bigEE

Good practice policy packages for energy efficiency in buildings - a stepping stone for NAMAs?

bigEE – bridging the information gap on energy efficiency in buildings

Dr. Stefan Thomas

Wuppertal Institute
for Climate, Environment
and Energy

bigEE

1. Good practice policy packages for energy efficiency in buildings
2. NAMAs, support and MRV
3. The bigEE initiative and project
4. What the platform will present on policies – some examples

Background: EE in buildings - up to 90 % of energy savings

- **Largest office building in the world with „passive house“ standard** in Ludwigshafen, Germany (lu-teco 2007) Primary energy: max. 120 kWh/m2/yr; Energy costs: 1.65 EUR/m2/month

- **Refurbishment pilot in Tangshan, China:** increased comfort while saving 40 % of energy (or 60 % at same indoor temperature); payback 9.3 yrs => roll-out underway

Background

- **Energy efficiency (EE) in buildings can contribute at least 30 % to GHG emissions reductions by 2050 in most countries and *save* money.**
  Plus: a variety of other benefits (energy security, employment, health, …).

- **This will only happen, if intelligent policies and measures are used, also as NAMAs.**
  Because: the sector has complex structures and lots of barriers.

- **Knowledge exists but is not easily available.**
  In particular: for emerging economies and developing countries

bigEE

1. **Good practice policy packages for energy efficiency in buildings (www.bigee.net)**
2. NAMAs, support and MRV
3. The bigEE initiative and project
4. What the platform will present on policies – some examples

Methodology for successful policy – The actor-centred approach plus proof

bigEE

A) Actor-centred analysis

Step 1
Analysis of actor specific barriers and incentives

Step 2
Developing implementation strategies to address the barriers and incentives

Step 3
From implementation strategies to policy packages

B) The empirical proof

Step 4
Validate the resulting ‚model package' through empirical evidence: policy packages implemented in successful countries

The multi-criteria assessment scheme to evaluate single policies

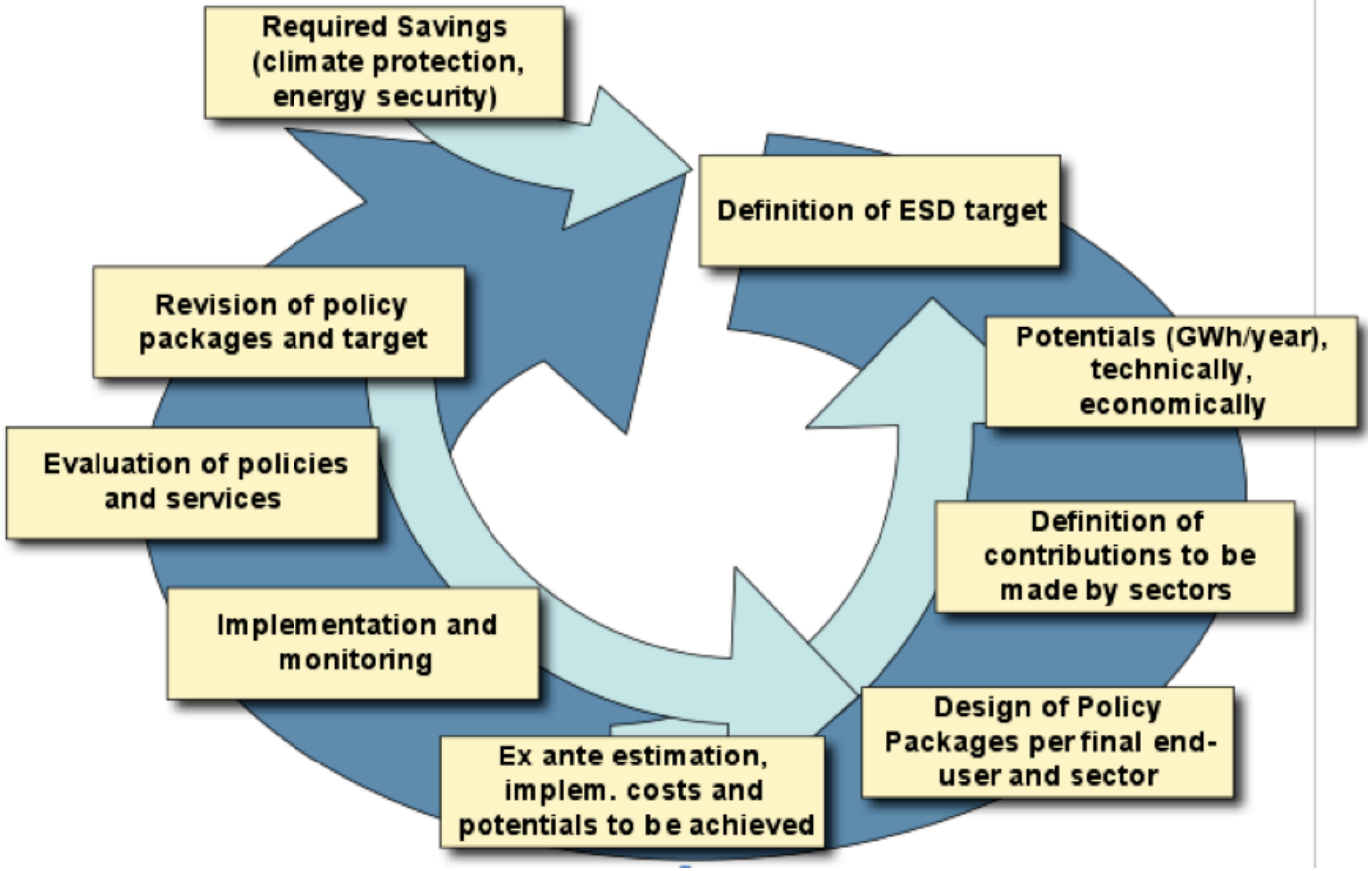
Step 3b – An integrated model policy package for the buildings sector

