Environment Quality Authority

National Workshop on Climate Change

Climate Change Mitigation

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Royal Scientific Society

Ramallah
26-28 Jan., 2015

EU funded project

Implemented by the
Agriconsulting Consortium

Content

KP financing Mitigation Mechanisms & beyond

- **CDM / Programme of activities**
- **NMM**
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- **LEDS**
- **TNA**

Kyoto Protocol: 'Flexibility Mechanisms'

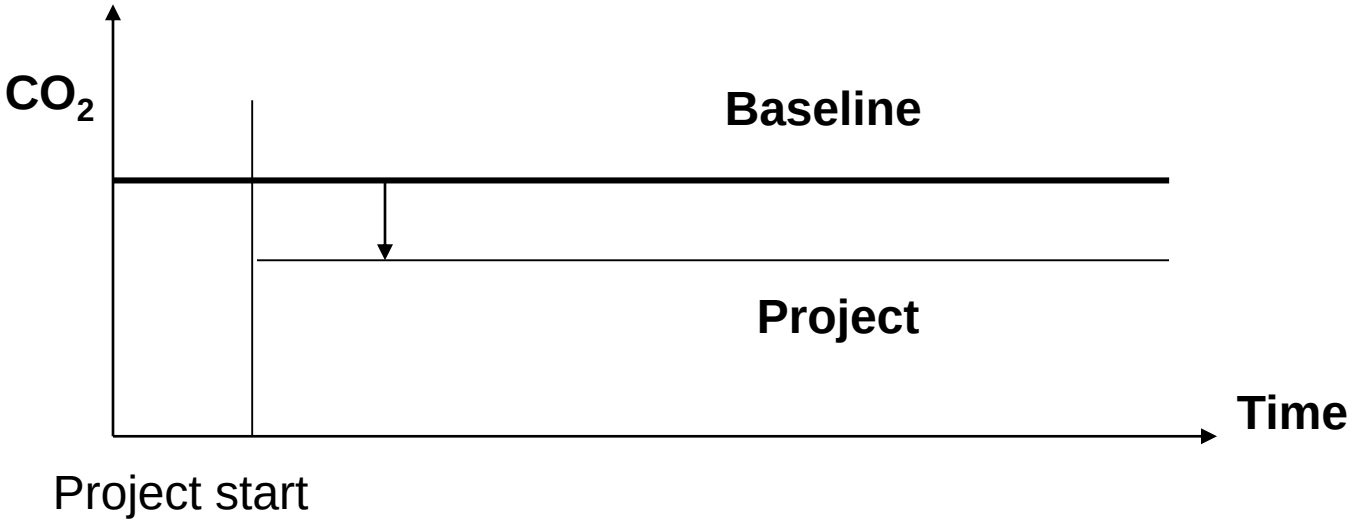
Legally binding commitments for 39 developed countries to reduce their GHG emissions (6 gases) by an average of around **5%** relative to 1990 levels. These emission reductions must be achieved by **2008-2012**. The Protocol was outlined in Kyoto in 1997 and entered into force on 16 Feb. 2005

Allowed developed countries to reach their GHG reduction targets through the following three Flexibility Mechanisms including:

