials in economic value creation.
- Has a structured mechanism for assessing which low carbon technologies to support, focused on both domestic carbon abatement and economic value creation for the UK.
- The areas circled in red are the areas that the UK are often able to take a key role in the diffusion of renewable energy projects.

UK's strategies for promoting LCT

Major mechanisms used by the UK to facilitate tech transfer

Newton Fund	Local innovation capacity building
Prosperity Fund	Building an enabling environment to allow innovation to flourish. E.g. policy & regulations, awareness raising
UK Trade & Investment (UKTI)	Helping innovators from developed countries to plug gaps, while simultaneously helping local innovations to flourish
IFC (International Finance Corporation)	Financing large scale implementation programmes to enable them to proceed
Carbon Trust	Developing low carbon technology, reducing CO2 emissions, increasing business chances



UNITED NATIONS
UNIVERSITY

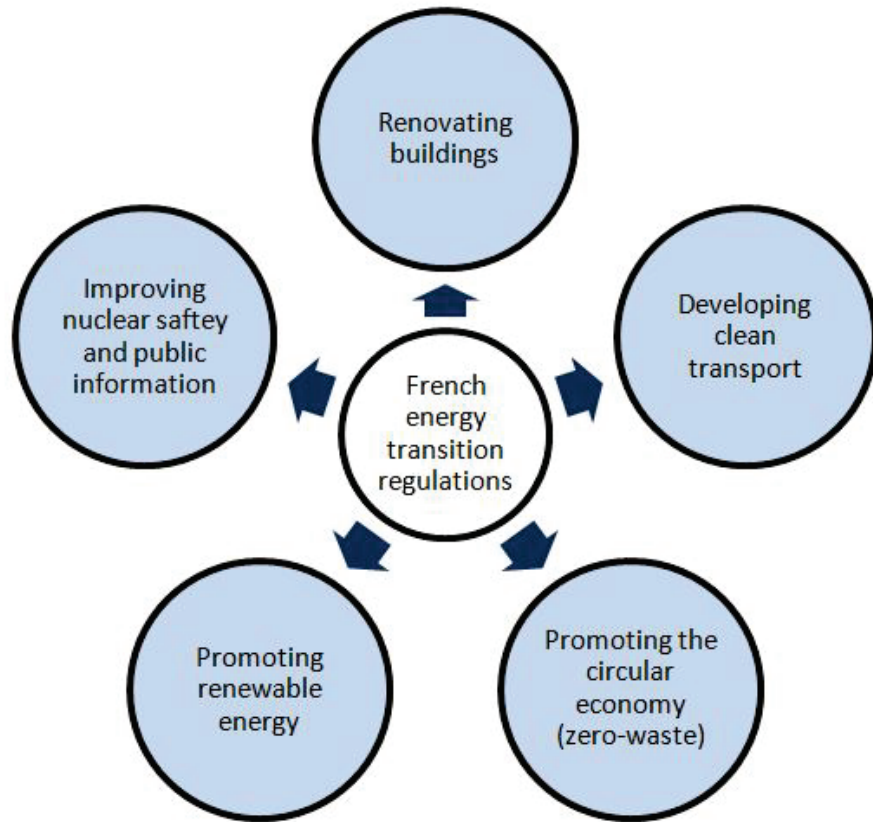
UNU-IAS

Institute for the Advanced Study
of Sustainability

LOW CARBON TECHNOLOGY TRANSFER PROJECT

France's strategies for promoting LCT

French national low-carbon strategy (SNBC)



- “Law on Energy Transition” was adopted by the French Parliament on July 2015, established the French national low-carbon strategy (SNBC).
- Set the first three carbon budgets to cover the 2015-2018, 2019-2023 and 2024-2028 periods by main five sectors of activity including transport, housing, industry, agriculture, energy and waste.
- France’s commitment to **Mission Innovation** launched at COP21
 - Doubling its public investments in research and development for energy efficiency and renewable energies over five years, compared to the average investment level during the 2012 and 2015 period.
 - Focus on renewable energy and energy storage, carbon capture and storage, and innovations aiming at improving energy efficiency (including in industry, transport, circular economy, and smart grids).



UNITED NATIONS
UNIVERSITY

UNU-IAS

Institute for the Advanced Study
of Sustainability

France's strategies for promoting LCT

Funding mechanisms to support France's energy transition plan

ADEME	Support research, development and innovation in the fields of energy, air and soil quality, and the management of wastes and noise for both private and public sectors
Instituts Carnot	Conducting research partnerships with socioeconomic actors (industries, businesses, startups, and local governments), Promoting transfers of technology, Promoting innovation
ANR (Agence nationale de la recherche)	A mechanism for financing research-support projects
ANCRE (Alliance nationale de coordination de la recherche pour l'énergie)	Coordinated in energy transition Act through scientific and technological supports, founded by CEA, CNRS and IFP Energies nouvelles

US strategies for promoting LCT

- Under 2015 US Mission Innovation framework, the US government classifies the key of low carbon technologies into three categories: clean energy **sources, usages and efficiency.**
- Focuses on the role of the market in facilitating low carbon technology transfer.
- Massive amount of private donations **dwarf the level of official funding by a factor of 100.**
- Much of the international cooperation is organized through USAID in accordance with their prioritization of projects.
 - Focus on **energy access** rather than energy efficiency and conduct the **matchmaking with the local partner.**



UNITED NATIONS
UNIVERSITY

UNU-IAS

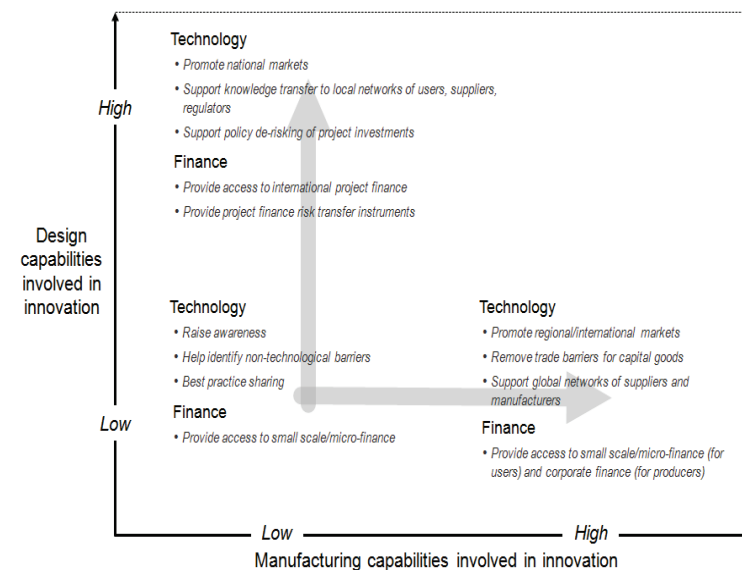
Institute for the Advanced Study
of Sustainability

LOW CARBON TECHNOLOGY TRANSFER PROJECT

Key Findings

- Large differences exist among the industrialised countries in the prioritization of technologies to be transferred.
- Technology transfer priorities are linked partly with priority of domestic industries.
 - Technology transfer is active in the low-added-value industries (i.e. manufacturing). On the other hand, developed countries safeguard the main part of the rights and interests of the technologies and dissemination.
 - Developing countries already have comparative advantage in some part of the stages of technology transfer.
 - However, when looking at the overall supply chain, UN and Germany have high comparative advantage.
- Efficient funding mechanisms for LCT exist besides subsidy systems.
- Provides a number of soft support services such as introducing human resources to advisory services to facilitate low carbon technology dissemination.

Ways Forward



- Understanding overall picture of technology transfer
- Analyze the differences of each country's strategies and its backgrounds.
- Research on institutional arrangements and cooperation mechanisms suitable for the local conditions: How successful cases meet the needs of the recipient countries
- Analysis to identify comparative advantage of industries in overall supply chains.
- Strategies through multinational organizations/institutions
- A study of public and private partnerships.



UNITED NATIONS
UNIVERSITY

UNU-IAS

Institute for the Advanced Study
of Sustainability

LOW CARBON TECHNOLOGY TRANSFER PROJECT



Challenges and Actions to Low Carbon Technologies Transfer in Developing Countries

Nobuhiro KINO

Ministry of the Environment, Japan (MOEJ)



Challenges to Low Carbon Transfer

Challenges

1. Initial Cost for Leading Low Carbon Technologies (technologies with securing quality on not only initial performance but operation and maintenance)
2. Mismatch of Needs and Costs of technologies
3. Effective Formation of Low Carbon Projects



Actions:

1. JCM
2. Innovation of Technologies for Developing Countries
3. City-to-City Collaboration

Subsidy program for innovation of low carbon technologies for developing countries

Background, Objectives

- Excellent low carbon technology is in high demand in developing countries and essential to strengthening global climate change countermeasures.
- However such technology may not be appropriate to be introduced in the market of developing countries due to the difference of environmental regulations and systems, cultural practices and restriction of energy resources.
- The program aims to fundamentally improve technologies in order to meet the requirement of developing countries, and realize low carbon society, promote International expansion of technology, as well as reduce CO₂ emission.
- The innovation process in the program will lead to technology development in Japan and dissemination its technologies in other regions.

Subsidy Scheme

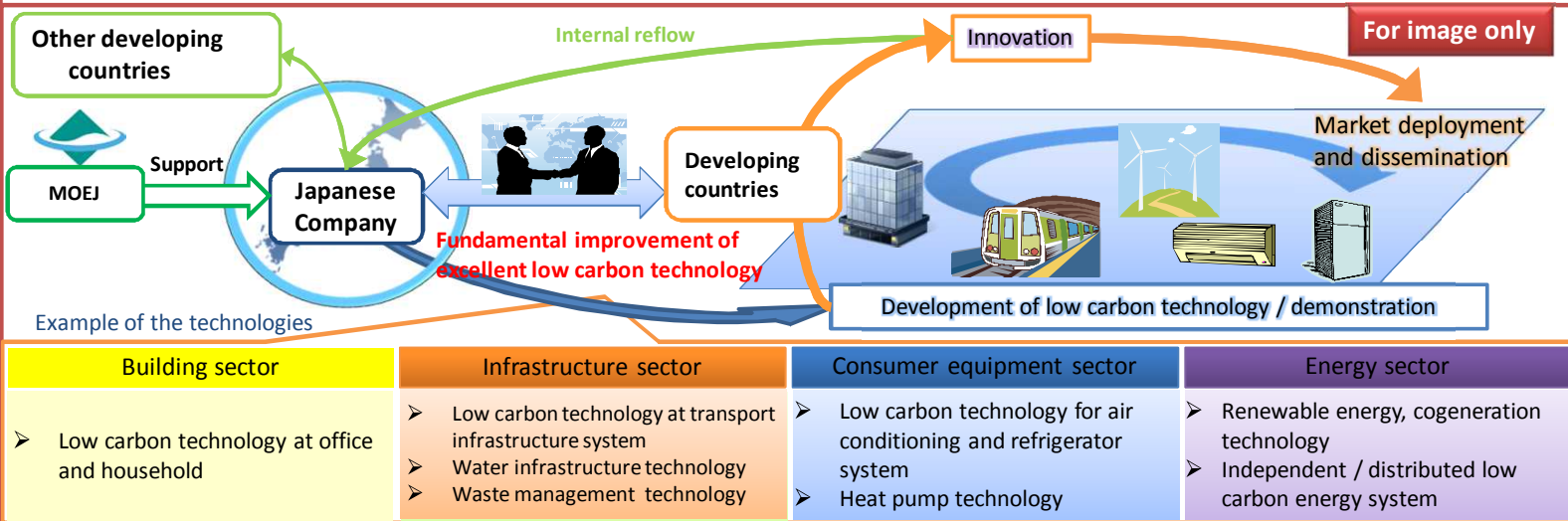
Target: Private organization (subsidy: 1/2~2/3 of whole project budget)
Implementation period: Maximum 3 years

Summary of subsidy program

This program provides subsidies to private organizations for fundamental improvement of low carbon technologies in order to meet various requirements of the developing countries, such as environmental regulations and system, cultural practices and restriction of energy resources.