- EE governance and funding: targets, energy agencies, EE funds or obligations
- Get the energy prices right: reduce/remove energy subsidies and fund EE programmes instead of energy subsidies AND new generation; energy taxes
- Minimum Energy Performance Standards for buildings as a whole and for related equipment (mainly HVAC, lighting, appliances)
- Mandatory Energy Performance Certificates
- Information programmes and demonstration projects (to make benefits tangible)
- Financial incentives (e.g. tax breaks, soft loans) for energy-efficient new-build and renovation
- Education and training for all supply chain actors (architects, planners, builders, installers, financiers, etc.)
- Consideration of energy efficiency aspects in spatial planning (to avoid lost opportunities)
- Funding of R&D on ultra-low energy buildings; Awards and competitions for exemplary low-energy buildings

Step 4 – Validate the resulting 'model package' through empirical evidence

- As the most advanced countries show, the policy package that we derived from our actor-centred analysis comes close to what countries have introduced to approach very high levels of energy efficiency
- Many good single policies in emerging economies and developing countries, but full packages rather in OECD countries (incl. Mexico?)
- Examples of successful policy packages can be found in:
  - **Upper Austria** (see later slides) for buildings
  - **UK** (regularly tightened MEPS, Zero Carbon target for new homes by 2016, successful supplier obligation, planned innovative financing scheme: Green Deal, programmes targeting fuel poverty and whole-house refurbishments) for (existing) buildings
  - **California** (long term strategy, MEPS, label, Utility DSM incentive programmes and programme for low income households, 'golden carrot') for appliances and partly for buildings

The EE policy development circle



1. Good practice policy packages for energy efficiency in buildings

2. **NAMAs, support and MRV**

3. The bigEE initiative and project

4. What the platform will present on policies – some examples

NAMAs for EE in the buildings sector – unilateral, supported, credited?

- EE in buildings often **cheaper** than building new supply (power plants, lines, mines, gas fields, renewables) or importing energy!
- => **No** need for **financial support or crediting?**
  State budgets should be allocated to supporting EE
  (policy development, governance infrastructure, actor training, financial incentives)!
- **But**: state budget may be constrained anyway: **better** for donor countries to **give financial support** to implement EE policy than to costly mitigation options!
- At least: Give it as **seed funding or loans** for national incentive programmes / revolving funds
- ⇔ **Technical and capacity building support** for all steps of the EE policy development circle useful!
- Also for training of market actors.
- Technology cooperation, too.