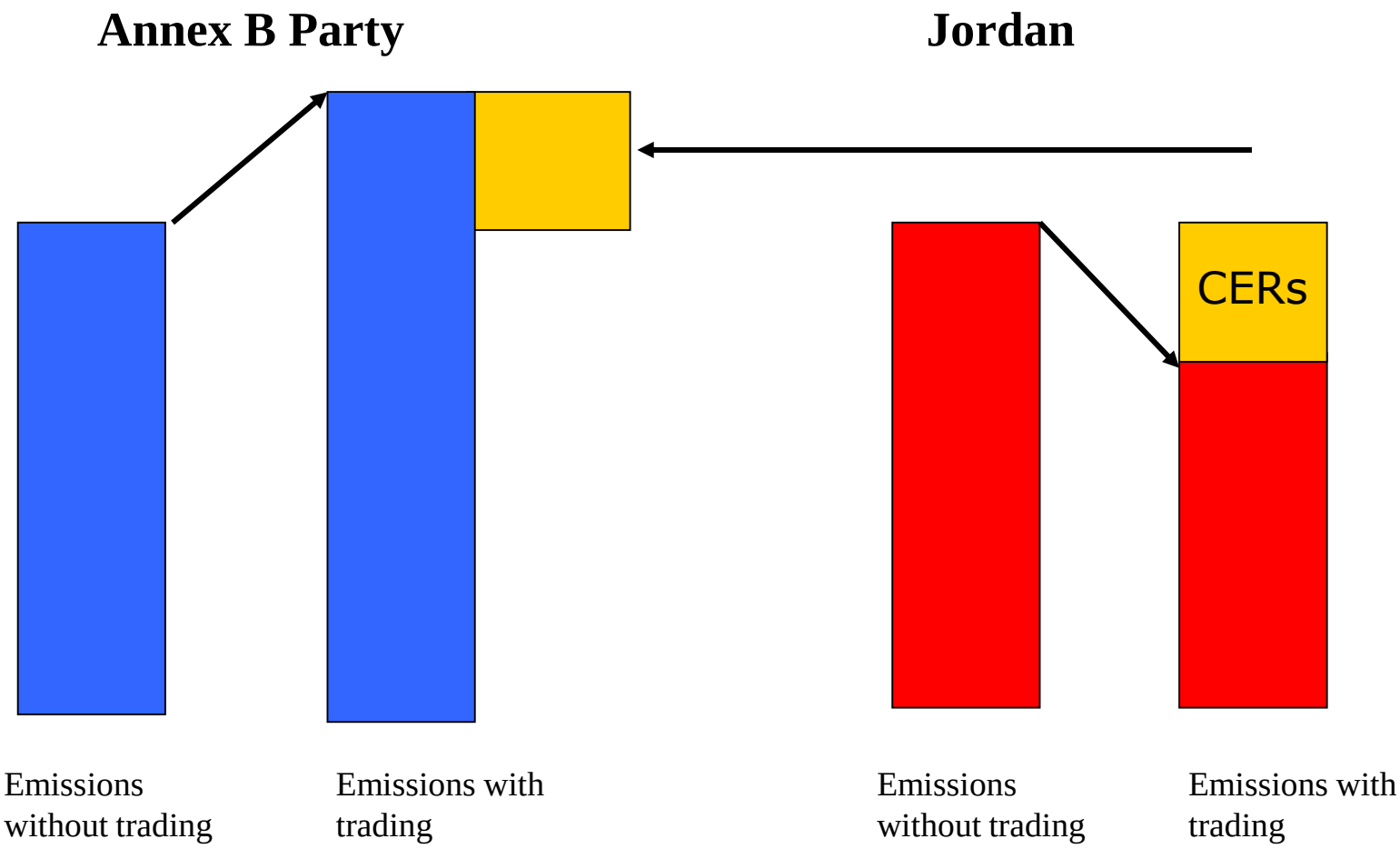
- **Emissions Trading:** trading of emission allowances between developed nations
- **Joint Implementation:** transferring emission allowances between developed nations, linked to specific emission reduction projects
- **Clean Development Mechanism** (CDM)

CDM concept: Additionality

- **Concept: prove that the project is not the baseline i.e. that the emissions reduced by the project are additional to those that would have ocurred in absence of the CDM**



CDM Concept


Annex B Party
Jordan
CERs
Emissions without trading
Emissions with trading
Emissions without trading
Emissions with trading