Expected impact

- Scale-up utilization of the Joint Crediting Mechanisms (JCM)
- Diffuse appropriate low carbon technology in developing countries
- Strengthen global competitiveness of excellent low carbon technologies



JCM Feasibility Study Based on City to City Collaboration

- Support to formulate projects towards low carbon society construction in overseas cities based on City-to-City collaboration in which Japanese municipalities cooperate with those cities by their sufficient experience, know-how and technologies.
- Further Support the formulated projects to be realized by JCM support schemes

Cities in collaboration in 2016 feasibility studies (6 Japanese Cities with 9 overseas partner cities)

- Yokohama city : 1. Batam city (Indonesia)
 Kanagawa pref. : 2. Siem reap province (Cambodia)
 Kitakyushu city : 3. Phnom Penh city (Cambodia), 4. Rayong (Thai),
 5. Haiphong city (Vietnam), 6. Iskandar (Malaysia)
 Kawasaki city : 7. Yangon city (Myanmar)
 Fukushima city : 8. Ayeyarwady (Myanmar)
 Sapporo city : 9. Ulaanbaatar city (Mongolia)



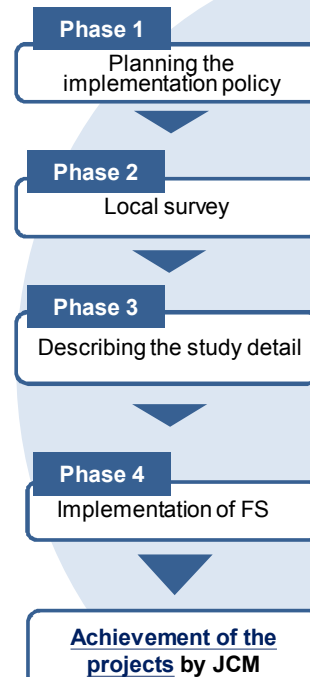
※Partner Cities in 2014 and 2015 (except the cities listed above)

- Yokohama city : Bangalore city (India), Da Nang city (Vietnam),
 Bangkok city (Thai)
 Kawasaki city : Bandung (Indonesia)
 Kitakyushu city : Surabaya city (Indonesia)
 Osaka city : Ho Chi Minh city (Vietnam)
 Kyoto city : Vientiane city (Laos)

Achievements adopted by the JCM Model Projects



Progress flow of project formation



Advantages of city to city collaboration

-Japanese cities which are well experienced **support partner cities to establish master plans for low carbon development, etc**

-Local information is provided by partner cities that causes **efficient selection for candidate projects.**

-Suitable selection of location for the study is provided by partner cities (shopping malls, factories etc.) to **support the study preparation.**
 -Relevant **study data** is provided.

-**Permissions procedures** are facilitated, as necessary, by partner cities' collaboration
 -Necessary resource for the implementation is arranged and provided by partner cities
 -**Horizontal spreading** of successful cases to other cities

City to City collaboration will facilitate efficient project formations and lead to the implementation.



Ministry of the Environment
Government of Japan

Thank you for your attention !

18 May, 2016

Low-carbon Technology Transfer through Bilateral Cooperation

~ Progress in Model Projects of the Joint Crediting Mechanism ~

Global Environment Centre Foundation (GEC)
Executive Director/ Head of Tokyo Office
Yuji Kimura



Joint Crediting Mechanism (JCM):

- Facilitating diffusion of leading low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions, and contributing to sustainable development of developing countries.
- Appropriately evaluating contributions from Japan to GHG emission reductions or removals in a quantitative manner and use them to achieve Japan's emission reduction target.
- Use of market mechanisms, including the JCM, is articulated under Article 6 of the Paris Agreement.

JCM Promotion Scheme by MOEJ

- The Ministry of the Environment Japan (MOEJ) launched:
 - **Financing Programme for JCM Model Projects;**
 - **Feasibility Studies for elaborating investment plan on JCM projects;**
 - **Promotion for participation in JCM Financing Programme;** and
 - Capacity Building Programmes for the JCM.

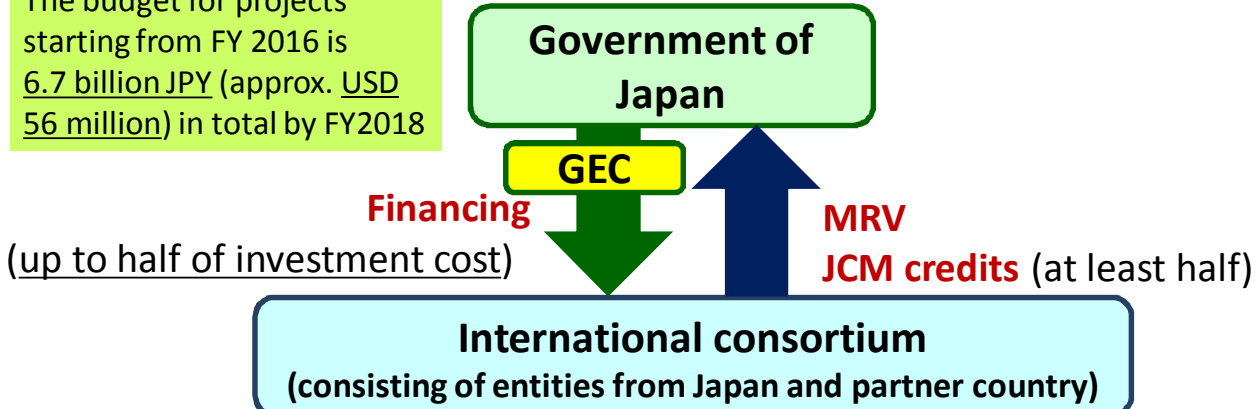
Global Environment Centre Foundation (GEC):

- The Secretariat of **Financing Programme (FY2013, FY2014, FY2015, FY2016)** and Feasibility Study Programme for the JCM, commissioned by the MOEJ



JCM Model Projects by MOE

The budget for projects starting from FY 2016 is 6.7 billion JPY (approx. USD 56 million) in total by FY2018



- Scope of the financing: facilities, equipment, vehicles, etc. which reduce CO2 from fossil fuel combustion as well as construction cost for installing those facilities, etc.
- Eligible Projects : starting installation after the adoption of the financing and finishing installation within three years.

JCM Financing programs by MOEJ (FY2013/2014/2015) as of Apr 22, 2016

Thailand:

- Energy Saving at Convenience Stores with High Efficiency Air-Conditioning and Refrigerated Showcase
- Introduction of Solar PV System on Factory Rooftop
- Reducing GHG Emission at Textile Factory by Upgrading to Air-saving Loom (Samutprakarn)
- Energy Saving for Semiconductor Factory with High Efficiency Centrifugal Chiller and Compressor
- Installation of Co-generation Plant for On-Site Energy Supply in Motorcycle Factory
- Energy Saving for Air-Conditioning in Tire Manufacturing Factory with High Efficiency Centrifugal Chiller
- Installation of High Efficiency Air Conditioning System and Chillers in Semiconductor Factory

Bangladesh:

- Energy Saving for Air Conditioning & Facility Cooling by High Efficiency Centrifugal Chiller (Suburbs of Dhaka)
- Installation of High Efficiency Loom at Weaving Factory
- Introduction of PV-diesel Hybrid System at Fastening Manufacturing Plant
- 50MW Solar PV Power Plant Project
- Installation of High Efficiency Centrifugal Chiller for Air Conditioning System in Clothing Tag Factory

Saudi Arabia:

- Introduction of High Efficiency Electrolyzer in Chlorine Production Plant

Ethiopia:

- Introduction of Biomass CHP Plant in Flooring Factory

Kenya:

- Solar Diesel Abatement Projects
- 6MW Small Hydropower Generation Project in Ruingazi
- Introduction of Solar PV System at Salt Factory

Maldives:

- Solar Power on Rooftop of School Building Project
- Smart Micro-Grid System for POISED Project in Addu Atoll

Myanmar:

- Introduction of Waste to Energy Plant in Yangon City

Malaysia:

- PV Power Generation and Relevant Monitoring System for the Office Building

Laos:

- REDD+ project in Luang Prabang Province through controlling slush-and-burn

Cambodia:

- Introduction of High Efficiency LED Lighting Utilizing Wireless Network
- Introduction of Ultra-lightweight Solar Panels for Power Generation at International School

Palau:

- Small-Scale Solar Power Plant for Commercial Facilities in Island States Project
- Small-Scale Solar Power Plants for Commercial Facilities Project II
- Solar PV System for Schools Project

Mongolia:

- Upgrading and Installation of Centralized Control System of High-Efficiency Heat Only Boiler (HOB)**
- Installation of 2.1MW Solar Power Plant for Power Supply in Ulaanbaatar Suburb
- 10MW Solar Power Project in Darkhan City

Viet Nam:

- Eco-driving with the Use of Digital Tachographs
- Introduction of amorphous high efficiency transformers in power distribution systems
- Introduction of High Efficiency Air-conditioning in Hotel
- Energy Saving in Lens Factory with Energy Efficient Air-Conditioners
- Energy Saving in Acid Lead Battery Factory with Container Formation Facility
- Introduction of High Efficiency Electric Furnace at Foundries
- Introduction of Solar PV System at Shopping Mall in Ho Chi Minh City
- Introduction of Amorphous High Efficiency Transformers in Southern and Central Power Grids
- Energy Saving in Factories with Air-Conditioning Control System
- Installation of High Efficiency Kiln in Sanitary Ware Manufacturing Factory

Indonesia:

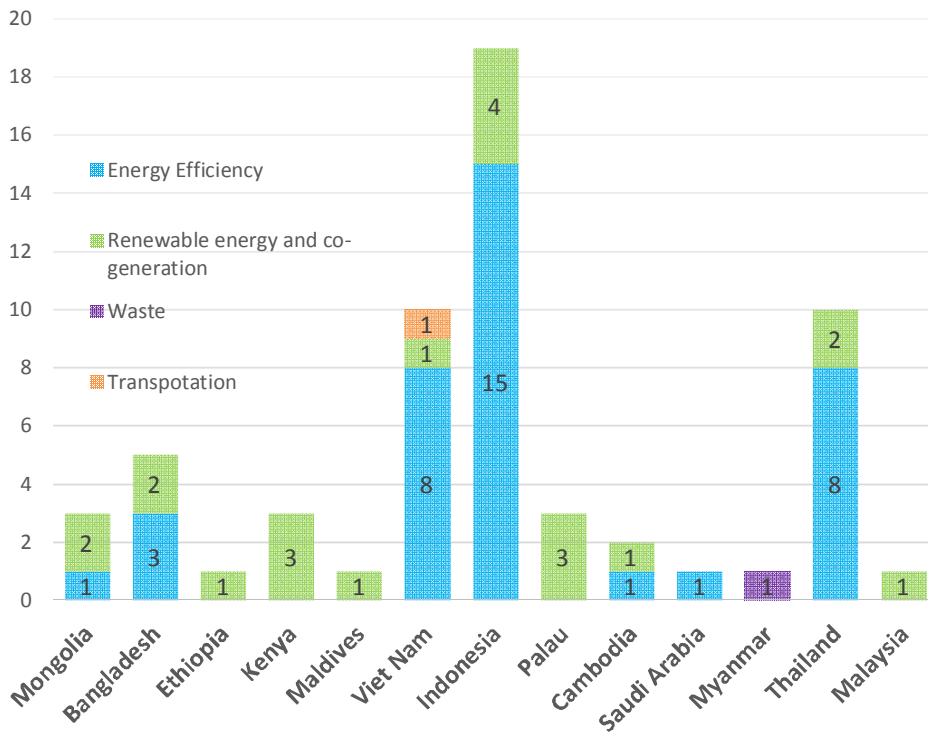
- Energy Saving for Air-Conditioning and Process Cooling at Textile Factory (in Batang city)
- Energy Savings at Convenience Stores
- Energy Efficient Refrigerants to Cold Chain Industry**
- Energy Saving by Installation of Double Bundle-type Heat Pump
- Energy Saving for Air-Conditioning and Process Cooling at Textile Factory
- Power Generation by Waste Heat Recovery in Cement Industry
- Solar Power Hybrid System Installation to Existing Base Transceiver Stations in Off-grid Area
- Energy Saving through Introduction of Regenerative Burners to the Aluminum Holding Furnace of the Automotive Components Manufacturer
- Energy Saving for Textile Factory Facility Cooling by High Efficiency Centrifugal Chiller
- Introduction of High Efficient Old Corrugated Cartons Process at Paper Factory
- Reducing GHG Emission at Textile Factories by Upgrading to Air-Saving Loom
- Energy Saving for Air-Conditioning at Shopping Mall with High Efficiency Centrifugal Chiller
- Energy Saving for Industrial Park with Smart LED Street Lighting System
- Introduction of High Efficiency Once-through Boiler System in Film Factory
- Installation of Gas Co-generation System for Automobile Manufacturing Plant
- Introduction of High Efficiency Once-through Boiler in Golf Ball Factory
- 1.6MW Solar PV Power Plant Project in Jakabaring Sport City
- REDD+ project in Boalemo District

○ Model project in FY 2013 (3 countries, 7 projects)
 ○ Model project in FY 2014 (7 countries, 14 projects)
 ■ ADB project in FY 2014 (1 country, 1 project)
 ○ Model project in FY 2015 (10 countries, 34 projects)
 ● REDD+ Model Project in FY 2015 (2 countries, 2 projects)

Total 14 countries, 58 projects

The underlined projects have been registered as the JCM projects (9 projects)
 ※these projects account for 2 registered JCM projects respectively, as they're operating in different sites

Number of JCM Model Project in sectors by partner countries



Sector	Technology
Energy Efficiency	Boiler
	Regenerative Burners
	Gas Fired Furnace
	Electric Furnace
	Air Conditioning System
	Air Conditioning Control System
	Chiller
	Swirling Induction Type air-conditioning system
	Heat pump
	Fridge and Freezer Showcase
	Refrigerator
	Compressor
	Loom
	Old Corrugated Cartons Process
	Battery Case Forming Device
	Electrolyzer in Chlorine Production
	Transformer
	LED lighting
LED Street Lighting with Dimming System	
Renewable Energy and Co-generation	Solar Power Plant
	Small Hydropower Plant
	Power Generation by Waste Heat Recovery
	Gas Co-generation
	Biomass Co-generation
	Waste to Energy Plant
Waste	Waste to Energy Plant
Transportation	Digital Tachograph System

JCM Project

Host Country: Indonesia

Power generation by waste heat recovery in cement industry

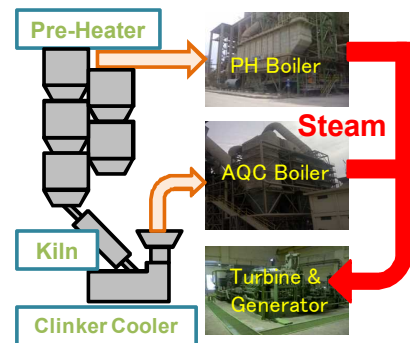
Project Owner (Japan): JFE Engineering Corporation, (Indonesia) PT Semen Indonesia (Persero) Tbk.

Outline of GHG Mitigation Activity

The proposed project is planned to introduce a waste heat recovery (WHR) boiler steam turbine generator system at an existing cement production plant (PT Semen Indonesia, Tuban Plant) located in Tuban, East Java, Indonesia. The WHR system will utilize waste heat currently emitted from the cement factory without utilization. WHR boilers will generate steam using the waste heat exhausted from the cement plant, and the steam will be fed to the steam turbine generator to generate electricity.



PT. Semen Indonesia Tuban Plant



Expected GHG Reductions

122,000 tCO₂/year

◆ The quantity of net electricity generation by the WHR system which replaced grid electricity import

	A	B	C	D	E(A*B*C*D)
Quantity of electricity generation	Generation capacity (MW)	Operating day/year (d/yr)	Time (hrs/d)	Operating Rate	Electricity (MWh)
Dry season	28	182.5	24	0.85	104,244
Rainy season	22	182.5	24	0.85	81,906
Electricity consumption by WHR system	2.4	365	24	1	21,024
Quantity of net electricity replaced grid electricity import (E _g)					165,126

◆ Reference emissions (RE_y) = E_g * EF_{grid}
 = 165,126 MWh/y * 0.741 tCO₂e/MWh
 ≒ 122,000 tCO₂e/y

◆ Project emissions (PE_y) = 0

◆ Emission reductions (ER_y) = RE_y - PE_y ≒ 122,000 tCO₂e/y

Sites of JCM Model Project



PT. Semen Indonesia Tuban Plant at Tuban City in East Java, Indonesia

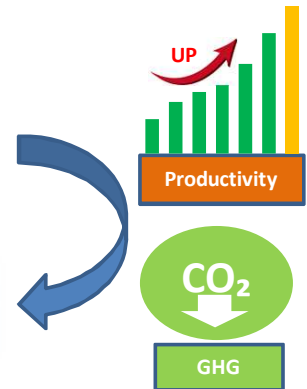
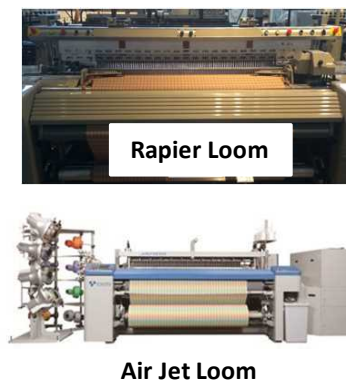
Installation of High Efficiency Loom at Weaving Factory

PP (Japan): Toyota Tsusho Corporation / PP (Bangladesh): Hamid Fabrics Limited

Outline of GHG Mitigation Activity

The textile industry is a key industry in Bangladesh, accounting for more than 80% of the total exports. This project introduces air jet looms at a weaving factory, which can reduce energy consumption and increase productivity at the same time.

Currently, rapier looms are widely used in Bangladesh and many of them are secondhand. Compared to the rapier looms, air jet looms introduced in this project have 1.8 times higher productivity and 15% higher energy efficiency, which means approximately 53% energy efficient in terms of unit per area of fabric produced. The air jet looms are environmentally sound not causing problems such as noise and waste water treatment.



Expected GHG Emission Reductions

1,518 tCO₂/year

Assuming the same quantity of fabrics are produced for a year by the rapier looms, it is estimated that 4,299MWh is consumed and the energy saving with air jet looms would be 2.265MWh. Therefore, GHG emission reduction is: 2,265MWh x 0.67CO₂/MWh = 1,518 tCO₂.

*EF_{grid}: 0.670 tCO₂/MWh (publicly available, latest number from IGES)

Sites of JCM Model Project



Dhaka, Bangladesh

Thank you

➤ Further information could be found at our website dedicated to the JCM: <<http://gec.jp/jcm/>>.



– Low carbon technologies in Germany and Japan–

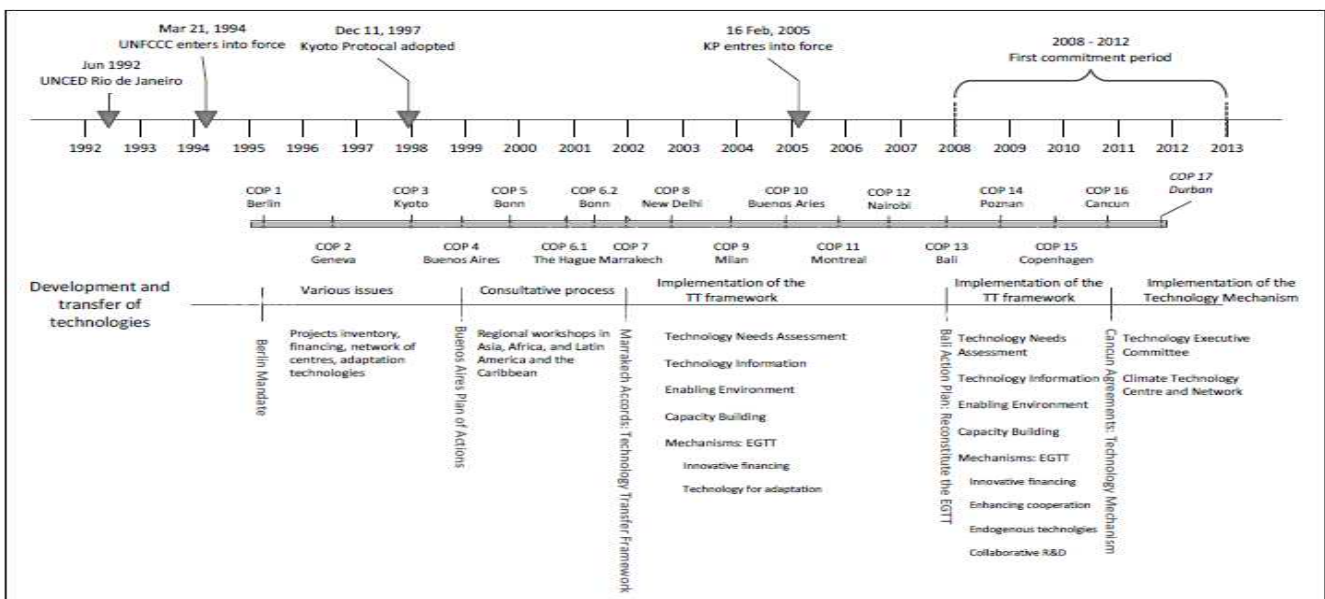
Enhancing Stakeholders Matchmaking to Promote Low Carbon Technology Transfer