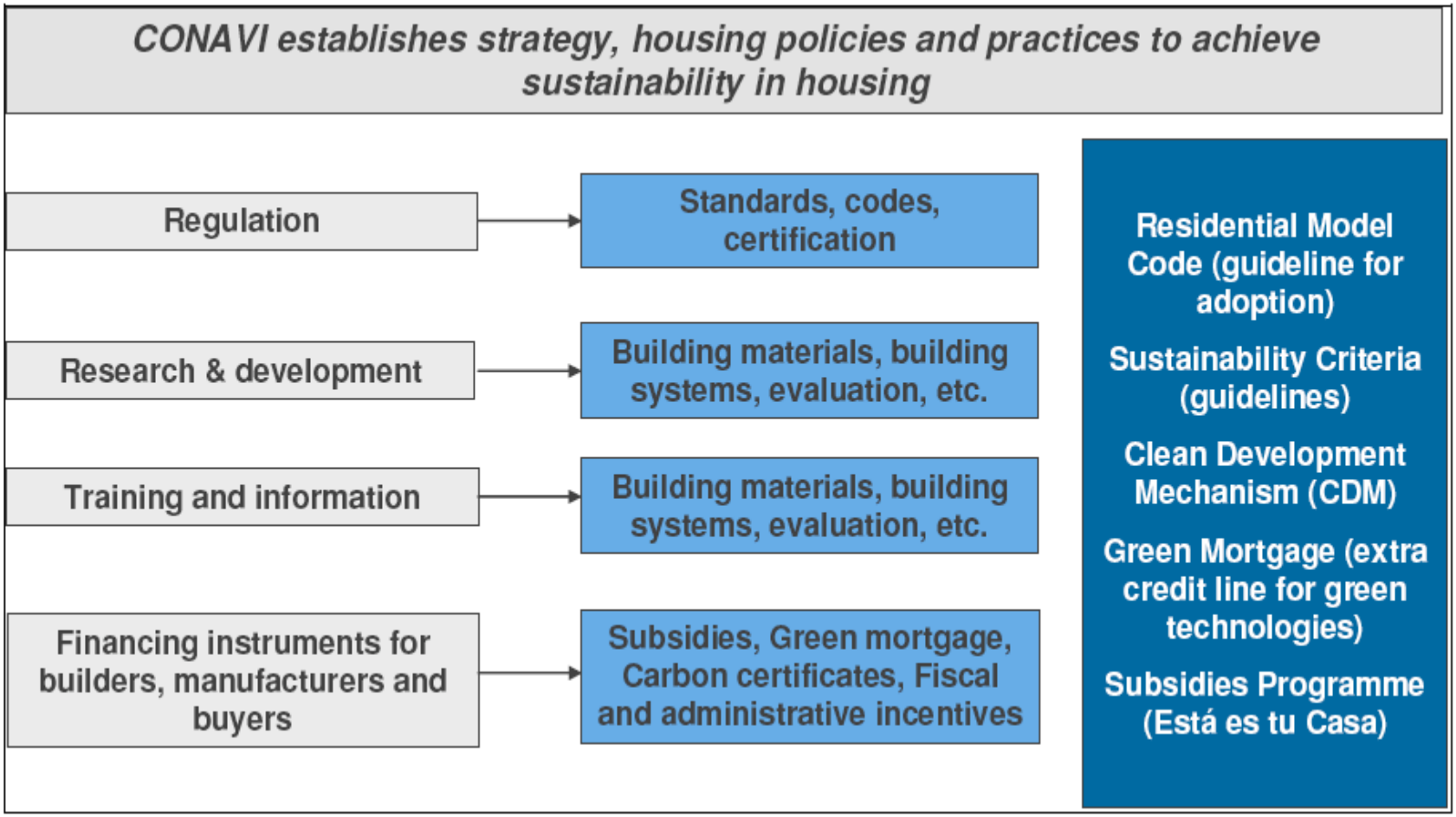
NAMAs for EE in the buildings sector – how to MRV?