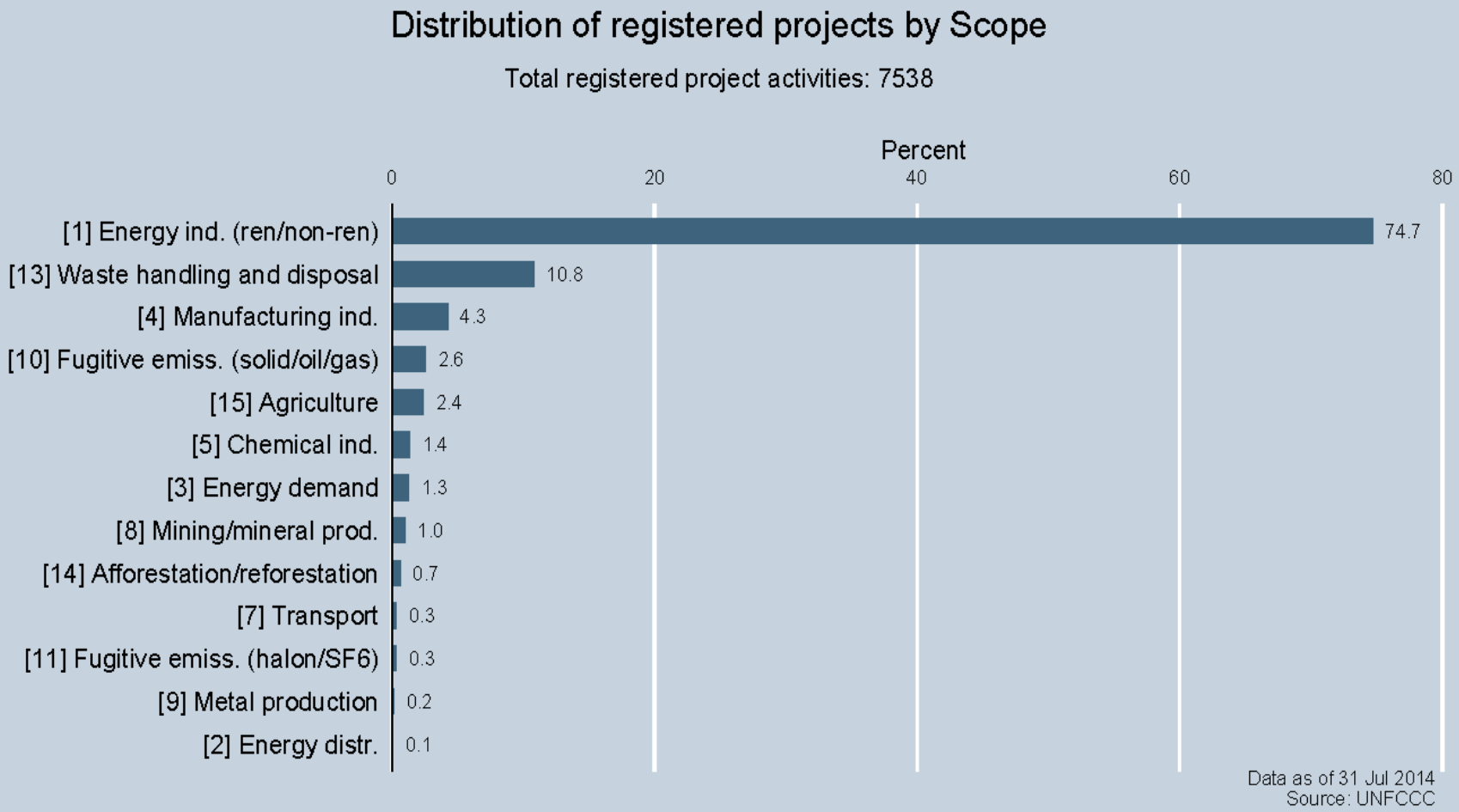
Programme of Activities (PoA) under CDM

- **Programmatic approach to bundle too small projects to be economically viable to participate in the CDM and profit from carbon credit revenues.**
- **A unlimited number of similar project activities, over a wide area or region, can be administered under a single programme umbrella. They are particularly suited to small-scale or micro-scale projects.**
- **Once registered, an unlimited number of similar component project activities (CPAs) can be added and administered over time without the need to register each one individually.**
- **Since the PoA procedures were adopted by the CDM Executive Board in 2007, 262 have been registered in more than 70 countries. More than 30 per cent of all registered PoAs are located in Africa, compared to just 2 per cent of regular CDM projects.**