Abdessalem RABHI, PhD.
Senior Policy Researcher, and Task Manager, IGES



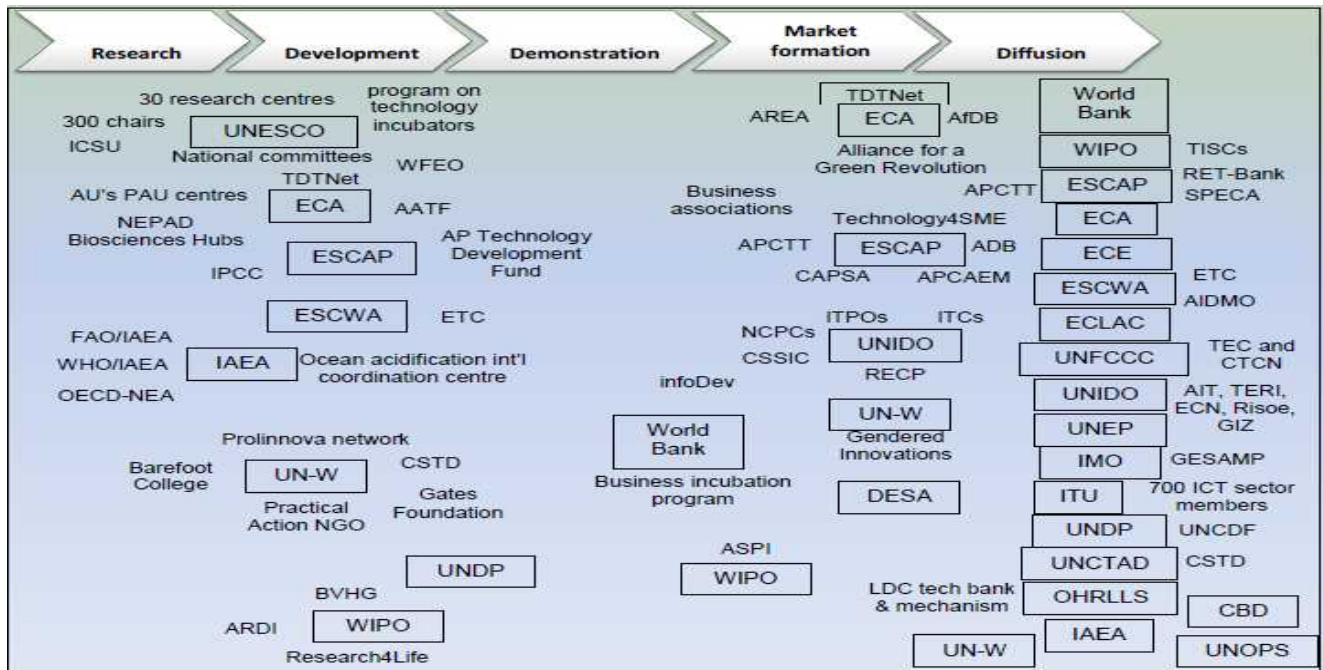
Background

- Low Carbon Technology Transfer (LCTT) still considered a hot topic and urgent issue to be tackled
- There is still no consensus on what to do?, how to do it?, and who can play what role?



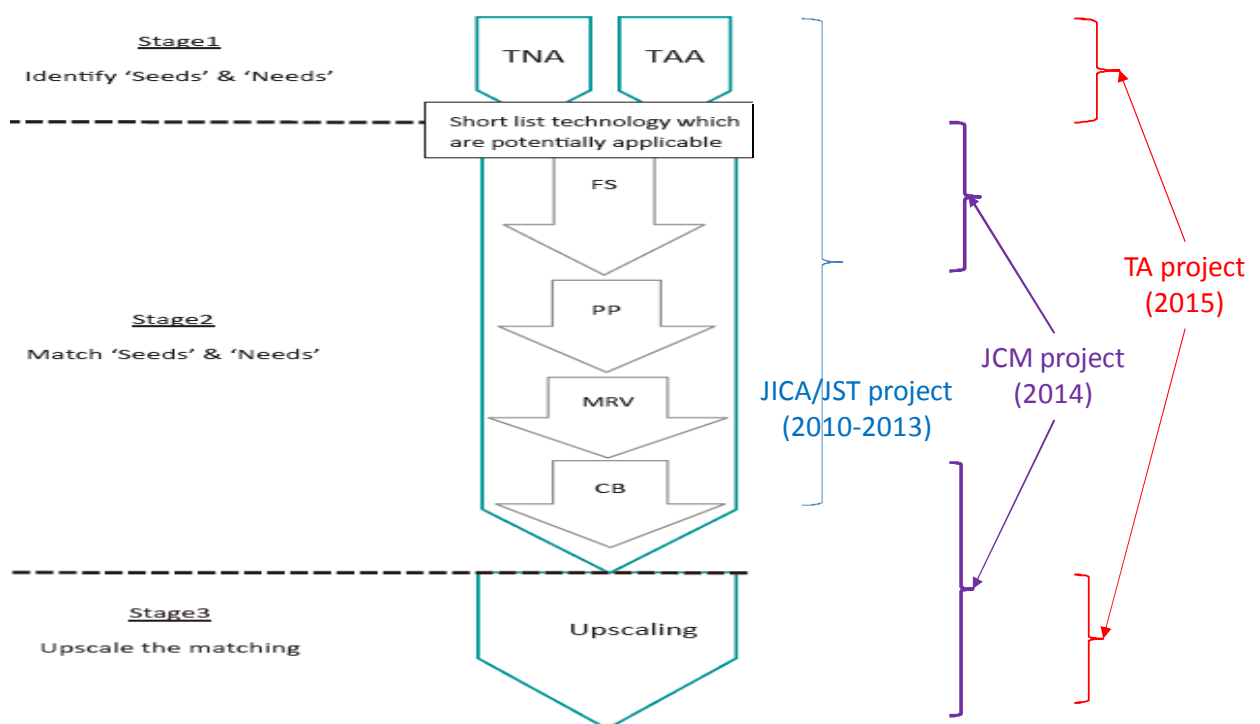
Background

- Numerous programmes/approaches/models are addressing LCTT, but their efforts remain somewhat fragmented and weakly coordinated



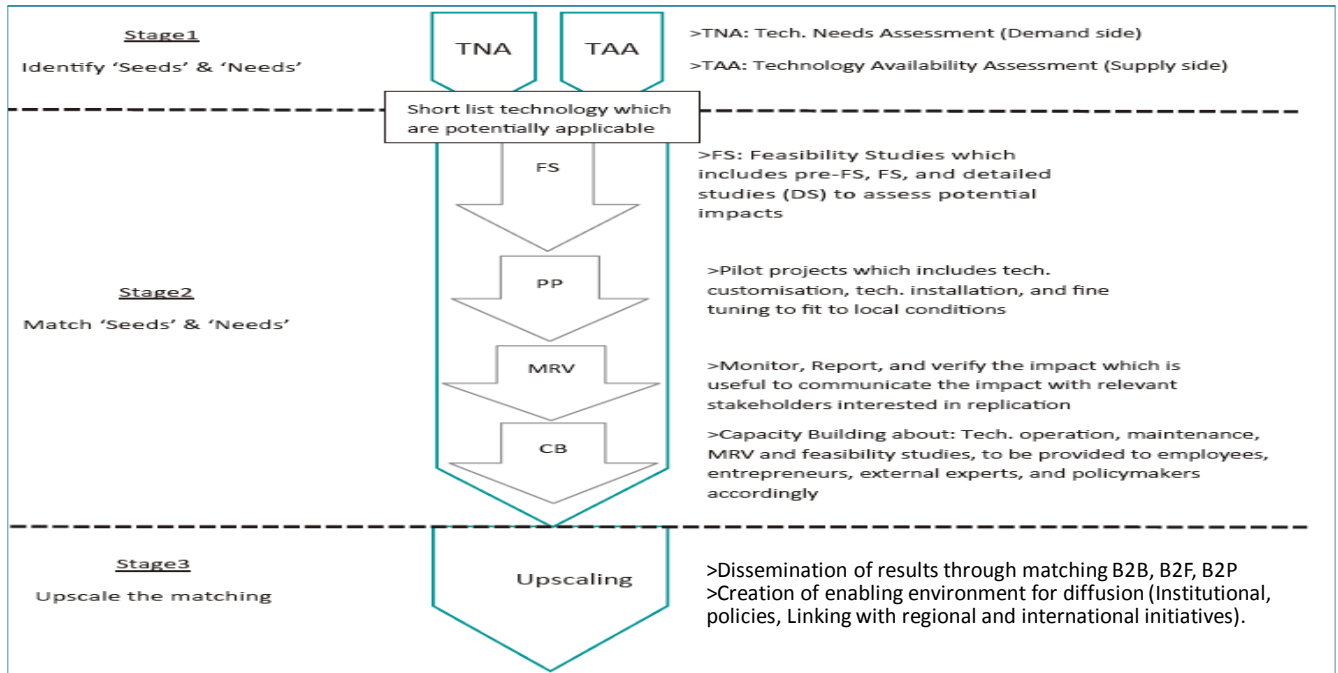
Source: structured Dialogues on a technology facilitation mechanism, David O'Connor. UN-DESA, DSD, Dialogue 1, 29 April 2014

e.g. IGES-TERI project(s) to promote clean technology application in India (2010~2015)



Aspect of strategy

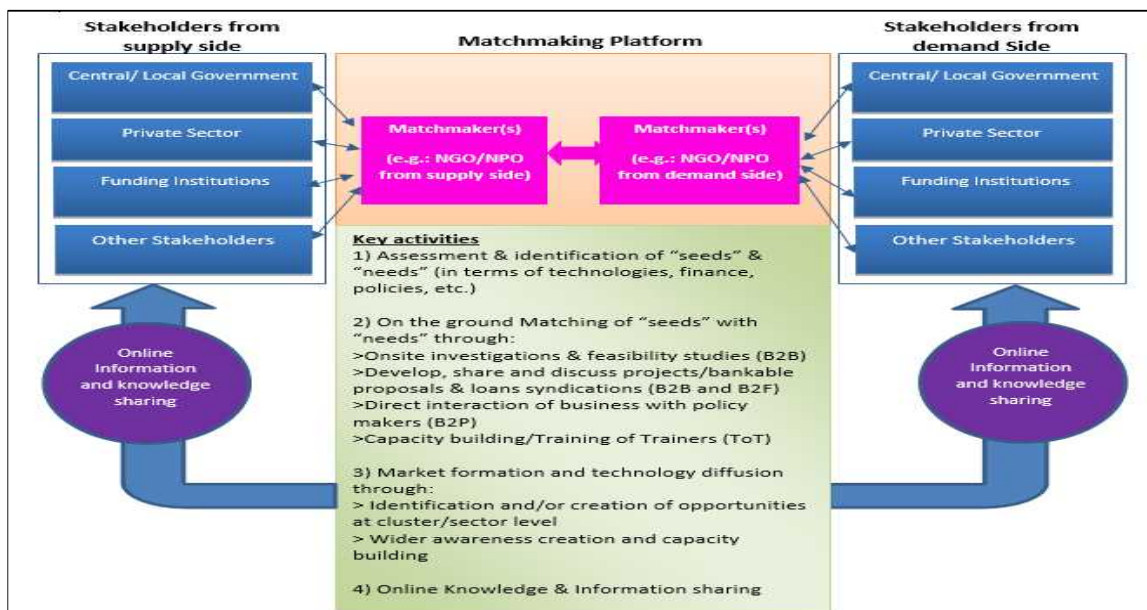
- 1) Address the whole process of LCTT rather than just part of it (e.g. through decomposing it into three stages)
- 2) For each stage, map what should be done? how?, and who can play what role?



Aspect of strategy

- 3) Initiate a stakeholders' matchmaking platform that has a role of assessment, mapping and "on the ground" matching (B2B, B2F, B2P), along with information & knowledge sharing role.