- Top-down indicators not useful
- **Pragmatic bottom-up** approaches work better:
- Take financial incentives/loans and MEPS (easy to monitor) as lead instruments for **MRV of the package**
- Residential sector: count numbers of EE buildings and use deemed savings
- Other sectors: add up engineering estimates of savings per building
- Do verification of achieved savings on sample of buildings
- Report on detailed methods and assumptions used (e.g., baselines)
- www.evaluate-energy-savings.eu (developed for national energy savings under EU's ESD Directive but valuable also in other contexts, including NAMAs)
- Operational indicators for other types of instruments (e.g., professionals trained)

NAMAs for EE in the buildings sector – suggested support and MRV by instrument (element of the package)

Instrument	Support	MRV (as part of package)
Target setting	Technical and capacity (T&C)	Achievement of target
Energy Agency	T&C; seed funding	Operational indicators
EE obligation or fund	T&C; (seed or part) funding for fund and MRV	Energy & carbon savings; target achievement
Energy price reform	T&C	Subsidies saved and used for EE programmes
MEPS	T&C; fund e.g. monitoring	Energy & carbon savings
Energy certificates/labels	T&C; fund e.g. monitoring	# of buildings, actions taken
Info and Demo	(Co-)Funding; T&C	# of recipients, quality, actions taken
Financial incentives	(Seed or part) funding; T&C	Energy & carbon savings
Education and training	T&C; funding	# of participants, quality

Mexico – existing policy framework for building energy efficiency: overview



Source: Perspectives (2010)

CONAVI = National Housing Commission

Mexico – enhancing the policy framework through NAMA

- NAMA concept developed by Perspectives GmbH in co-operation with Mexican Government and with financial support from German Government
- Basic idea: enhance existing *Green Mortgages* and *This is your Home* programmes and complement them with residential MEPS, capacity building and awareness raising programmes
  - Widen the scope to cover more houses (2010: 20% of new homes covered), increase subsidies, make EE requirements more ambitious, apply whole-building-approach
  - Technology up-scaling: include efficient AC and refrigerators in requirements; possibly also PV (costly!)
  - Promote and enforce MEPS in building codes (first implement in 1 federal state as a pilot to demonstrate feasibility and gain experiences, then extend to national scale)
  - Targeted education/information programmes for building professionals, but also for public authorities and end-users to increase skills and understanding of low-energy housing benefits
  - Extension of urban planning criteria to achieve a holistic urban planning process
- Green Mortgages scheme projected to reach up to a maximum of 5.6 million new houses by 2020 under the NAMA

bigEE

1. Good practice policy packages for energy efficiency in buildings
2. NAMAs, support and MRV
3. **The bigEE initiative and project**
4. What the platform will present on policies – some examples

Objectives

- **Raise greater awareness and attention**...
  ... for the variety of benefits of increased energy efficiency in new and existing buildings.

- **Close the gaps of scattered information and material on energy efficiency** ...
  ... by providing latest know-how in a target group oriented, consistent, comprehensive, easily accessible, and transparent way.

- **Manage and communicate available knowledge** ...
  ... especially for emerging economies

Target Groups

Decision-makers worldwide ...

... **Investors**
(e.g., manufacturers, large building owners, developers, energy companies, ESCOs, development banks, etc.)

... **Policy-Makers**
(politicians, high ministry ranks, regulatory agencies)

... **Policy implementation**
(staff in ministries and regulatory agencies),
and **business and policy consultancy** actors
(including institutions such as UNEP, UNDP, GEF, etc.)