Cont. : Examples of Registered PoAs

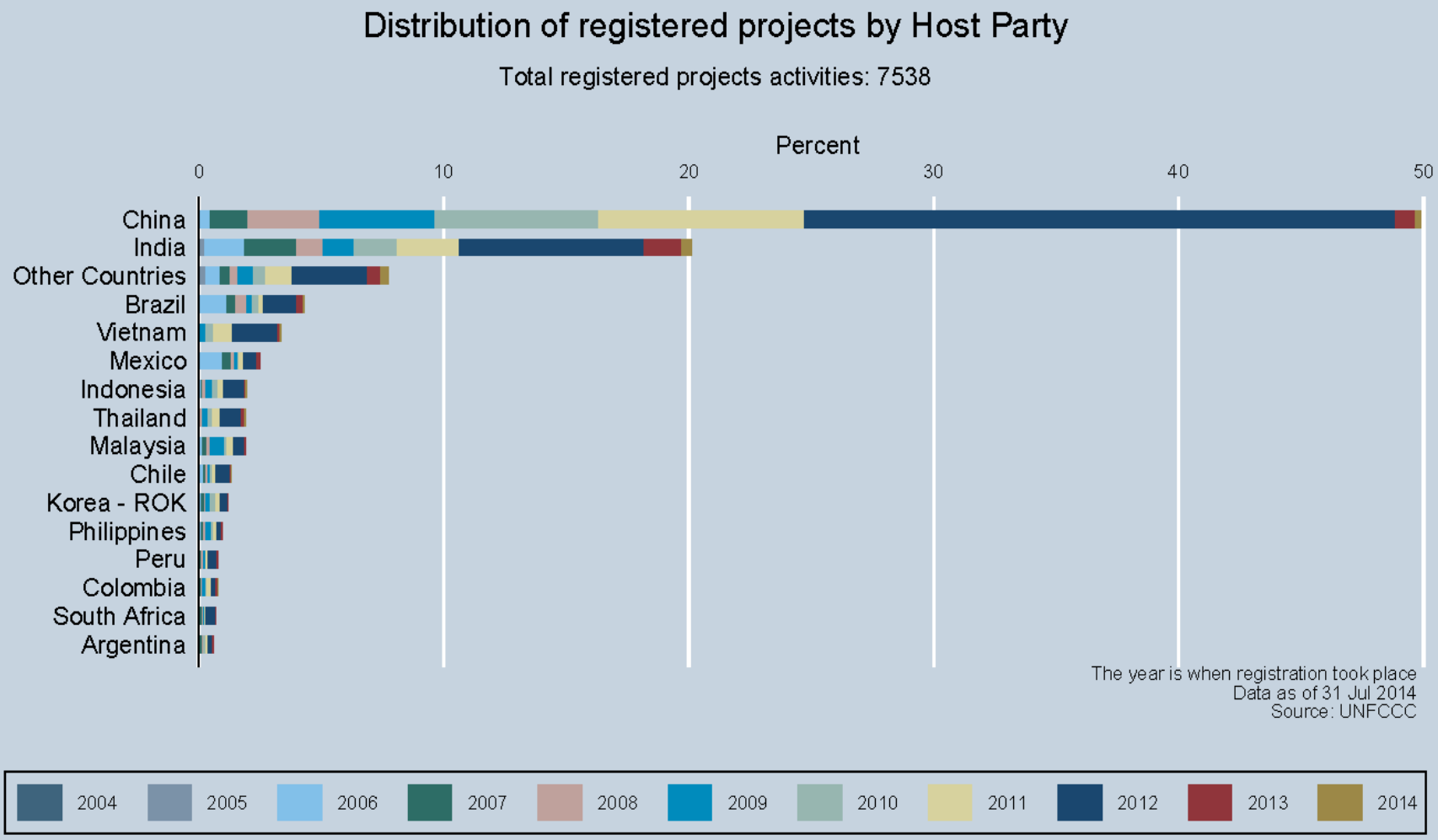
Renewable Energy Programme of Activities in Middle East and North Africa	Saudi Arabia Oman Egypt	Ireland	1259
Landfills' gas capture, flaring and use program in Morocco	Morocco	Sweden	138377
International water purification programme	Egypt and other 12 countries	Switzerland	6254
Programme for Grid Connected Renewable Energy in the Mediterranean Region	Egypt Lebanon Morocco Tunisia	France	20883
Egypt Vehicle Scrapping and Recycling Program	Egypt	Denmark	2897

Distribution of CDM Registered Projects by Scope



Note that a project activity can be linked to more than one sectoral scope.