- 4) The Matchmakers should, preferably, be NGOs/NPOs



Enhancing stakeholders' matchmaking
Matching Businesses to Businesses (B2B)



Enhancing stakeholders' matchmaking
Matching Experts with Experts (E2E)



Enhancing stakeholders' matchmaking
Matching Businesses with Funding Agencies (B2F)



Mtg. with GEDA



Mtg. with SIDBI



Mtg. with JICA (India)



Mtg. with JBIC (India)



Mtg. with NEDO (India)

Enhancing stakeholders' matchmaking
Matching Businesses to Policy Makers (B2P)



e.g. mtg. with Local and Central Boiler Inspectors regarding boiler regulation

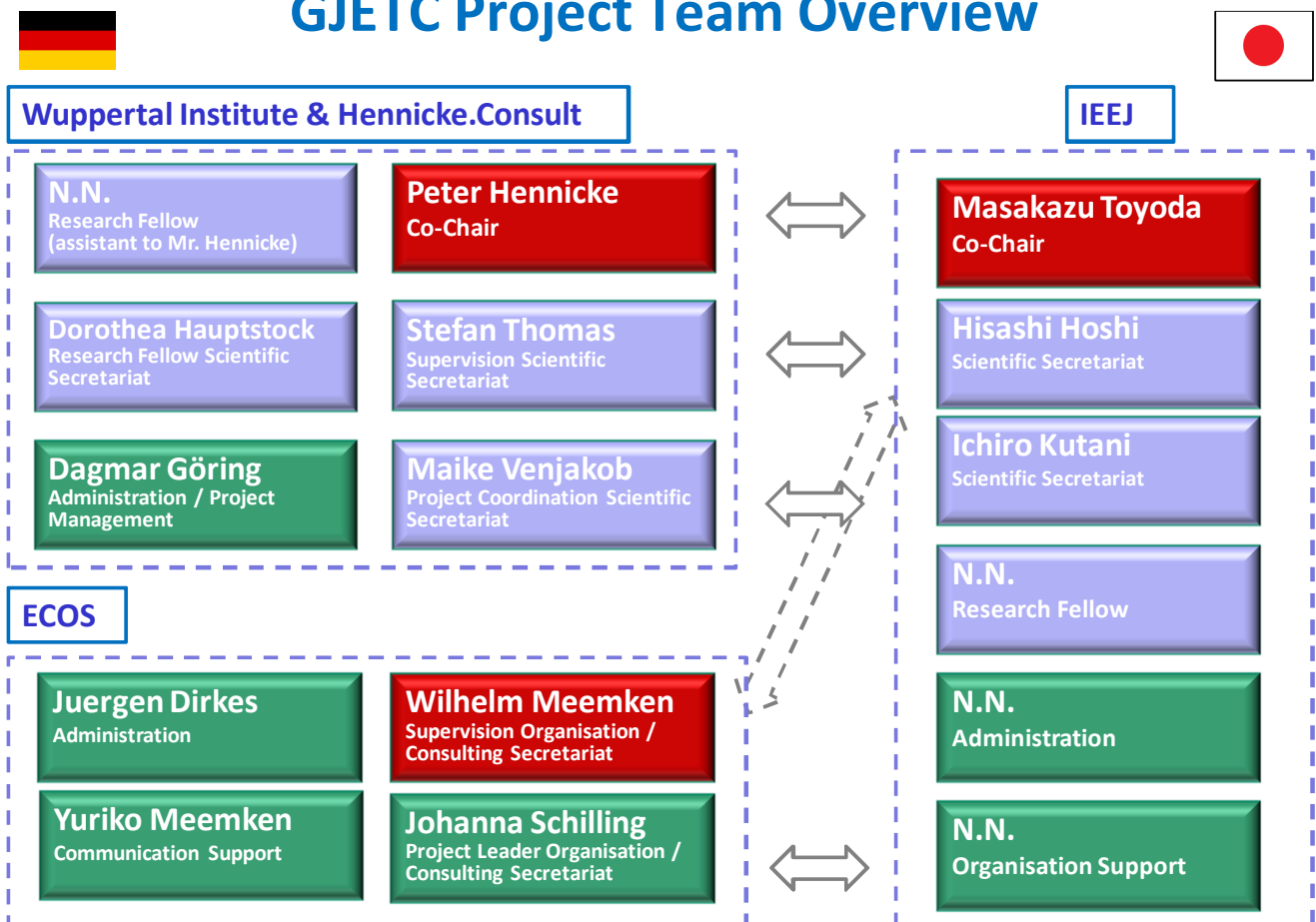


Establishing a German-Japanese Energy Transition Council (GJETC)