... and in 5 emerging economies, with partners

bigEE – bridging the information gap on energy efficiency in buildings

The bigEE web portal will cover

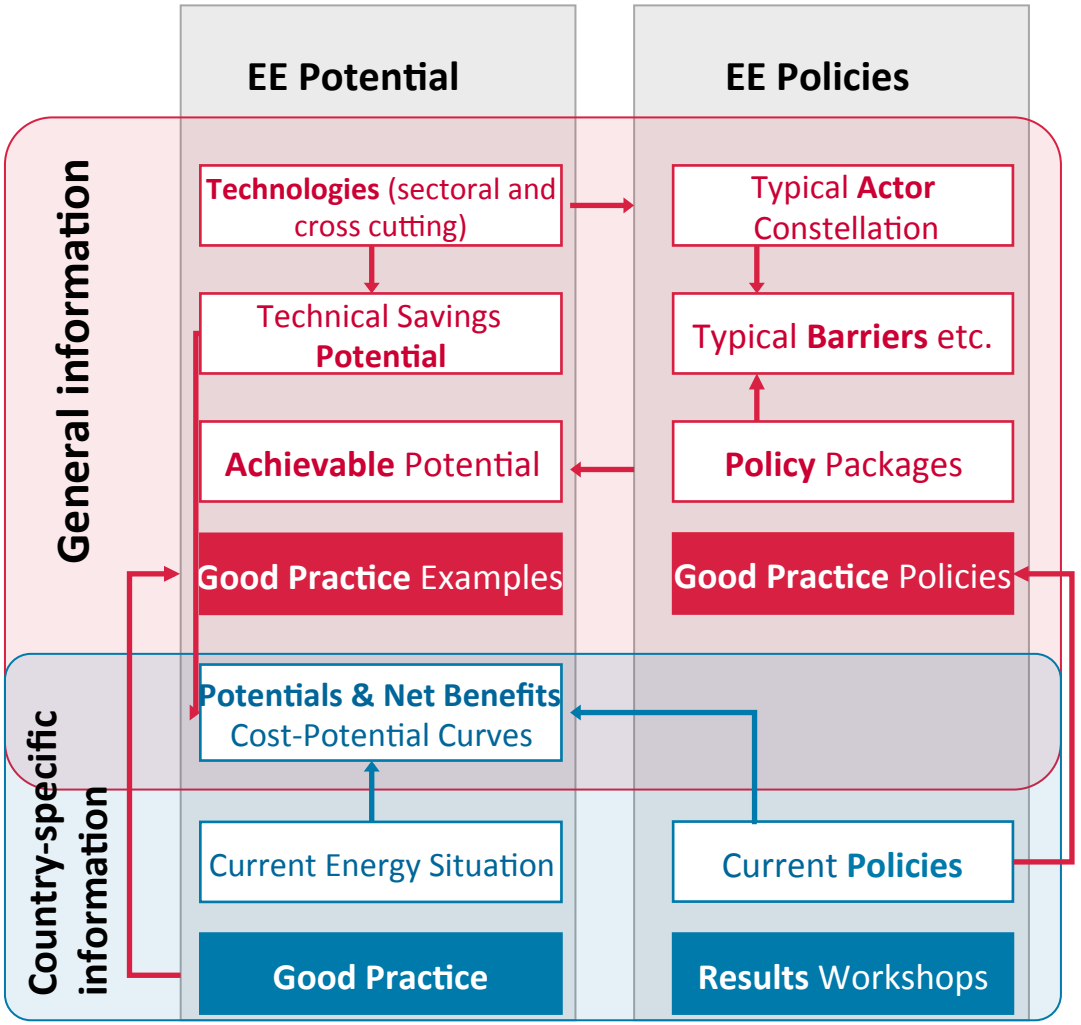
- residential buildings
- commercial / public buildings
- industry sector related building technologies
- appliances

and will include information on

- technologies
- saving options and potentials
- actor constellations
- policies and measures
- good practices

on

- international and
- national level.



bigEE: part of a worldwide network of experts

Cooperation has started or is planned with

- The Sustainable Buildings Network (SBN) under the IPEEC
- The United Nations Environmental Programme (UNEP), i.a. UNEP's SBCI – Sustainable Buildings and Construction Initiative
- The Renewable Energy and Energy Efficiency Partnership (REEEP) and REEGLE (Information Gateway for Renewable Energy and Energy Efficiency)
- The World Business Council for Sustainable Development (WBCSD)
- The Global Environment Facility (GEF)
- Regional platforms such as www.buildup.eu
- Scientific institutes and experts on EE in buildings worldwide