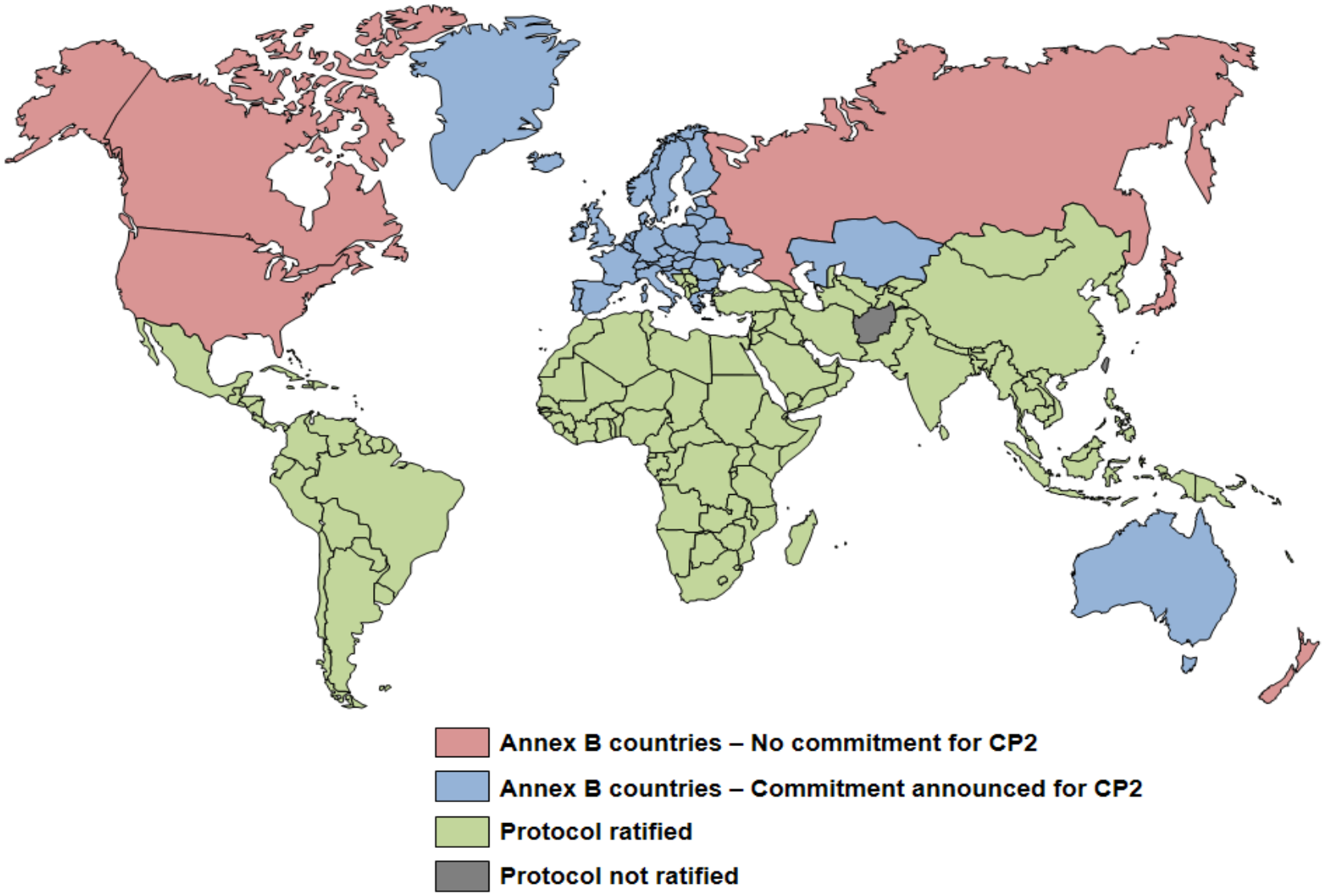
Distribution of CDM Registered Projects by Host Country



The Kyoto Protocol Second Commitment Period (KP2)-1

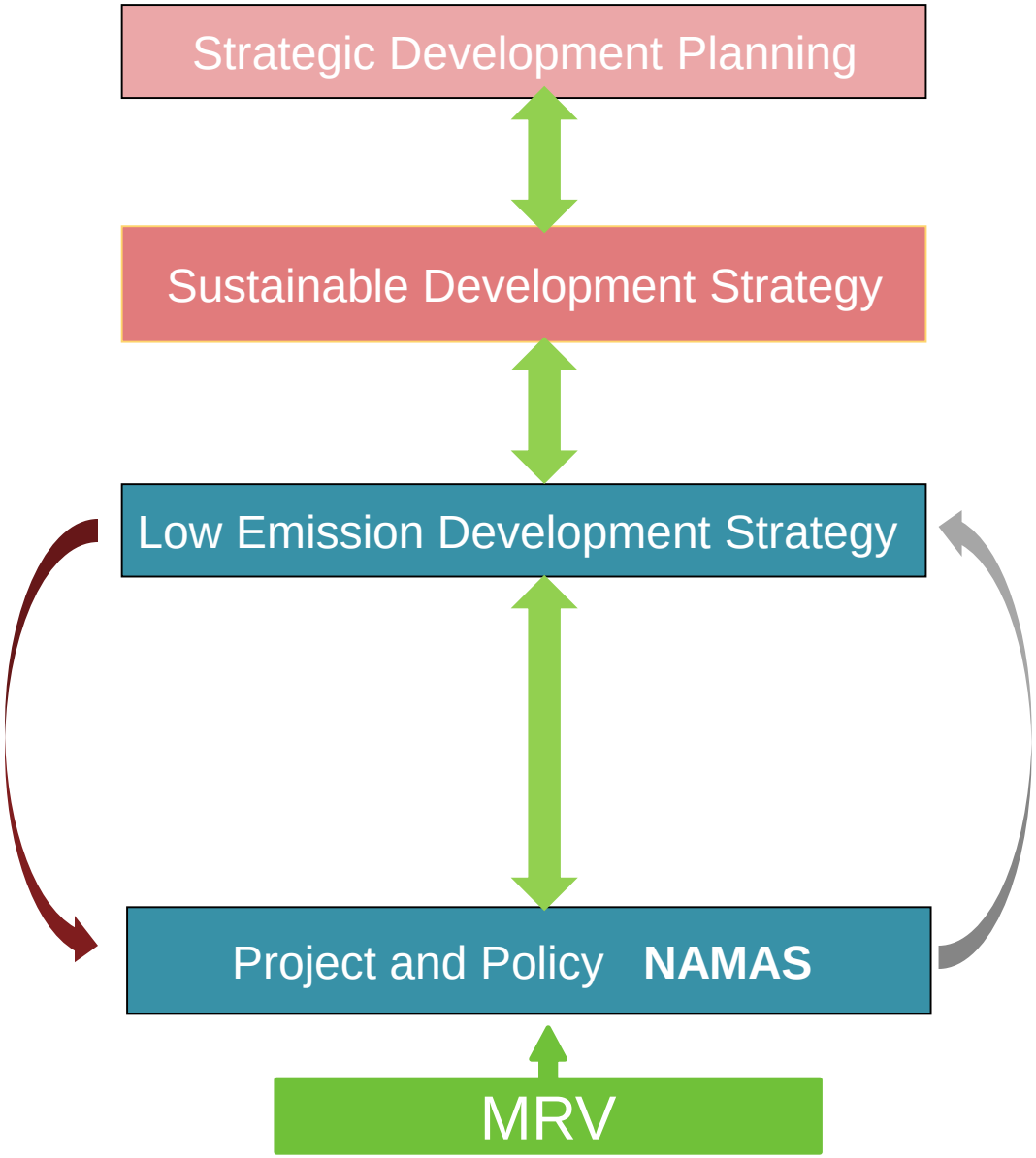
- The Doha conference (CoP18, **2012**) second KP period
- Definition of rules for the second Kyoto Protocol period:
  - Length of the second period: **2013 - 2020**
  - Rules on carrying-over of allowances and credits from the first period
  - Commitments from 37 countries, accounting for 14% of global emissions, to decrease by 18% their emissions compared to 1990 levels