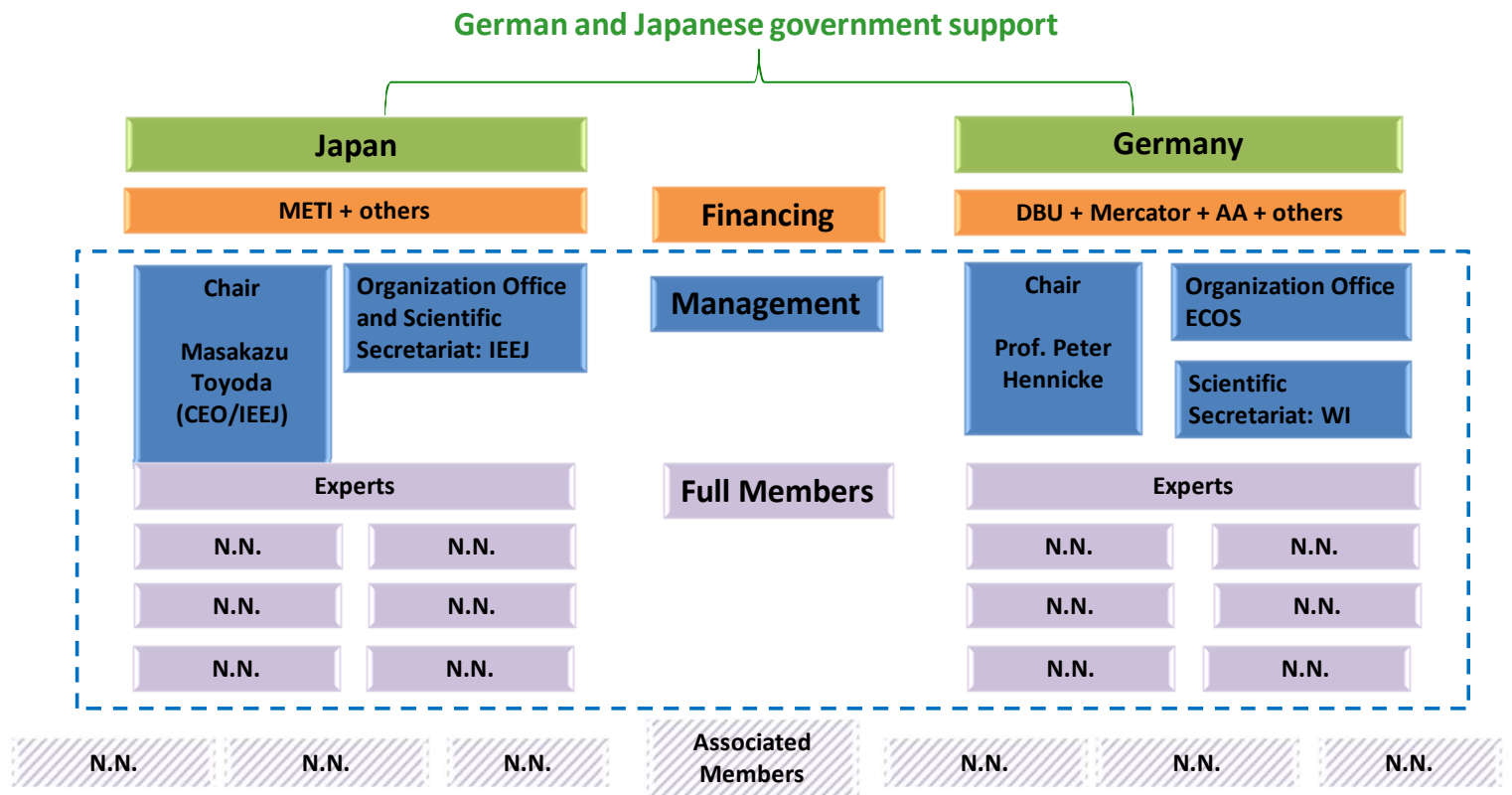
Project Outline

May 2016

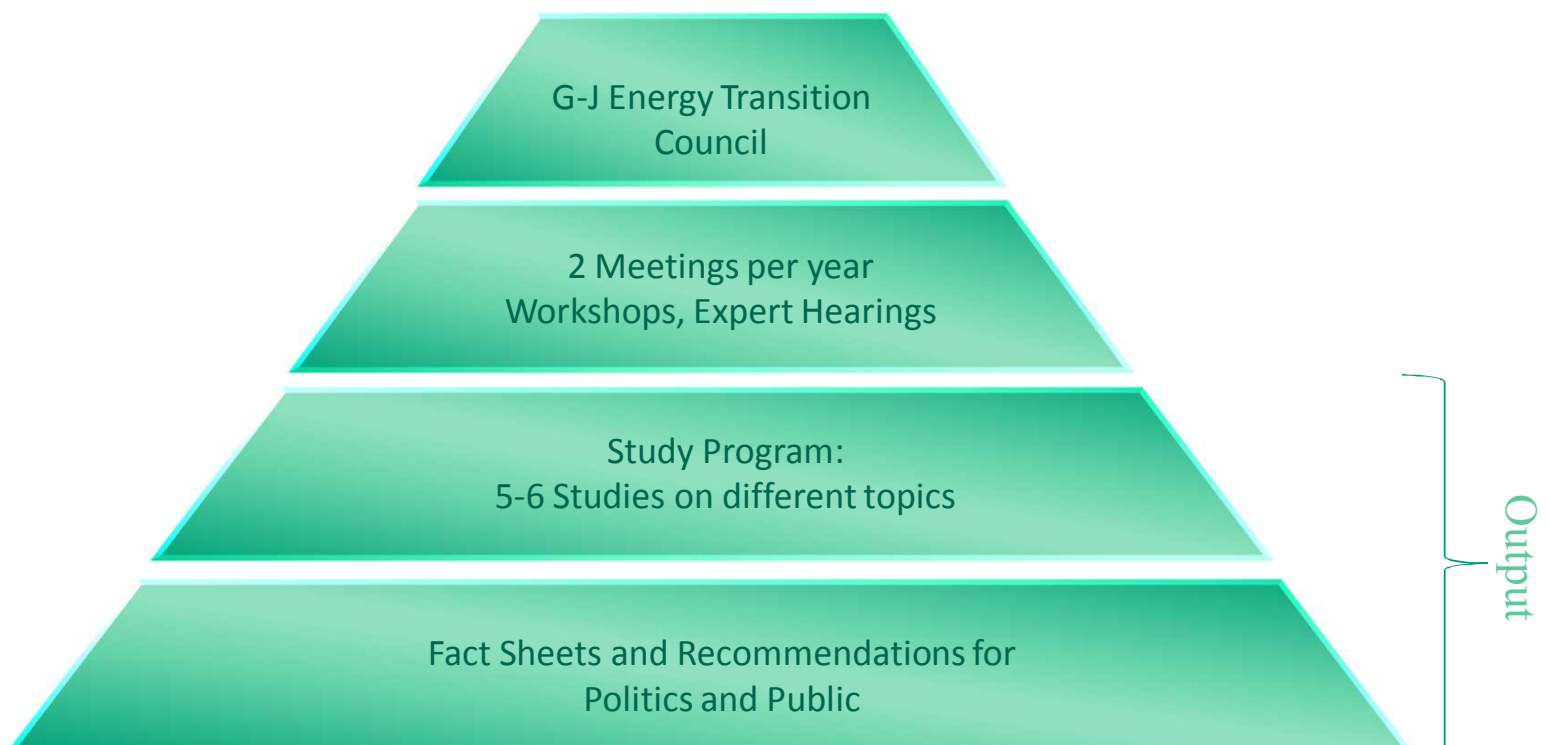
GJETC Project Team Overview



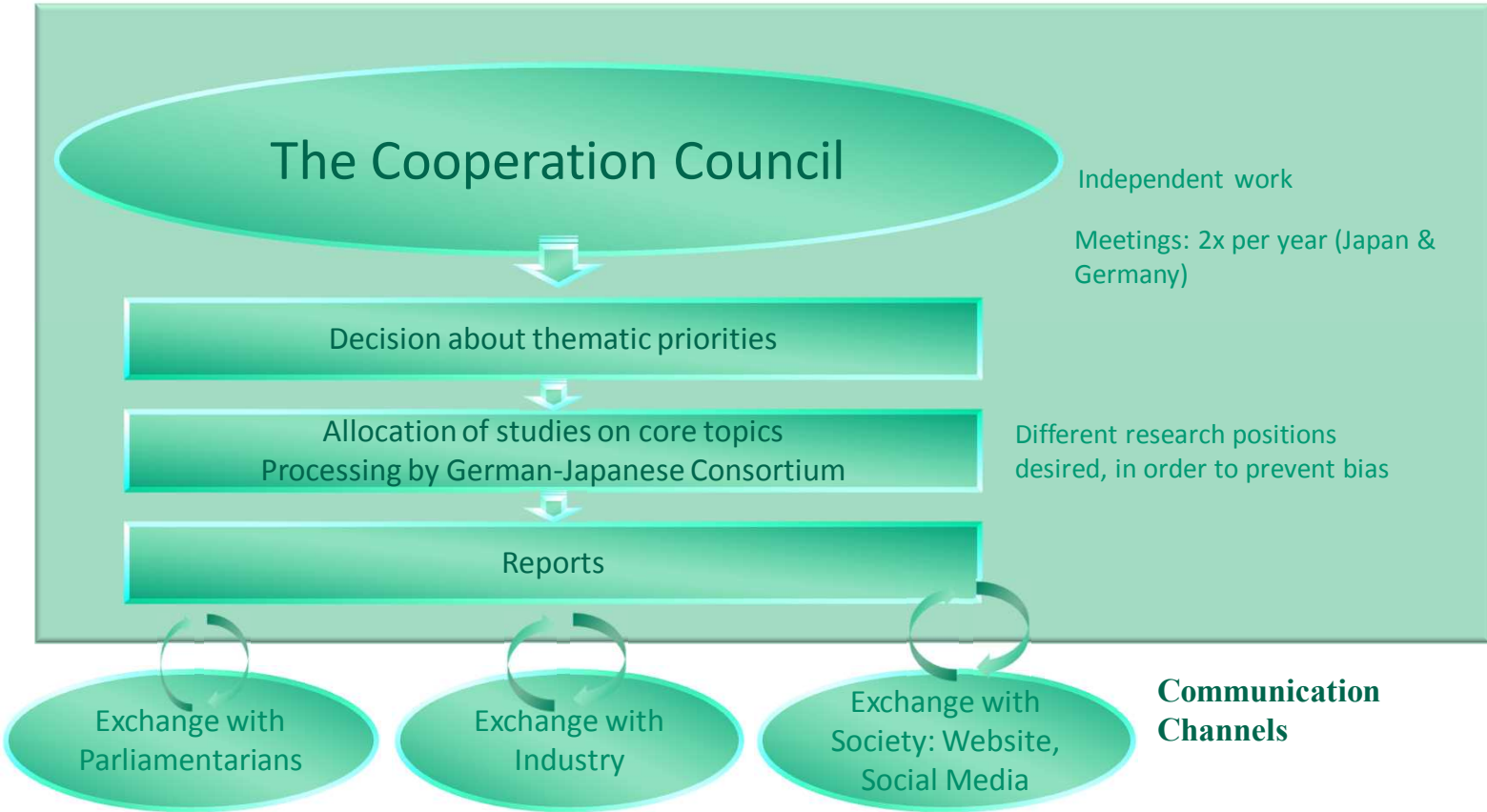
Suggested Structure for the Council



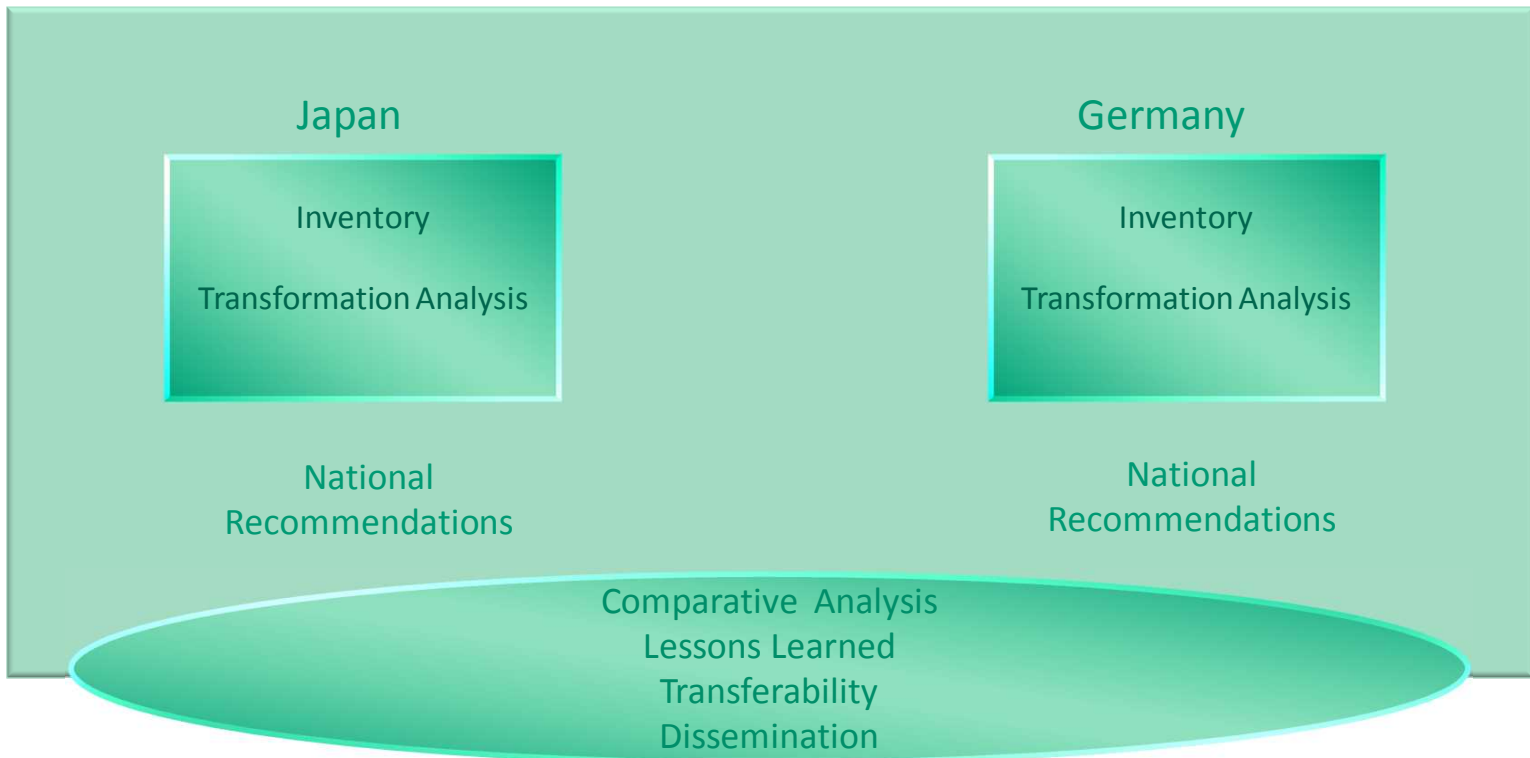
Core task: Scientifically based Output



Dialogue-oriented and Knowledge-based Operation



Consistent and user-friendly format for studies



Possible strategic topics of mutual interest of the Japanese-German Energy cooperation

- 1: Energy transition as a central building block of an ecological industrial policy (incl. Enhancement of energy and resource efficiency)
 - Market chances REG and innovative technologies for RE, as well as resource efficiency and macroeconomic benefits of an ambitious climate protection etc.
- 2: Strategic framework and social-cultural aspects of the energy transition
 - Specific framework for an energy transition in all sectors, comparison of scenarios, roadmaps and strategies for energy policy, etc.

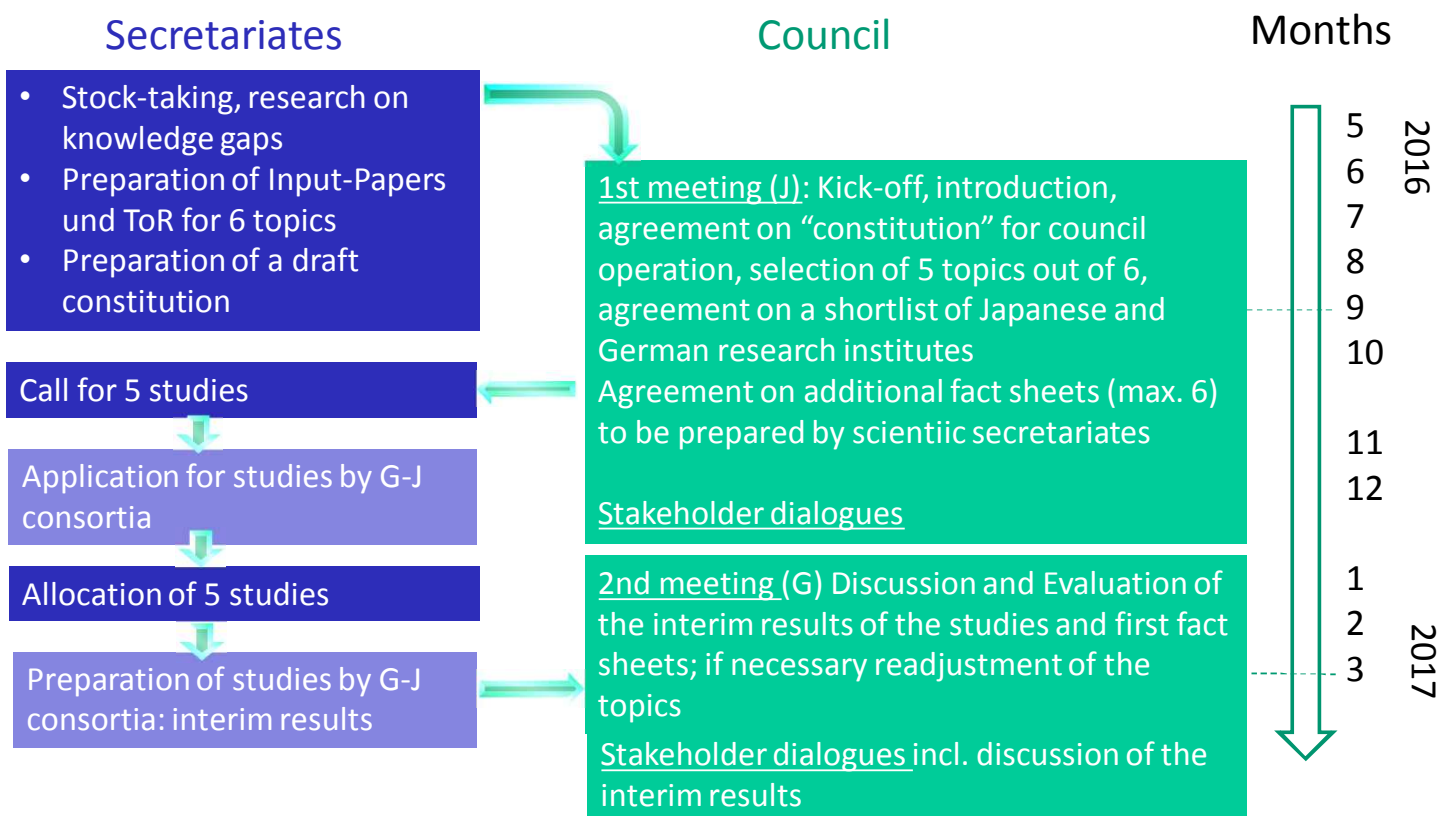
Possible strategic topics of mutual interest of the Japanese-German Energy cooperation

- 3: Energy market regulations and the future design of the energy market
 - Concepts for the transformation of the energy market (grid expansion, options for flexibilisation, capacity markets), development of the distribution grid to the Smart Grid and relevant political framework, etc.
- 4: Energy efficiency and the Development of energy service markets
 - Good Practice experiences of P&M (EU/ EED; Contracting, SME-network; Setsuden; Demand Side Management, etc.) / new instruments, institutional options for strategies regarding RE, etc.