bigEE Country Projects

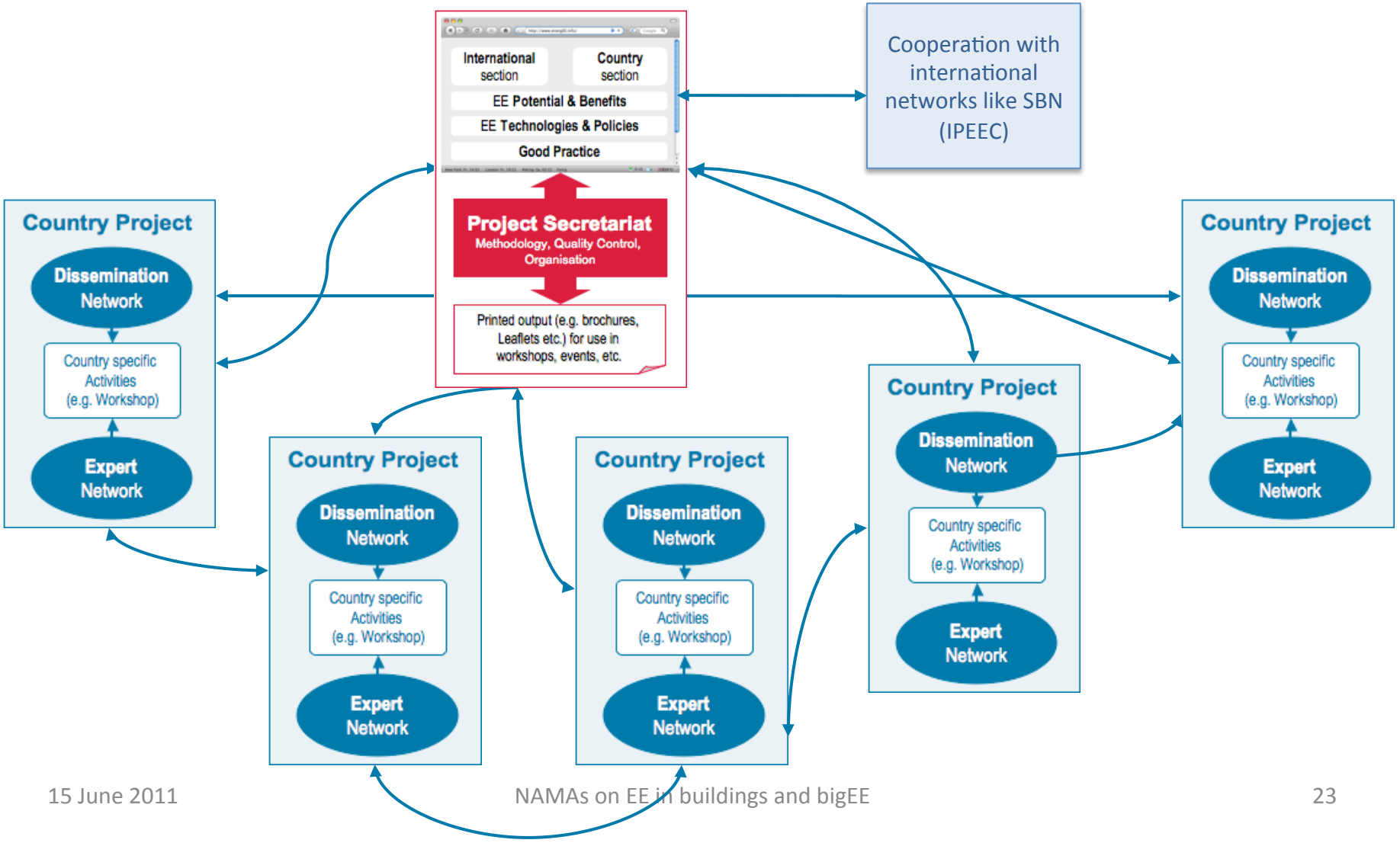
- ***Dissemination* of knowledge with partners**
  - Using existing national channels to market actors
  - bigEE will provide customised international input
  - Joint dissemination activities as useful
- ***Country-specific pages (English, maybe also national languages)* on bigEE site**
  - For big investors and policy-makers/implementers
  - Presentation of data on technologies, potential, markets, policies and measures in the country
  - Possibility to compare with others and provide good practice examples for world-wide pages

bigEE Country Projects at present

- **Partners in China:**
  - 北京市中城深科生态科技有限公司 (Beijing China Society for Urban Studies and Shenzhen Institute for Building Research Eco Technology Co., Ltd.)

    (Ministry of Housing and Urban-Rural Development)
- **Partners in India:**
  - Bureau of Energy Efficiency (Ministry of Power)
  - The Energy and Resources Institute

International bigEE network



Milestones for 1st Implementation Phase (until 2014)

- **January/July 2011:**
  Start of country projects in China and India

- **November 2011:**
  public launch of first version of bigEE platform scheduled, www.bigee.net

- **2011 to 2013: start of up to three further country projects (South, Africa, Brazil, N.N.)**

Thank you!

www.bigee.net

Please contact us at

bigEE@wupperinst.org