The KP Second Commitment Period --KP2



Nationally Appropriate Mitigation Actions (NAMAs)

- **Paragraph 1 (b) (ii) of the Bali Action Plan (COP 13, 2007) calls for "Nationally appropriate mitigation actions' by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity building, in a measurable, reportable and verifiable manner".**
- **On UNFCCC agenda since Bali 2007; further developed and strengthened in Copenhagen Accord (COP 15, 2009), Cancun – establishing a registry of NAMAs and their support (COP16, 2010), Durban (COP 16 2011).**
- **Country driven activities leading to measureable, reportable and verifiable (MRV) reductions in GHG emissions**
- **Objective: Scale up mitigation activities**


Strategic Development Planning
Sustainable Development Strategy
Low Emission Development Strategy
Project and Policy NAMAS
MRV

NAMAs- Key Elements

- Actions to reduce GHG emissions by developing countries
- Country ownership
- Voluntary actions
- Appropriate to national circumstances
- In line with national development priorities
- Within the Sustainable Development (SD) strategy
- Wide range of activities (Sectroral polices, and strategies, capacity buildings and individual projects)

NAMAs => MRV

- **Measurable: how many tons of GHG will be reduced in a specified period of time.**
- **Reportable: the nature of the activities should be clearly documented and reported**
- **Verifiable: should pass satisfactorily a third party verification of statements, reports and validity of assumptions.**

NAMAs Types Based on Financial Support

- **Voluntary and Unilateral NAMAs: associated with actions that a developing country would take voluntarily and unilaterally from its own resources , i.e without support from developed countries.**
- **Supported NAMAs: Actions that require support (financial, technology, capacity building) from developed countries**
- **Carbon Credit NAMAs : Actions that developing countries are willing to take in order to obtain tradable carbon credit as an outcome of implementing such actions.**

Low- Emission Development Strategy (LEDS)

- **According to Cancun Agreement "All countries shall prepare Low Emission Development Strategies …nationally-driven and representing the aims and objectives of individual Parties in accordance with national circumstances and capacities"**

- **Reflecting engagement of all countries in CC mitigation effort while taking into consideration the principle of CBDR.**

- **The Copenhagen Accord (Cop 15, 2009) recognizes that a "low emission development strategy is indispensable to sustainable development"**

LEDS vision

- **Up to now, GHG policies is connected to economic growth**
  - **Economic growth needs more natural resources and energy**
  - **Increase in raw materials and fossil fuels consumption**
    => increase environmental impacts
    => increase carbon emissions
- **Synergy between natural resources use and environmental impacts from economic growth needs to be enhanced**

LEDS: decoupling GHG emissions from economic growth

TECHNOLOGY NEEDS ASSESSMENT

“TNA”

TNA Background

- **Article 4, paragraph 5, of the United Nations Framework Convention on Climate Change (UNFCCC)** states that developed countries "shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies (ESTs) and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention".