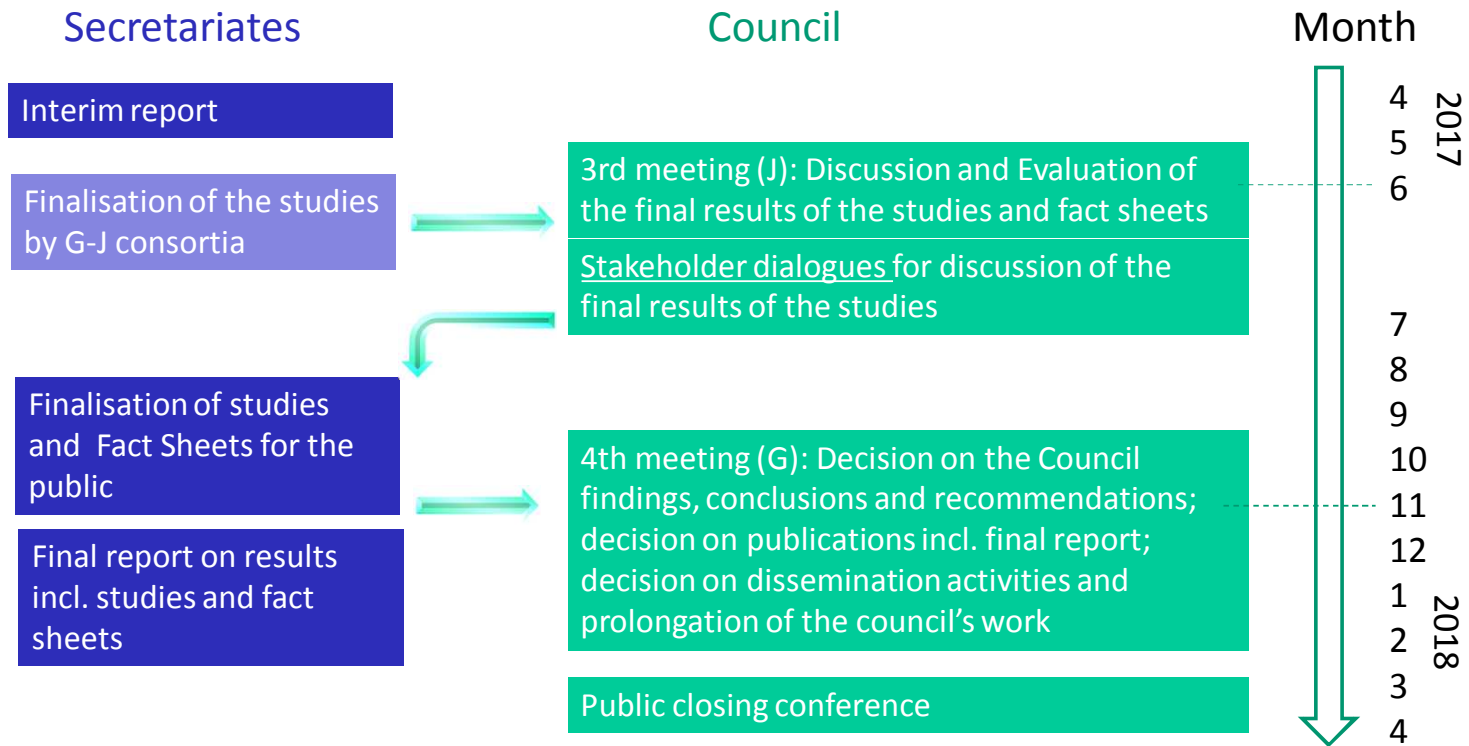
Possible strategic topics of mutual interest of the Japanese-German Energy cooperation

- 5: New allocation of roles and business segments of former and new participants in the energy sector
 - e.g. new business segments, ownership structure (private/public utilities, public energy, municipalities), experiences regarding citizens funding, cities and regions as participants for a national energy transition
- 6: Development of technical systems and new technologies on the way to energy transition
 - e.g. innovations regarding efficiency, storage technologies, floating wind parks, electric mobility, Power-to-Cold/Heat, Power-to-Gas

Roadmap: 5/2016 to 3/2017



Roadmap: 4/2017 to 4/2018



Collaboration for Climate Change Mitigation

- Germany and Japan

Heiwa Hasegawa

Senior Consultant
DEinternational
German Chamber of Commerce and Industry in Japan

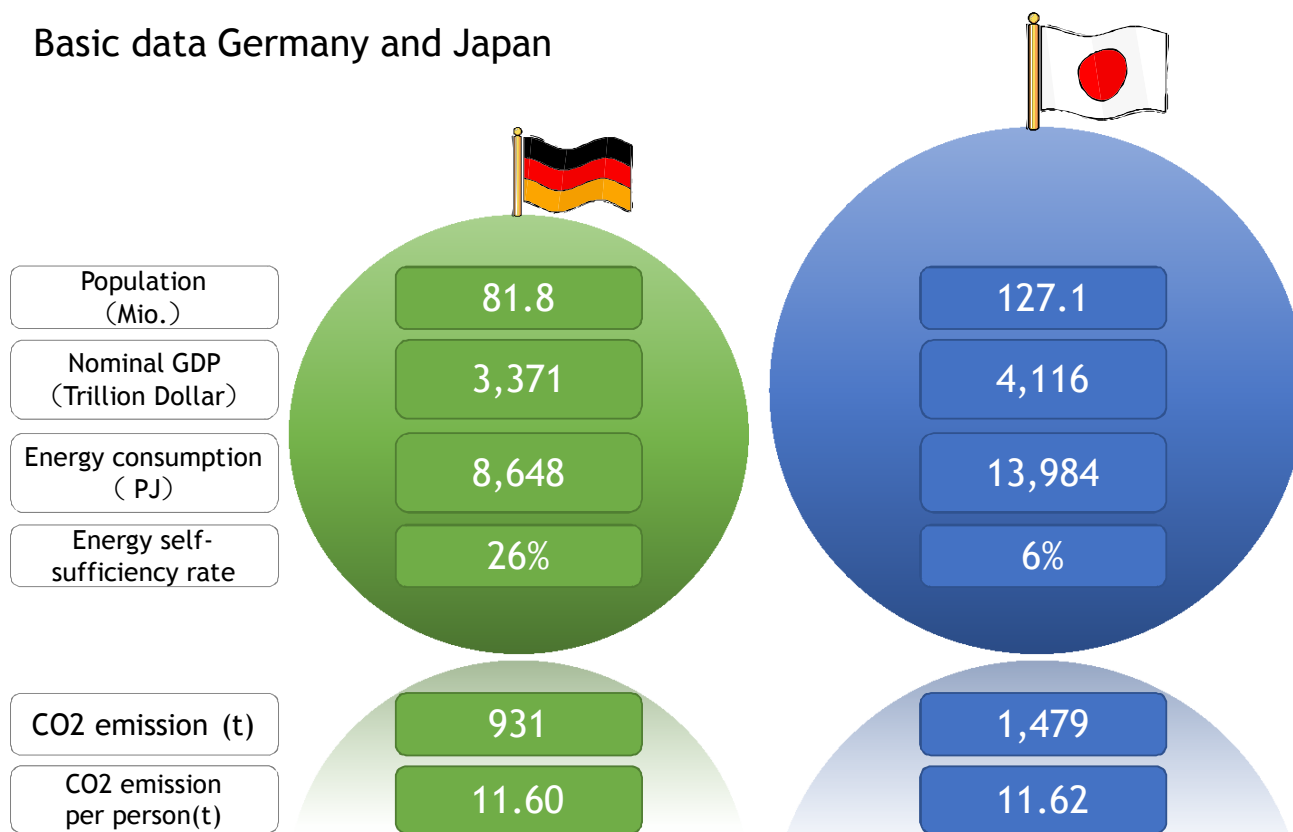


German Chamber of Commerce
and Industry in Japan
在日ドイツ商工会議所

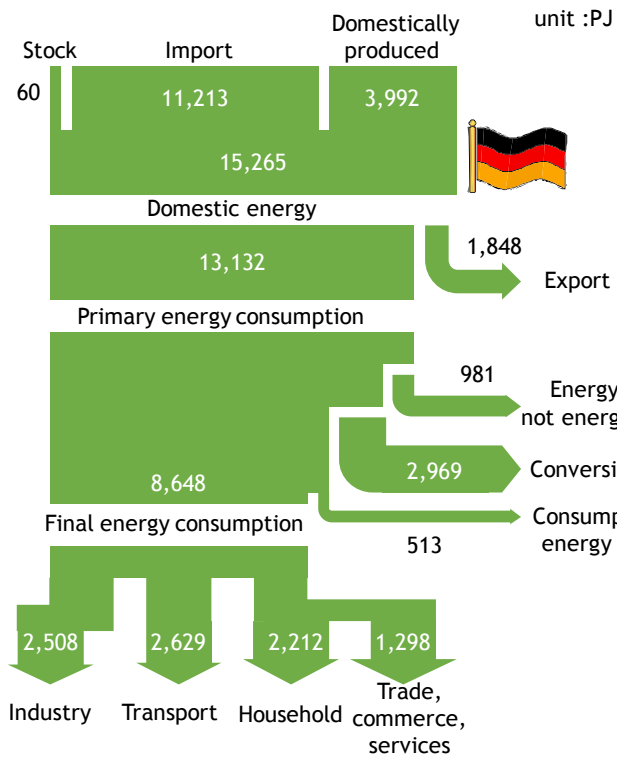


The German Chamber Network

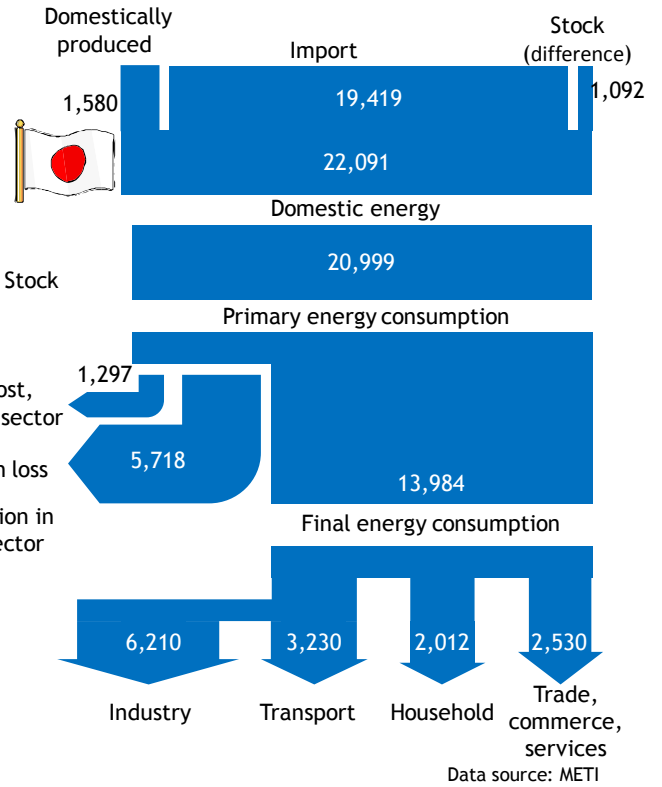
Basic data Germany and Japan



Energy flow in Germany (2014)