- **The Conference of Parties (COP 4) its decision 4/CP.4,** urged non-Annex I Parties to submit their prioritized technology needs, especially those relating to key technologies to address climate change.

- **"Guidelines for the preparation of national communications from Parties not included in Annex I to the FCCC/TP/2007/3 Convention**" (CoP 13 Bali), states that non-Annex I Parties are encouraged to provide in their national communications information on activities relating to technology transfer, and access to, ESTs and know-how, the development and enhancement of indigenous capacities, and measures relating to enhancing the enabling environment for development and transfer of technologies. Parties could also include information on their prioritized technology needs. (UNFCCC, 2007)

TNA Objective

- Assisting the country in identifying and analyzing priority technology needs to mitigate GHG emissions through country-driven participatory processes and reduce the vulnerability of sectors and livelihoods to the adverse impacts of climate change and to form the basis for a portfolio of Environmentally Sound Technology projects and programmes.

- Providing new and additional information that responds to concerns, generates new findings for policy reform and shapes action plans for intervention. (UNFCCC, 2007)

TNA Methodology

Task conducted through the following steps:

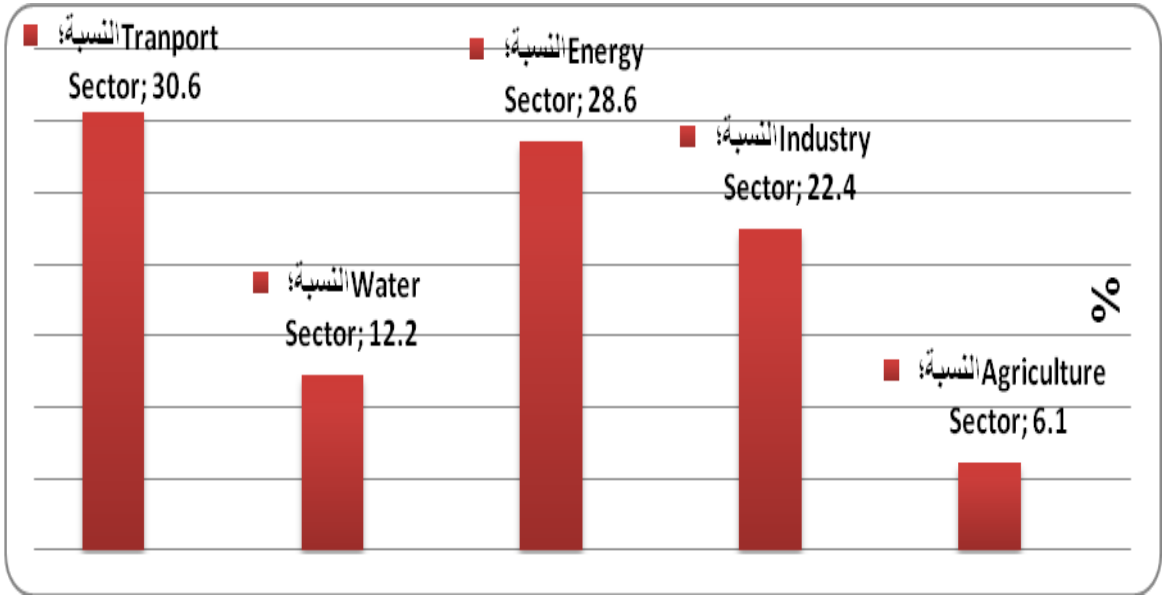
- Review of GHG emission Inventory
- Review of the international guidelines of technology need assessment and transfer developed by UNFCCC, IPCC, GEF, UNDP and other agencies.
- Review of the main climate change documents and studies in Jordan
- Review of the draft mitigation analysis chapter of the TNC related to energy and transport mitigation sectors.

TNA Methodology

- Review of the current policies and measures as well as projections for technology development and gaps for the period 2007-2040 .
- Prepared, distributed and analyzed a survey on technology needs assessment for mitigation projects and measures.
- Prioritization of sectors based on the findings of the national GHG inventories which indicate that energy, both in terms of power generation and transport, are the sectors that mostly contribute to GHG emissions.
- Prioritization the technology needs for mitigation in energy and power sectors based on questionnaire outcomes