Energy flow in Japan (2013)

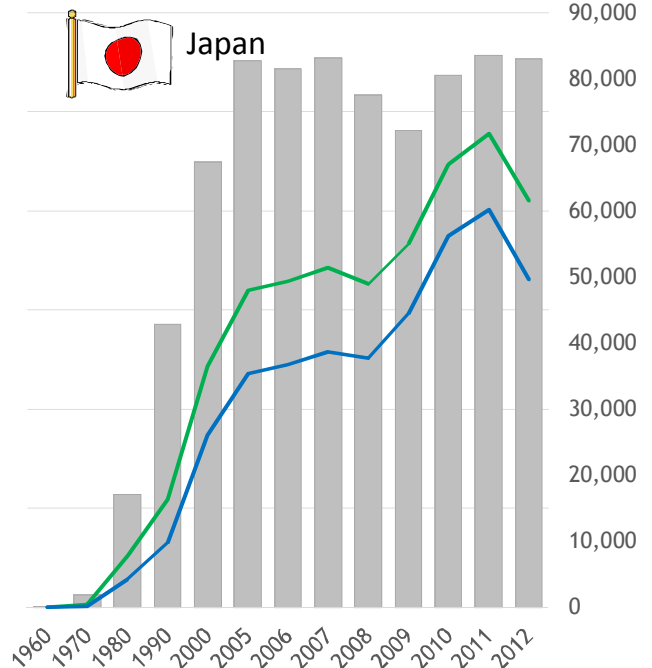
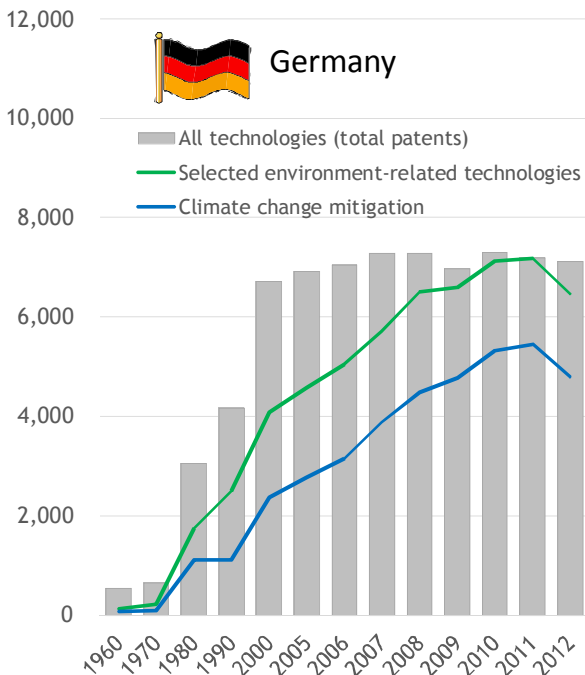


Number of Patents

— Environment technologies
— Climate change mitigation

Patents - Technology development

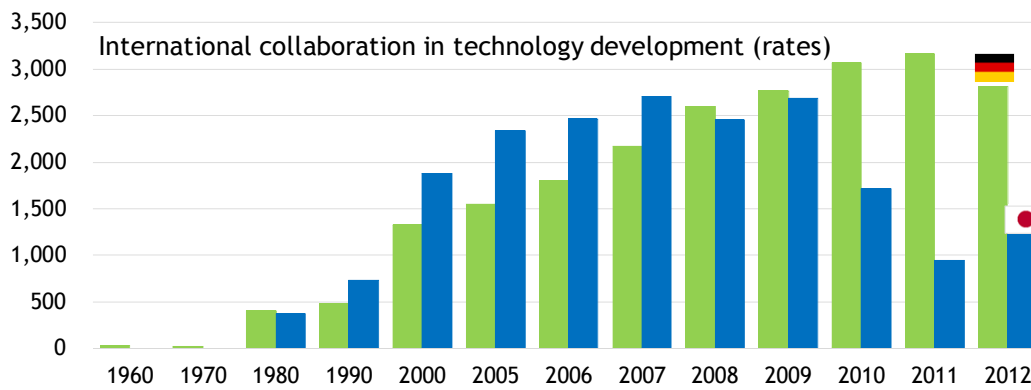
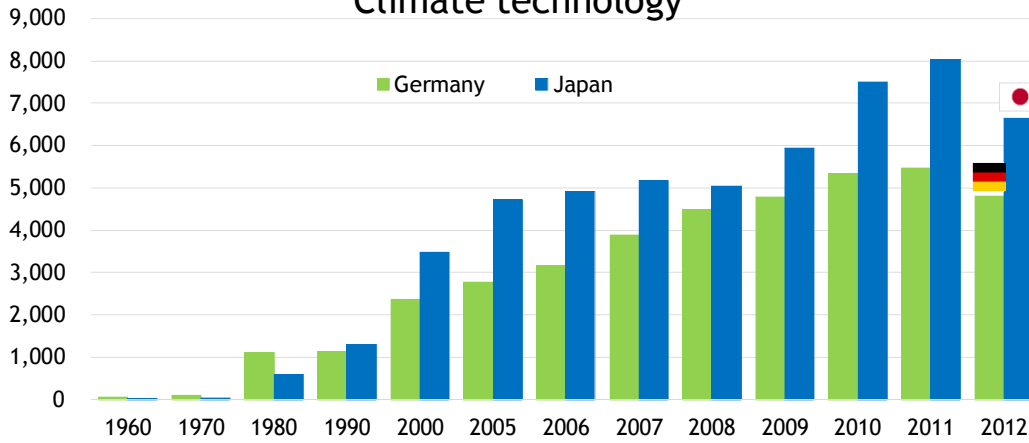
Number of Patents
All technologies



Data Source: OECD

Number of Patents

Climate technology



International Collaboration



Data Source: OECD

International collaboration in technology development (bilateral)

Technologies for climate change mitigation, 2012

Unit: Number of Patents

	Canada	France	Germany	Japan	Korea	UK	USA	China
Canada		7	14	4	18	4	126	25
France	7		70	0	2	15	61	7
Germany	14	70		15	18	37	132	20
Japan	4	0	15		29	17	40	14
Korea	18	2	18	29		5	70	41
UK	4	15	37	17	5		72	15
USA	126	61	132	40	70	72		196
China	25	7	20	14	41	15	196	

Data Source: OECD

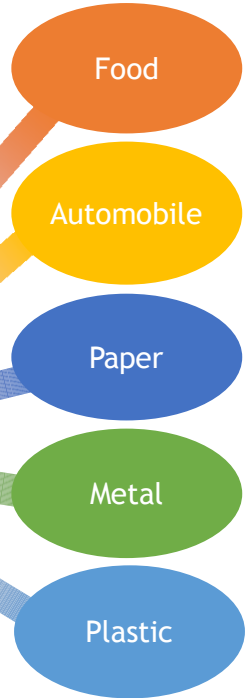
Learning Energy Efficiency Networks

30 pilot network

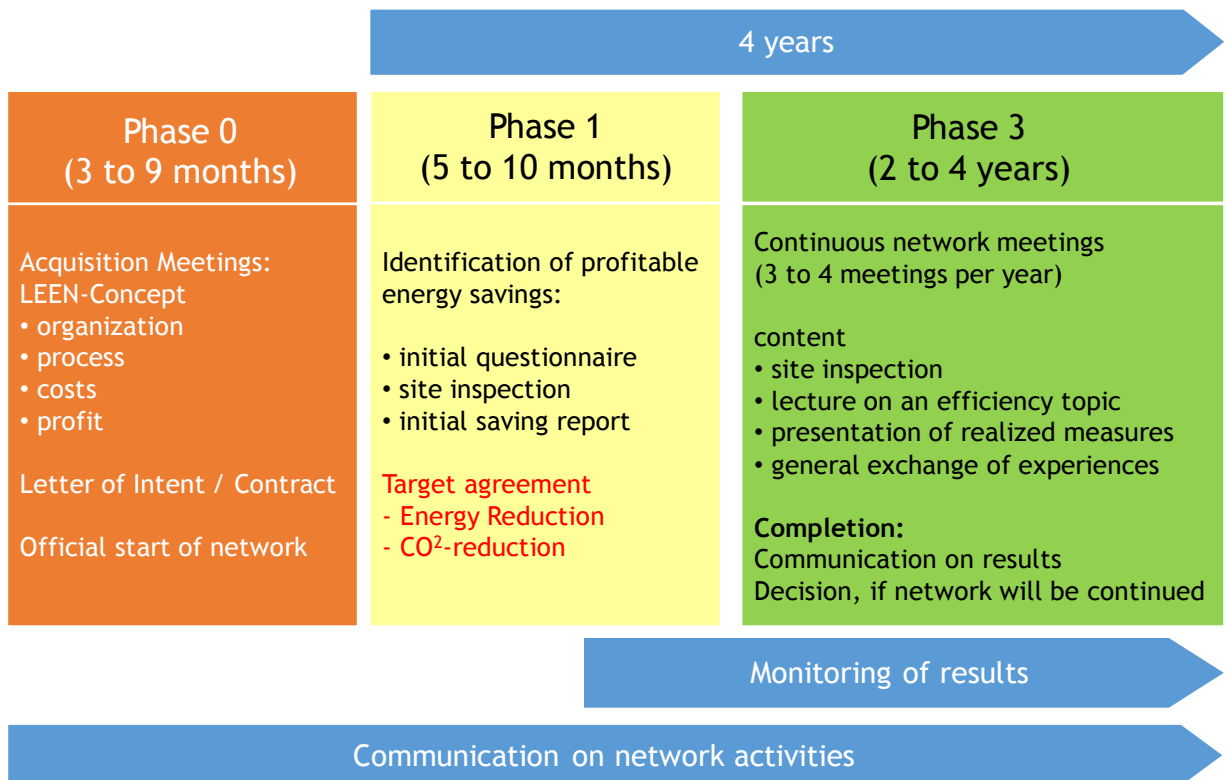
Process technology

10 companies working together in a 4 year process

- Willingness to share information and to invest
 - Pro-active, supportive management interested in saving energy
- Close distance
- different branches / industries
Cross cutting technology
(boiler, compressor, lighting, air conditioning)
- With minimum annual energy cost of 500 T EUR / 65m JPY



Source: LEEN GmbH



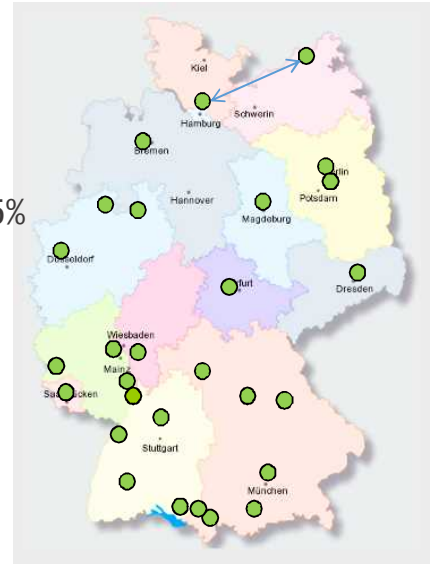
Source: LEEN GmbH

Successful track record; the evaluation of 260 participating companies revealed:

- 3,118 profitable measures (IRR > 12%)
- An investment volume of 167m EUR
- An average IRR of 36%
- A payback period of 2.7 years
- Energy savings potential of 6.5% and CO₂ of 8.5%



Source: LEEN GmbH



www.30pilot-netzwerke.de

Thank you for your attention!