Main analysis and assessment

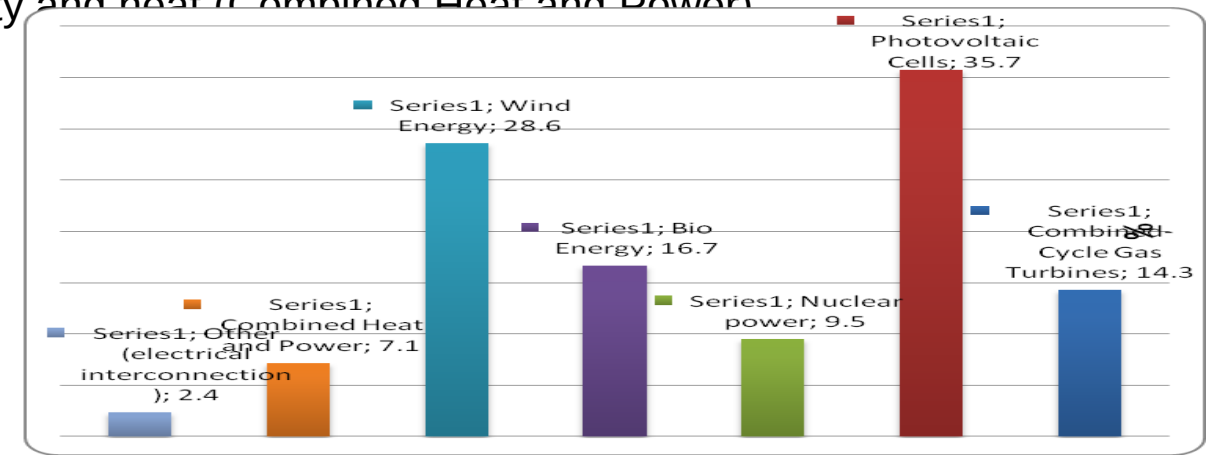
- Transport sector has ranked the first in the targeted sectors at the national level in the case of applying or introducing new technology, with percentage of (30.6%), followed by energy sector (28.6%), then the sectors of industry, water and finally the agriculture sector (6.1%)
- This result came in line with our literature review, which indicated that transport sector is the first sector that needs to identify priority technology needs



Technology Prioritization in Power Sector

Technology prioritization in the power sector results were;

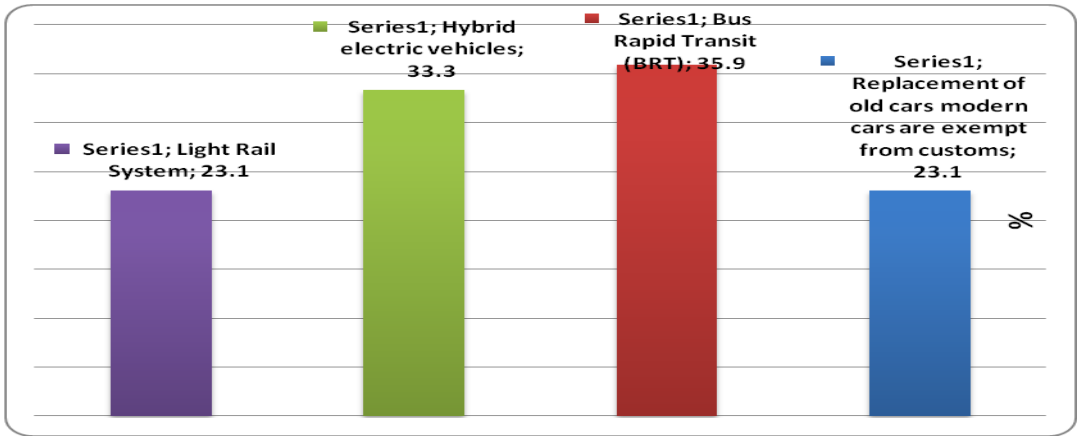
- 1- Using solar energy to generate electricity (Photovoltaic Cells), has ranked as the best technology to get rid of green house gas emissions (35.7%)
- 2- Using wind energy (Wind Energy) to generate electricity, which came by (28.6%).
- 3- Using biogas to generate electricity (Bio Energy) and has got a proportion of (16.7%)
- 4- using combined cycle power generation (Combined-Cycle Gas Turbines)
- 5- using nuclear power to generate electricity (Nuclear power), and then generate electricity and heat (Combined Heat and Power)



Technology Prioritization In Transport Sector

Technology prioritization results in transport sector were;

- 1- Bus Rapid Transit (BRT) is one of the priorities with percentage of (35.9%)
- 2- Use of hybrid vehicles of the type (Hybrid electric vehicles) and came by (33.3%).
- 3- The third priorities were shared by two technologies,
- A- use of light rail (Light Rail System)
- B- replace older cars by modern cars with exemption from customs (Replacement of old cars modern cars are exempt from customs) and both had (23.1%).
- More than 80% of the sample judged bus Rapid Transit as the most suitable solution to public & private sector employees due to several reasons, including:



Thank your for your kind attention